Zagrus®

English

User Manual

Zagrus EV-Charger

Model:"ZmLG-*2218*-BT*5*"

This user manual provided by "Zagrus Energie -GmbH" for Electric Vehicle Charger model number ZmLG-2218-BT5. It is compulsory to read this manual before using the product. It contains very important information about installation, using, and safety precautions regarding the EV-charger ZmLG-2218-BT5.

This manual should not apart from the product and User should keep this Manual in a safe place as a reference for regular review during usage of device.

It will help owner to :

- Understand the main features and function of device .
- Follow safety rules and considerations when using the device.
- Fast start of the EV-Charger.
- Initial set up of device .
- Understand the error codes, warnings, and messages of device .
- Install and use the mobile application of ZmLG - 2218 -BT5.
- Disposal and recycling of device .

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Disclaimer

Zagrus Energie-GmbH will not accept any liability for damage caused by improper use of this product

Improper use will make the guarantee void .

Intended Use

This product has intended for use only with electric vehicles fitted with a Type 2 connector as described in this User Manual. Any other use will consider as **"improper use"** and may result in severe injury of user or damage to the device.

Intended Use refers to follow the instructions provided in this user manual and considering information on the label plate, warnings and error messages, as well as technical specifications of vehicle batteries such as current and voltage limits, connector type, and other ambient conditions that affect the performance of device.

Symbols and Marks used in the product label and other documents related to EV-Charger have described in this section.

Disposal / Recycling

 Waste separation	Waste electrical equipment may not be disposed of with domestic rubbish return to any electrical retailer for disposal .

After they have been dismantled (only by qualified professionals), obsolete devices must be rendered unusable to prevent subsequent accidents .

This device is labelled in accordance with Directive 2012/19 /EU on Waste Electrical and Electronic Equipment–WEEE. The Directive provides for the return and recycling of waste equipment throughout the EU.

It is not permitted to dispose of this equipment with ordinary domestic waste. Dispose of this device at a recycling centre that collects electrical and electronic equipment separately.

The ZmLG-2218-BT5 is made of recyclable materials. Electrical and electronic products, including cables, connectors and accessories must be disposed of, separately if possible, in accordance with the local regulations .

 Recycling	Separate packaging and the electrical device by material type for disposal. Card and cardboard with waste paper or waste cardboard, film in the container for synthetic materials and dispose of electronic parts with an electrical retailer or a community recycling centre.

 Protective Earth	This symbol ensures that the products can be properly use and service in a safe manner. The actual symbols used to indicate ground terminals are found in IEC 60417 Graphical symbols for use on equipment. Protective Earth – PE – identifies that any terminal on this product which is intended for connection to an external conductor is protected against electrical shock in case of a fault, or the terminal of a protective earth (ground) electrode with reference to IEC 60204 Safety of machinery – Electrical equipment of machines – Part 1 , 2005.

IP 44 Ingress Protection (IP Code)	This symbol identifies that this product is protected against ingression of splashing water from any direction and water splashing against the enclosure from any direction shall have no harmful effect.

CE CE mark	In accordance to CE directives and EU standards Carrying CE mark on the product means, the product complies with the relevant CE directives and EU standards mentioned in the declaration of conformity issued by manufacturer and indicates conformity of this product with health, safety, and environmental protection standards for products sold within the European Economic Area.

The EV-Charger may only operate in accordance with above **"Intended Use"**

Warning

Not following the safety instructions in this manual may cause risk of life or serious injury or damage to the device or environmental hazards.

Mortal Danger!

Never open the cover of device, touching live parts inside the device may be lethal.

Safety Instructions for Installation and Power Mains

- Assembly, installation and repair of this EV-charger device must be done only by trained professionals who possessing the necessary experience and familiarity with the applicable standards and regulations enabling them to properly assess for themselves any potential hazards.
- A qualified electrician must inspect the electrical system that the charging unit is connecting for regular work. The current limit of the socket that is use for charging must have its own residual current protective unit and a circuit breaker.
- Only use properly installed undamaged sockets and an electrical system that is in perfect working order for charging.
- If an adapter plug is used, never set a higher charging current than:
  - The maximum current approved for the adapter.
  - The maximum current approved for the upstream installation and socket.

Safety Instruction before Starting Charge Mode

- On unknown sockets, the vehicle charging current be set to the lowest current value.
- Before charging the vehicle, make sure that the charging device is sufficiently secure against rolling away.
- Read the information and instructions of vehicle carefully before start charging the vehicle.

Safety Instruction during Charging Mode

- Stop the charging process in the car before disconnecting the plug.
- In order to avoid exposure to electric shocks, never unplug the connecting plug while it is under load.
- Never connect or disconnect the plug connections between grid connector, plug adapter or vehicle inlet socket while the unit is in charging mode.

- Before stopping the charging process, first stop charging via mobile application or push button key or RFID card, then unplug the charging connector from the vehicle, and then unplug the grid connector.
- In case of damage to the EV-Charger and/or its components during operation, disconnect the device from the mains power immediately by switching off the main circuit breaker. Do not touch any metal parts and/or cables and/or wet parts and contact the service center.
- During the charging process, regularly check the temperature of the power sockets and cables. If they are hot, stop charging immediately. "Hot" is when you cannot keep your hand around the cable or connector for more than 20 seconds.
- Keep the EV-Charger away from explosive vapors or gases. During operation, the switching mechanisms inside the device housing may generate tiny electric sparks that could ignite an explosion.

Mechanical Safety Instructions

- Protect the charging device and cable from mechanical damage such as running over, pinching or kinking and keep away the electrical contact from heat sources, dirt and water.
- When disconnecting the device from the power mains socket, pull out the socket not the cable.
- Regularly inspect the device for damage to the case, cable, and socket and grid connector.
- If any part of the charging unit such as the body case, the cable, or the connector is damage, it must disconnect from the grid immediately and call service center for repairing or replacing the device.
- Do not use any sharp or pointed objects to open the packaging. This could damage the device or the cables.

General Safety Instructions

- Do not make any unauthorized modifications to the device.
- Do not apply oil or grease to contacts, and do not treat the contacts with contact spray.
- Do not remove labels, rating plates, warning notices, current limit marks, or display symbols.
- Make sure this "User Manual" is always available for proper using of device.
- The product must only operate within the temperature range from "25- °C to 55+ °C".
- Avoid exposing the device or its cable to strong sunlight for any length of time.
- Do not allow children, infants, unauthorized persons or animals to approach the device.
- Never allow children to play with the device.
- Protect your device from standing water, excessive dust, corrosive liquids and fumes. Make sure that the device is not lying in a puddle and that water cannot collect on or around the device (e.g. if it rains or if there is melting snow).

The EV-Charger unit model no. "ZmLG-2218-BT5", consists of a charging device with the vehicle connector comply with type 2 connector, an inlet cable and power mains socket attached to it, RFID key cards, Residual Current Protection mechanism, Bluetooth LE 5.0 interface, and User Manual booklet.

Basic product information	
Product manufacturer	Zagrus Energie Company GmbH
Product type	Mobile Electric Vehicle Charger
Model No.	ZmLG-2218-BT5
Dimension	260 mm × 112 mm × 100 mm
Weight	1800 g ± 50
Color	Jet Black
Material	ABS
Temperature range	Storage: -30 °C to +60 °C (-22 °F to 140 °F) Operation: -25 °C to +55 °C (-13 °F to 131 °F)
Vehicle-end connector	connector Type 2 (EN62196), 400 V, 32 A 3-phase
FI residual current, circuit breaker	RCD DC 6 mA, AC/DC 30 mA with protective conductor monitoring
Input current	230 V, 6 – 32 A (single phase) or 400 V, 6 – 32 A (3-phase) AC
Output current	1.4 – 22.0 kW AC depending on input current
Protection class	(IP 54)
Standards	IEC 62752, 62196, 61851 Mode 2, 61851 Mode 3 (with type 2/type 3c adapter plug), EMC, RoHS
RFID	UHFI with programmed tags
Bluetooth	Ble(Ver.5)

ZmLG-2218-BT5 is an Electric Vehicle Charger (EV-Charger) device used for electric and Hybrid cars. Zagrus Energie Company GmbH has designed and produced this product.

Main features and functions of EV ZmLG-2218-BT5 are:

- Using EV-Charger connector type 2 for electric Vehicles in European Union and many other countries, which are using type *2* connectors.
- With using Zagrus Wall-brackets in any private or common parking could be used as Wall-box and fixed charger that easy having 2 in 1 charger device.
- Selecting car type and model based on technical specification of charging measures and batteries specified by car manufacturer (from a car list provided in mobile application).
- Manual selection of car based on technical specification of car batteries provided by manufacturer (via mobile application).

- Wide range Current Charge starting from 6.0 Ampere up to 32.0 Ampere in 11 steps to be selectable by single push button on the top of device or select by Mobile application in 1.0 Ampere steps.
- Automatically selectable main input power in two basic mode including 230 V, 32 – 6 A (single phase) or 400 V, 32 – 6 A (-3phase) AC.
- Protection against high voltage electric shock for human or any other alive creatures.
- Protection for residual current of Max. 30.0 milliampere AC RMS and 6.0 milliampere DC.
- Capable of working with mobile application for monitoring and controlling the device by user.
- Using Bluetooth Ver. 5.0 for mobile communication (more than 40 m indoor and 400 m outdoor).
- Measuring charging voltage and current in three-phase and single-phase mode for every line separately (via mobile application).
- Measuring the power consumed during every charge session monitored (via mobile application).
- Measuring, monitoring and controlling the temperature of device during charging session (via mobile application).
- High security operation protection and antitheft using RFID tag for stand-alone users for 10 different users and security access code mobile application users.
- Timer set for charging start and stop time for optimum power management during peak time and charging overnight.
- Calculating electric bill for every charging session separated by RFID tags by mobile application.
- Recording the charging history and log file for up to 30 records of recent charging periods.
- Dual LED display to monitor the current situation and working mode and Fault of device.
- CE Mark for EU market.

Energy consumption

Power supply at 32 A and 400 V (3-phase AC): max. 22 kW
Power supply at 16 A and 400 V (3-phase AC): max. 11 kW
Power supply at 16 A and 230 V (3-phase, charging 2-phase): max. 7.4 kW
Power supply at 32 A and 230 V (single-phase): max. 7.4 kW
Power supply at 16 A and 230 V (single-phase): max. 3.7 kW
Power supply at 8 A and 230 V (single-phase): max. 1.8 kW
Standby (without charging) < 1 W

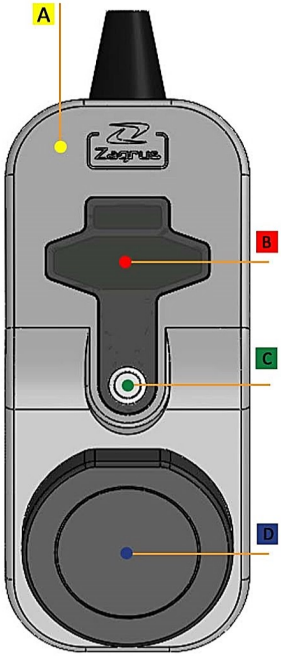
Note on Calculating Costs

If a power output of 22 KW is used for one hour, then the energy consumption is 22 kWh. If one kW.h (kilowatt hour) costs e.g. EUR 0.20, then 22 kWh cost approximately EUR 4.40.

Standby Power Usage

At home, you can leave ZmLG-2218-BT5 plugged in all year round; it will not damage the device at all. The amount of power used on standby is extremely low, working out at around one EUR for one year.!!!!!

The Charging Unit – Model ZmLG-2218-BT5



A EV-Charger Main case

B Dual LED Display – Upper LED is to display the device condition and lower LED is to display the output status.

C Push Button Function Key

D Car charger connector type *2*

Preparing For Use

For the safety of user and preventing damage to unit and environmental hazards, user should follow the below instructions to unpack and start using the EV-Charger for the first time.

Unpacking

- After unpacking, check the accessories referring to the list presented in this user manual.
- Inspect the EV-Charger for any visible damage. Under no circumstances, a damaged device or damaged cable, or plug should connect to AC mains. A damaged unit can endanger your safety!
- Keep the packaging material out of the reach of children because it is a potential source of danger.
- Store the packing material in a dry place. In case of repacking the device at a later stage, this packaging material can reuse to protect the device from damage during transport.

Power Mains Requirements

- The EV-Charger model ZmLG-2218-BT5 is capable to operate in single or three-phase mode. The unit is equipped to recognize the input power and it can automatically select main input power in two basic mode including 230 V, 32 – 6 A (single phase) or 400 V, 32 – 6 A (-3phase) AC and prepare self-initialization to work in single or three phase.
- User should only connect the device to standard power socket with standard wiring for single or three-phase wall-socket.
- Power mains should equipped with Earth and Null. L*1* must connected to live voltage line in both single and three-phase mode otherwise the unit will not turn on.
- Any none-standard wiring or unauthorized modification to wiring in wall socket may endanger user and/or cause serious damage to unit and Zagrus Energie Company GmbH will not liable for life danger and damage to unit.
- User advised to has the wall socket inspected by qualified technicians before connecting the unit.
- In many countries, industrial sockets must be equipped with a Class A residual current circuit breaker.It is recommended to use Class A RCDs for all types of sockets.Please note the regulationsin the country of use, as these always take precedence.
- ZmLG-2218-BT5 already has integral residual current detection and you do not need to spend considerable expense for installing additional external Class B or A (EV) RCD systems.
- Operating voltage for ZmLG-2218-BT5 is 110 to 240 AVC between Null and L1. In case of lower voltage below 110 ACV or higher voltage than 240 ACV the unit may not work.

Transport, Storage, Disposal

- Keep the packaged product safety and securely during transport to prevent damage to the unit.
- Store the product and its package in a dry room only.
- When product is not in use, protect all plugs from dust, humidity and dirt.
- The packaging materials are recyclable and bears the recycling symbol. Please comply with the applicable local regulations for disposing of packaging materials.

ATTENTION:
Plugs are not waterproof and are susceptible to external influences when they are not connected in plugged in.

After unpacking and preparing the unit, user can follow the instructions in "FAST START" section and immediately start charging the vehicle. This feature is helpful for rush users and None technical users who are not interested to go deep in technical details. In fast start mode the device will automatically detects the necessary set up for vehicle based on current and voltage seeking by car batteries. Manufacturer do not recommend users to operate the device in this mode most often and suggest to do set up the technical details, or ask an authorized technician to help in set up the device for long time run.

Fast Start

In order to immediately starting to charge the car batteries, user should:

- Connect the input connector of EV-Charger to the proper power mains wall socket as described in this manual. (Status LED will blinks one time and turns OFF, and AMPERE display LEDs will show the setting of the output current)
- Connect the car cable to the output plug type 2 on EV-Charger.
- Connect the car cable to the input charging plug of the car.
- Place the ID card on the device for one second. The Green light will on and indicates 6A setting on output current.
- After 10 seconds, charging process will start at specified output current.
- DONE!

The EV-Charger has the special feature to detect the required current and voltage of the car batteries under charge and will set up automatically the proper voltage and current and start charging.

ATTENTION:
Manufacturer does not recommend running the device in FAST START mode for long run. It may harm either the device or the car batteries. The EV-Charger in FAST START mode will start charging in minimum current and it takes longer time to fully charges the car batteries compare to technically setup the charging program.

Power On Mode

Once the unit connected to the AC mains wall socket, the "Condition LED" display will blink one time in Blue color then turns off and device will enter POWRE ON mode. In this mode, the EV-Charger is ON but not working. The green "Status LED" is displaying the output current in Ampere. The default output is 6A. If it is not the first time the device is used, the output will set up to the setting that the device was using in the previous last time charging session. In the POWER ON mode user can adjust the output current from 6A to 32A by pushing the function key repeatedly. Every time the function key press the output current will set as below table:

Once the unit connected to the AC mains wall socket, the "STATUS LED" display will blink one time in Blue color then turns off and device will enter STAND BY mode. In this mode, the RFID module is activated and the Bluetooth is ON, but output is cut. The green "AMPERE LEDs" are displaying the output current in Ampere. The default output is 6A. If it is not the first time the device is used, the output will set up to the setting that the device was using in the previous last time charging session. In the STAND BY mode user can adjust the output current from 6A to 32A by pushing the function key repeatedly within 10 seconds. Every time the function key presses, the output current will set as below table and waiting time will refresh for extra 10 seconds.

As long as the device is in STAND BY mode, the EV-Charger is ON but charging is not working and output voltage and current is not available through the output connector. By touching, the RFID card on the top cover of device near the Zagrus logo, or sending command via mobile application, the device will activated and condition LED display will light on permanently in green color. At this time, if the output connector has connected to the car the charging process will starts immediately, if not, user has 30 seconds to connect the charging connector to the car input plug. Otherwise, the device will return to Stand By mode.

NOTE:
During Stand By mode, user can still change output current setting by pressing the function key repeatedly.

Output Current Setting

There are two solutions to set the output current of EV-Charger. User can press and release the function key and the output current will be selected in six specific values as shown in Table No. 1:

No.	Ampere LED	Display Code						Output Current
1	1st LED	O	O	O	O	O	O	6 A
2	2nd LED	O	O	O	O	O	O	10 A
3	3rd LED	O	O	O	O	O	O	13 A
4	4th LED	O	O	O	O	O	O	16 A
5	5th LED	O	O	O	O	O	O	24 A
6	6th LED	O	O	O	O	O	O	32 A

Table 1 – Ampere LED Display – Select by Function Key

Second solution, is selecting the output current via mobile application. The mobile App helps user to select the current in "1 Ampere" steps from 6A to 32A. The Ampere LED Display will show the setting by six LEDs. The display coding is shown in table No. 2:

No.	Ampere LED	Display Code						Output Current
1	1st LED	O	O	O	O	O	O	6 A
2	1st and 2nd LED	O	O	O	O	O	O	7A, 8A, 9A
3	2nd LED	O	O	O	O	O	O	10 A
4	2nd and 3rd LED	O	O	O	O	O	O	11A, 12A
5	3rd LED	O	O	O	O	O	O	13 A
6	3rd and 4th LED	O	O	O	O	O	O	14A, 15A
7	4th LED	O	O	O	O	O	O	16 A
8	4th and 5th LED	O	O	O	O	O	O	17A to 23A
9	5th LED	O	O	O	O	O	O	24 A
10	5th and 6th LED	O	O	O	O	O	O	25A to 31A
11	6th LED	O	O	O	O	O	O	32 A

Table 2 – Ampere LED Display – Select by Mobile Application

While the device is working in charging mode, user cannot change or adjust the output current and other settings. During charging mode, pushing and releasing the function key for adjusting the output current will not detect by device.

Charging Sequence

In order to help user to prevent unwanted mistakes while using EV-Charger below is the simplified procedure of charging process by operation sequence. This process is quiet similar to fast start but is not the same. User advised to follow these sequences at least one time during early days of starting using the device.

Step 1: Connect the device to power mains wall socket.

Step 2: Connect the output cable to the output plug of device.

Step 3: Connect the output cable to the car input plug.

Step 4 : Place the RFID card near the device logo, or turn on the device via mobile application by touching the "START" button on the "CHARGING" tab page.

Step 5 : Adjust the proper output current referring to the technical specifications of car by pushing the function key repeatedly. Please refer to table No. 1 to select proper output current. Please note that the EV-Charger saves the last value of "Output Current" setting and user can skip this step if the setting is the same as previous charge session.

Step 6: Once the output current correctly selected, charging process will start automatically within 10 seconds after last time the function key pressed or 10 seconds after RFID card touches the device.

NOTE on Step 6 : If the cable is not connected to car plug, the device will display error code # 51 – "Car Plug Disconnection". Then STATUS LED will blinking in purple color. User have 30 Sec. to connect the cable. If fail to connect, the device will return to its STAND BY mode after 30 seconds and user should restart the process from Step # 4 onward.

Step 7: Wait until fulfillment of charging process. Then stop the charge by placing the RFID card near the device or sending "STOP" command to device via mobile application.

NOTE:

In addition of above procedure, there are few additional facilities such as timer, energy monitoring, technical adjustment of charging parameters and more items that have been provided in mobile application to help user to increase higher charging performance and more efficient usage of device. These facilities have not described in above sequences. Interested users should refer to related sections in this user manual to benefit these facilities.

Exit or Termination of Charging Mode

User can stop the charging process and exit from charge mode by doing one of the below actions:

- User can stop charging at any time by pushing and holding the function key for 2 seconds. The device will stop charging, disconnect the output circuitry, exits charging mode, returns to "STAND BY" mode, and status LED will light on at blue color.
- During charging process, user can put the RFID card on the top of the unit and the device will stop charging immediately; disconnect the output circuitry, returns to 'POWER ON" mode and status LED will turn off.
- User can stop charging via mobile application command.

In addition, the EV-Charger will stop charging automatically if any of the following conditions and situations detected:

- When charging cycle finishes in normal operation of unit, the device will stop charging and disconnect the output circuitry. Device will enter POWER ON mode and status LED will turn off.
- If the device detects safety issues via "Ground Fault Circuit – GFCI". Any fault in the measuring value of input voltage at single or three-phase operation, wrong current value, loosing output cable, un-plugged output connector, not tighten connection of output plug, faulty charging circuit inside the car, or if safety pin lock is not securely functioning, the device will stop charging process immediately and displays error code proportional to errors. List of Error Codes and relevant LED display has presented in table number 2.

Error Codes

In case of occurring any of errors before starting charge process, or during charging period , the device will stop charging immediately, then disconnect the output current and voltage and start displaying the error code at "Status LED" display based on error codes presented in table number 2 :

No.	CODE	Status LED Color	Error Description
1	01	BLUE	Normal OFF – No Error
2	10	RED	Measuring value of LINE 1 voltage is: out of range – L1 Fault
3	11	RED	Measuring value of LINE 2 voltage is: out of range – L2 Fault
4	12	RED	Measuring value of LINE 3 voltage is: out of range – L3 Fault
5	13	RED	Fault in three-Phase input line
6	14	RED	Fault in single phase input line
7	20	RED	Measuring value of LINE 1 current is: out of range – I1 Fault
8	21	RED	Measuring value of LINE 2 current is: out of range – I2 Fault
9	22	RED	Measuring value of LINE 3 current is: out of range – I3 Fault
10	30	YELLOW	Temperature Fault
11	40	RED – 2 Hz Blinking	GFCI Fault
12	51	PURPLE 1 Hz Blinking	Car Plug Disconnection
13	55	PURPLE 2 Hz Blinking	Output Cable Fault
14	62	GREEN / BLUE 1 Hz Toggle	Pin Lock Fault

Table 2 – Error Codes

NOTE:

As long as the error code is not clear, the device will not start working again.

Clear Error Code

In order to clear the error code, user should turn off the device then unplug the device from power mains wall socket. Unplug the output cable from output plug and from car.

A smartphone application has developed for ZmLG-2218-BT5 to provide advanced options for monitoring, controlling and setting the EV-Charger and charging process. The application communicate with device via Bluetooth 5 LE, which is the latest version of Bluetooth technology at the time.

Installation the mobile App

Application is available from below resources:

- Scan the QR code provided in this manual, download the App and follow the instructions.
- Search the name "Zagrus" and Download from Google Play Store or App Store.
- Download from the official website of "Zagrus Energie Company-GmbH" at this address: www.zagrusenergie.com

After installation of the Application user need to proceed the activation and license verification to activate the App. Every EV-Charger has its unique "4-Digit Activation Code" provided by manufacturer. The code is available in the package. In order to activate the App, user should follow the instructions and guidelines provided inside the application.

IMPORTANT NOTE:

Every EV-Charger has its own unique "4-Digit Activation Code" as license number and it can only communicate with the mobile applications that is activated under that unique License Number. In case of uninstallation or removing the application, it is compulsory to re-install and activate the application again to be able to use the mobile App. There are no limitations for the number of installation attempts by the owner of EV-Charger with the same "4-Digit Activation Code".

Mobile App Facilities

User can enjoy variety of many facilities to personalize the EV-Charger including set up the device forselected car, save settings, modify setting, mange the time and duration of charging process for peak hours, manage the consuming power and utility billing of charge in every charging session, archiving the history of charging sessions, and many more useful options. Mobile application designed professionally, user friendly and easy to use for all and every one.

Once the mobile App installed and activated, user can enjoy following facilities and will get additional functionalities for EV-Charger such as:

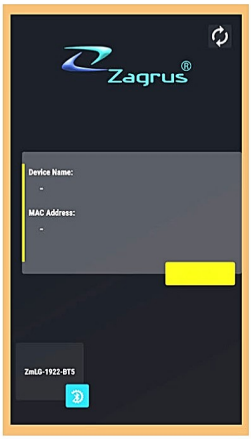
- Secure access to EV-Charger via authentication process provided by application through "4-Digit Activation Code".
- Selection a wide range of Electric Vehicles from a list in order to optimize the charging process and less complication of setting up the device and technical specification of charging process.
- Benefit "Timer" function to manage the power consumption and electric utility bill.
- Providing "Energy Saving" function during the peak time.
- Monitoring the technical specifications of EV-Charger and charging process during every charge session.
- Easy set up and adjust the technical requirement of vehicle batteries and other technical parameters and requirements.
- Free membership of '#Green Zagrus Campaign" worldwide social network of users to share experiences and enjoy rebate points based on successful "Green Charging".
- Archiving and monitoring the charging history of last 30 charging sessions.

Smartphone Operation

In this section, a step-by-step guideline provided for user to explain how to use different facilities and applications of smartphone App.

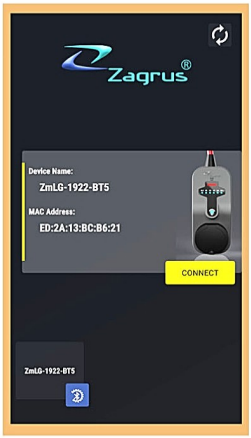
On starting up the App the "Connection Page" will displayed as shown in Picture 3 to pair the mobile BT with the LE-BT 5.0 in the EV-Charger. In this page user need to select the EV-Charger device via Bluetooth connection.

Attention
Default password of the device is 1111. It is recommended to change the password from app manual section.It should be noted that if user forget the password, it is not possible to access Zagrus application.



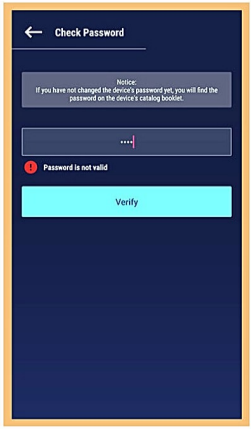
Once the application starts, the Bluetooth will turn on and starts to search for nearby available BT(s). Then a list of all available devices will show on the lower part of the screen. User should select the Zagrus EV-Charger from the list by touching the name of device: "ZmLG-2218-BT5".

Picture 3 – Bluetooth Pair and Connection Page.



Next is only to click on "CONNECT" and it will pair the mobile and EV-Charger. Once the device is pair the Device Name, MAC Address, and a picture of Zagrus EV-Charger will display on the screen.

Picture 4 – Opening page of mobile App after BT pairing.



During the process of establishing connection between mobile and EV-Charger, you may need to enter the "-4Digit Activation Code" to verify and authorize your access to application. A password verification page will display during the log on process. This page is shown in picture number 5. Key in the code and click on "Verify".

Picture *5* – Password Verification page.

After completion of log in and authorization process, the main page of application will display on the mobile screen as shown in picture 6. This page has three main tabs including:

- CHARGING tab
- ENERGY tab
- INFO tab

User can select every tab by clicking (Touching) the name of tab. The "CHARGING" tab is the default page on starting up the application.

Picture 6 – Main Page.

A Navigation tabs.

B Graphic Energy Meter monitors the consumption of energy during the charging session.

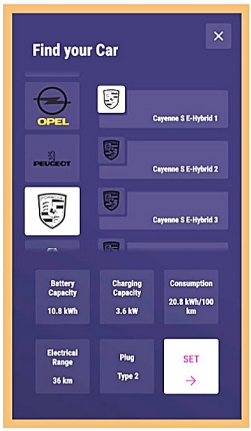
C Icon to show the EV-Charger is Connected/Disconnected to Mobile.

D Button to Start / Stop charging.

E User can select and set up his/her default electric car in this section.

F Displaying the technical information of charge settings and process.

Picture 7 – Main Page keys and Description of icons.



In "Changing Car" menu, user can select his/her car from a list of the most known electric cars in market. This feature will help non-technical users and provides easier set up.

Picture 8 – Selecting car menu.

G The Energy tab displays the details of energy consumption during every charging session.

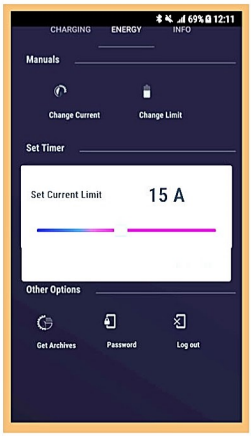
H Click on this key to change or set up the "Charge Current".

I Put a limitation on the wattage of the charging session by clicking on "Change Limit" icons.

J Set up timer to timely control the process of charge.

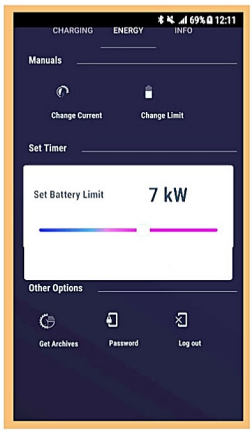
K Access to additional options such as monitoring the history of the last 30 charging sessions (Archive), Changing password, and log out from application.

Picture 9 – Description of "Energy Page".



By clicking and selecting the "Change Current" icon on ENERGY page, user can set up the charging current limit in one-ampere steps referring to technical specifications of electric car batteries. The value of "current" can be set up to maximum rating of car battery of below. Otherwise, there may serious damage to car batteries. Strongly recommended to read the technical booklet of electric car or refer to professional technicians before setting up the current in higher amperes.

Picture 10 – Set up "Charging current limit".



User can set up a limitation for charging. This function is similar to fill the tank of electric cars! User can fill up the batteries as much as he / she wants in KW units similar to liters! For fuel cars.

Picture 11 – Set up "Battery Charging Limit".

User can set up timer in this page by adjusting "Start at" and selecting "Duration". The timer can work within *24* hours in one-minute steps. Reference for start time is current time. Once timer begins, the EV-Charger will start charging session equal to the time duration selected by user and it will stop when the duration is over.

Picture 12 – Timer set up page.

Archiving facility records the history of the last 30 charging sessions. User can review the archive file by clicking on its icon on "ENERGY" page. Information of every charging session stored **in archive file is:**

Timer: If timer operated the EV-Charger in the respective session, the timer value and set up will monitor in this record.

Cost: Calculates and displays the cost of energy consumed in that charging session.

Tag No.: To identify which tag number and ID has operated the EV-Charger.

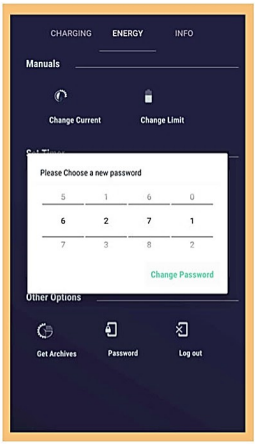
Trees and CO2: The device calculates the amount and value of environmental hazards during that charging session and user can optimize the next charging session by proper adjust and set up the charging parameters.

Duration: displays the total time duration of that charging session.

Consumption: will monitor the electrical energy consumption of charge session.

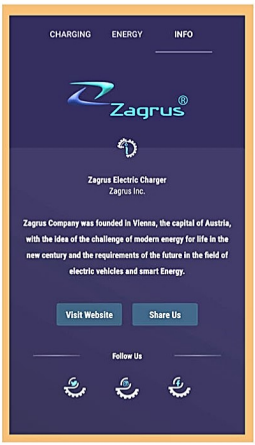
Status: It displays the last technical status of voltage and current of charger as well as error codes in case of shut down or fault in charging process.

Picture 13 – The ARCHIVE records.



The mobile App of EV-Charger is copy right protected. There is a "*4*-Digit Activation code" printed on the warranty card of product and put inside the package. User needs to enter and verify the code in order to activate the mobile App. This code is unique for every product, however, the password can be change if desire. Clicking on "Password Change" icon will redirect the App to this page and user can change password frequently. The unit saves the last password and in case of missing / forgetting the password, user should contact the after sale service and requests a new password.

Picture *14* – Change Password page.



The third tab on main page is "INFO". This tab displays basic information regarding the Zagrus Energie Company and the existing product and the version of mobile App. It also provides the link to social networks of company. Interested users can join the

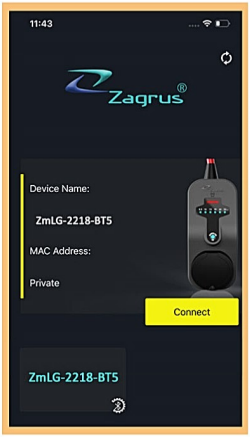
"#Green Zagrus Campaign"

and follow the latest news, enjoy promotions, receive training videos and many more points such as media channel and forum of customers.

Picture *15* – INFO page.

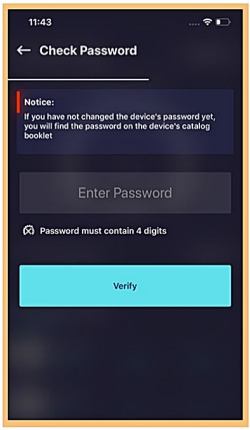
Once the application starts, the Bluetooth will turn on and starts to search for nearby available BT(s). Then a list of all available devices will show on the lower part of the screen. User should select the Zagrus EV-Charger from the list by touching the name of device: "ZmLG-2218-BT5".

Picture 3 – Bluetooth Pair and Connection Page.



Next is only to click on "CONNECT" and it will pair the mobile and EV-Charger. Once the device is pair the Device Name, MAC Address, and a picture of Zagrus EV-Charger will display on the screen.

Picture 4 – Opening page of mobile App after BT pairing.



During the process of establishing connection between mobile and EV-Charger, you may need to enter the "-4Digit Activation Code" to verify and authorize your access to application. A password verification page will display during the log on process. This page is shown in picture number 5. Key in the code and click on "Verify".

Picture *5* – Password Verification page.

After completion of log in and authorization process, the main page of application will display on the mobile screen as shown in picture ٦. This page has three main section including:

- Charging
- Manuals
- Settings

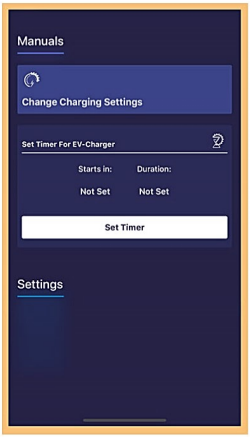
Picture 6 – Main Page.

- Graphic Energy Meter monitors the consumption of energy during the charging session.
- Icon to show the EV-Charger is Connected / Disconnected to Mobile.
- Button to Start / Stop charging.
- User can select and set up his/her default electric car in this section.

Picture 7 – Main Page chargingP.1

- Displaying the technical information of charge settings and process.

Picture 8 – Main Page chargingP.2



- The Manuals section displays the details of energy consumption during every charging session.
- Click on this key to change or set up the “Charge Current”.
- Put a limitation on the wattage of the charging session by clicking on “Change Limit” icons.
- Set up timer to timely control the process of charge.

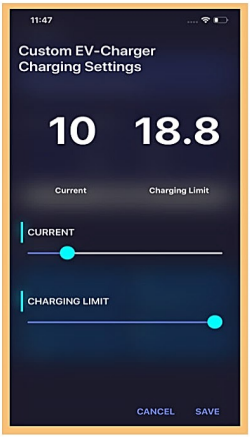
Picture 9 –Main Page Manual Section

- Access to additional options such as monitoring the history of the last 30 charging sessions (Archive), Changing password, and log out from application.

Picture 10 – Main Page Setting Section

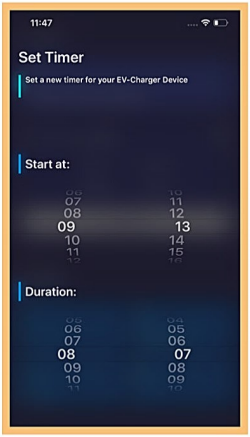
In “Changing” section, user can select his/her car from a list of the most known electric cars in market. This feature will help non-technical users and provides easier set up.

Picture 11 – Selecting Car Menu



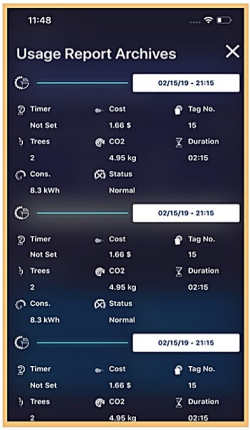
• By clicking and selecting the "Change Current" icon on ENERGY page, user can set up the charging current limit in one-ampere steps referring to technical specifications of electric car batteries. The value of "current" can be set up to maximum rating of car battery of below. Otherwise, there may serious damage to car batteries. Strongly recommended to read the technical booklet of electric car or refer to professional technicians before setting up the current in higher amperes.

Picture 12 – Change Current Page



User can set up timer in this page by adjusting "Start at" and selecting "Duration". The timer can work within 24 hours in one-minute steps. Reference for start time is current time. Once timer begins, the EV-Charger will start charging session equal to the time duration selected by user and it will stop when the duration is over.

Picture 13 – Set Timer Page



Archiving facility records the history of the last 30 charging sessions. User can review the archive file by clicking on its icon on "ENERGY" page. Information of every charging session stored in archive file is:

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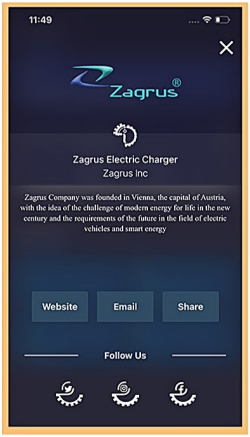
Trees and CO2: The device calculates the amount and value of environmental hazards during that charging session and user can optimize the next charging session by proper adjust and set up the charging parameters.

Picture *14* – The Archive Records

The mobile App of EV-Charger is copy right protected. There is a "-4Digit Activation code" printed on the warranty card of product and put inside the package. User needs to enter and verify the code in order to activate the mobile App. This code is unique for every product, however, the password can be change if desire. Clicking on "Password Change" icon will redirect the App to this page and user can change password frequently. The unit saves the last password and in case of missing / forgetting the password, user should contact the after sale service and requests a new password.

Picture *15* – Change Password page.



The third tab on main page is "INFO". This tab displays basic information regarding the Zagrus Energie Company and the existing product and the version of mobile App. It also provides the link to social networks of company. Interested users can join the "#GreenZagrus"
Campaign and follow the latest news, enjoy promotions, receive training videos and many more points such as media channel and forum of customers.

Picture *16* – INFO page.

The Electric Vehicle Charger product model No. ZmLG-2218-BT5 bears the CE mark and complies with the relevant CE directives and EU standards:

CE Directives for EV-Charger

Directive	Title
2014/30/EU	Electro-Magnetic Compatibility Directive (EMC)
2014/35/EU	Electrical Equipment LVD (Low Voltage Directive)
2014/53/EU	Radio Equipment Directive (RED)
2011/65/EU	Hazardous substances in electrical and electronic equipment (RoHS)

EU Standards for EV-Charger

EU Standard	Title
IEC/EN 62752	In-Cable control and protection device for mode 2 charging of electric road vehicles (IC-CPD).
IEC/EN 62196-1	Plugs, socket-outlets, vehicle connectors and vehicle inlets-Conductive charging of electric vehicles.
IEC/EN 60309-1	Plugs, socket-outlets and couplers for industrial purposes" specifies general functional and safety requirements
IEC/EN 60309-2	Dimensional interchangeability requirements for pin and contact-tube accessories" applies to plugs and socket-outlets, cable couplers and appliance couplers with pins and contact tubes of standardized configurations.
EN-60335-1	Household and similar electrical appliances. Safety. General requirements.
EN-60335-2-29	Battery Chargers.

The CE declaration of conformity is available on written request at the following address:

Zagrus Energie GmbH, Vienna, Austria.
(Please do not send equipment or devices to this address)

Telephonweg 366A,1220,Vienna,Austria

Website: **www.zagrusenergie.com**

Our products undergo strict High-quality control. We are therefore very sorry if any device you have purchased from us does not function perfectly and we ask you to contact our Customer Services, as detailed below. Please contact us by phone or e-mail.

In addition to the statutory guarantee, we provide a warranty for all article purchased from us in accordance with the following conditions. This does not affect your common law rights.

Warranty Period

• The warranty is valid for two years from the date of purchase and is regulated by law. Warranty claims must be made during the warranty period as soon as the defect is identified.

Guarantee Period

• The guarantee period is 2 years from the date of purchase. The guarantee applies to the continent on which the device was purchased and takes the form of a Bring-In warranty/guarantee.

• During the guarantee period, devices that are faulty due to material or manufacturing defects shall either be repaired or replaced, at our discretion. Exchanged devices or parts thereof become our property. Exercise of the guarantee shall not extend the guarantee period or trigger a new warranty / guarantee.

• Claims under the guarantee (as with guarantee claims) must be made within the guarantee

Making a Warranty / Guarantee Claim

• Have the following documents to hand. They form the basis for making your claim: - Delivery note (your warranty runs from the delivery date) - Invoice (proof of purchase) with device serial number.

• Please contact our Customer Services in your country or our main office in Austria by e-mail, fax or telephone. They will be following your warranty, record your fault description and give you the more information in this regards.

• Please do not send your device to one of our warehouses or to our headquarters without first making contact, as our Service Centers are located elsewhere. The parcel would be returned to you at your own expense.

• If the defect covers by our warranty, you will receive a new or repaired device within a reasonable period. In such cases, Zagrus energie GmbH will cover the return postage costs to the EU countries and the other countries there we have Sale Agent.

Warranty / Guarantee Exclusion

Warranty/guarantee claims are void if:

- There is evidence of incorrect or inappropriate handling, storage, operation or transportation.
- The device has been used not as intended in this manual.
- Adapters, Connectors, Cables and accessories/spare parts other than those recommended or supplied by the manufacturer have been used.
- The Zagrus Connectors or cable has been disconnected while under load.
- The mains plug has been disconnected while under load.
- There is corrosion to the connector contacts due to persistent dampness and/or wetness.
- Ingress of water/liquids via unprotected or unplugged plugs and connectors and through water pipes.
- The operating instructions have not been followed.
- The device affected by major environmental factors such as moisture, heat, overvoltage, dust etc.
- Damage caused by short circuits or over-voltages generated by the vehicle.
- The device is returned in inadequately protective packaging.
- Accident or unforeseen events (e.g. lightning, water, fire, force majeure).
- The safety precautions applicable to the device have not been taken.
- Safety instructions and hazard warnings have not been heeded.
- Force has been used (e.g. the device has suffered a blow, impact, fall, overrun, crush, demolition)
- The device has been tampered with by someone other than our authorized Service Centre
- User has attempted to repair the device him/herself.
- Modifications have been made by someone other than the manufacturer.
- The housing, connectors, cables etc. have been opened or manipulated.
- The warranty/guarantee does not cover any type of conventional wear and tear or wear to The housing,rubber parts, cables, cable sleeves ,plugs and connectors.
- We reserve the right to make changes in the interests of technical improvement.
- Zagrus energie GmbH cannot guarantee that all requirements, specifications and standards are free of third-party intellectual property rights

Repairs

- We will be happy to repair any defects or damage to the device not (or no longer) covered by the warranty in return for a charge. Please contact our Customer Services for an individual quote. You are responsible for shipping costs.
- A processing fee will be charged for shipped devices that do not have any defects covered by warranty and that the client wishes not to have repaired.

Service Information / Customer Services

www.zagrusenergie.com

In case of technical issues or for warranty claims, please fill in our online service form, address see above .We will get back to you as soon as possible and assist you with our support.

Always contact our Service Centre by online-form, telephone or e-mail before sending the article to us. They will discuss with you how to proceed .

ZAGRUS ENERGIE-GmbH

Customer Service : 0043 677 631 00 661

E-Mail : service@zagrusenergie.com

Website : www.zagrusenergie.com

Zagrus®

Model:“ZmLG-*2218*-BT*5*”

Zagrus Energie - GmbH - April - *2019*