



iQLoad EVO 5

ART.-NO. | ZB.IQLEV05

iQLoad EVO 7

ART.-NO. | ZB.IQLEV07



OPERATION MANUAL

SMART BATTERY CHARGERS

OPERATION MANUAL

DANGER!

1. The charger is used exclusively for charging open and closed, maintenance-free lead-acid batteries, gel batteries, AGM batteries as well LiFePO₄ lithium batteries, as these are usually installed in vehicles.

This does not apply to all types of rechargeable drive batteries, how they are installed in hybrid or purely electric vehicles!

2. Do not use the device in rooms where explosive or flammable substances (e.g. gasoline or solvents) are stored.
3. Check the charger cables before use. The cables and the bending protection must not have any breaks.
4. The charger is not suitable for starting aid.
5. As soon as the charger is connected to a socket, the blue ambient light is lighting.
6. The charger is not intended for continuous commercial use.

WARNING!

Read and understand before using the charger and its accessories these operating instructions.



General warning and safety information for chargers

INTENDED USE

The charger is used exclusively for charging open and closed, maintenance-free lead-acid batteries, such as those are build in cars, trucks, motorcycles or ships:

- Maintenance-free, closed lead-acid batteries (MF)
- Open lead-acid batteries - wet batteries (WET)
- AGM batteries (electrolyte bound in glass fiber fleece)
- VRLA (Valve Regulated Lead Acid) batteries
- Gel batteries (jelly-like electrolyte)
- LiFePO4 lithium batteries

This does not apply to all types of rechargeable drive batteries, how they are installed in hybrid or purely electric vehicles!

NEVER TRY: NON-RECHARGEABLE OR DAMAGED OR FROZEN BATTERIES TO CHARGE!

NOTE *All of the above batteries generally only have a limited one lifespan.*

A battery that fails while charging is usually recognized and automatically repaired by the control electronics of the charger.

In rare cases, irreparable damage caused by aging can nonetheless exist in the battery, which are no longer due to the advanced charge control of the charger can be compensated. In these cases, there is no error at the charger.

Please replace the affected battery in that case.

Leave the battery in place not unattended for a long period of time while charging.

The device is not intended for commercial use. Any other use or modification of the device is considered improper and involves considerable dangers in itself.

For damage resulting from improper use the manufacturer assumes no liability.

GENERAL SAFETY INSTRUCTIONS

Read the safety precautions and all instructions in this manual before using the charger for the first time. Disregard of the safety instructions and instructions can cause serious injury, electrical cause shock or fire. Keep this manual for the future and pass it on to third parties together with the charger. The manual is an integral part of the charger and its accessories!

This device is not intended for use by persons (including children) with limited physical, sensory or mental abilities or to be used for lack of experience and knowledge, unless they are supervised by a person responsible for their safety or received instructions from her on how to use the device. Children should supervised, to ensure that they do not play with the device.

This device can be used by children 8 years and older and people with disabilities physical, sensory or mental abilities, but also of people be used without experience or knowledge, provided that these persons do use the device under supervision. Or being instructed via the safe usage by someone else and are aware of the associated are aware of the danger. Children should only clean and maintain the device under supervision.

THE MANUFACTURER IS NOT RESPONSIBLE FOR DAMAGE CAUSED BY:

- ✓ To use the device for purposes, that are not described in these operating instructions.
- ✓ Improper connection and / or operation.
- ✓ Unauthorized opening of the device or its accessories.
- ✓ Any kind of changes to the device or its accessories.
- ✓ External forces, which ocure damage to the device and / or damage of parts of the device due to mechanical influences or overload.
- ✓ Consequential damage caused by improper handling and / or improper use.
- ✓ Humidity and / or inadequate ventilation.

! This leads to the loss of the guarantee !

EXPLOSION AND FIRE HAZARD



- Do not use the device in rooms where explosive or flammable substances (e.g. gasoline or solvents) are stored.
- The charger and its accessories are not intended for use in areas which fall under the ATEX directive (ATmosphères Explosibles - explosion protection Area).
- Make sure there is adequate ventilation during operation.
- Never cover the device while it is charging, as this will cause it heat up strongly, and so it could be damaged.
- By charging a battery, oxyhydrogen (hydrogen / oxygen gas mixture) arise. This can result in contact with open fire (flame, embers, sparks) cause explosions.
- Never charge batteries near an open flame or in a location which can cause sparks.
- To avoid damage to the device, ensure that the mains voltage is connected to corresponds to the input voltage specified on the device (220 - 240 V AC).
- Connect and disconnect the battery connection cables (pole terminals) only, if the charger is not connected to an electrical outlet.
- Stop using the device immediately, if smoke is visible or there is an unusual smell.

RISK OF BURNS

- Batteries contain acid, which is harmful to eyes and skin. When loading the batteries also produce gases and vapors that are hazardous to health.
- Do not tilt the battery as acid may leak.
- Always use protective goggles and acid-proof protective gloves. Protect your clothes, e.g. through an acid-proof apron.
- Avoid any contact with corrosive battery acid. Wash areas of skin and objects that have come into contact with acid immediately and thoroughly with soap and water. Should your eyes come into contact with battery acid, rinse them with running clean water, for at least 5 minutes. Contact your doctor immediately.
- Do not inhale the gases and vapors that may be produced.
- Always ensure adequate ventilation.





ELECTRIC SHOCK HAZARD

- Do not use damaged devices or accessories. Damaged power cord, device, or charging cords increase the risk of electric shock considerable.
- Always pull the power cord of the charger out of the socket by the plug. Otherwise the power cord can be mechanically damaged.
- Make sure that all plugs and cables are free of moisture and clean are. Never connect the charger with wet hands.
- Disconnect the charger from the wall socket before connecting or disconnecting the charging cable to the battery.
- Never touch both pole terminals at the same time when the device is in operation.
- Disconnect the charger and its accessories from the battery before drive your vehicle.
- Battery chargers can use active electronic implants (e.g. pacemakers) disturb and thereby endanger people.
- The charger is protected against spray and water jets. Make sure the charger is always in a safe, dry location. Do not expose the charger to rain or wet conditions. Avoid contact of the charger with water or other liquids.
- If you use the pole connection cable with ring eyelet, this can be permanent remain connected to the battery. Always put the protective cap on and fasten the cable so that it cannot come in contact with moving or hot parts.
- Do not try to open or repair the charger. Let always a defective device or a damaged power cord fix from a specialist workshop.



SHORT CIRCUIT RISK

The wiring must not be pinched or get in contact with hot surfaces or touch sharp edges.

MAKE SURE that the two terminals of the pole connection cable are not aligned when the power plug is plugged into the power outlet.

MAKE SURE that the pole terminals and the battery poles are not short-circuited by conductive objects (e.g. tools).

RISK OF INJURY



Damaged, frozen and non-rechargeable batteries must never be connected to the charger.

Before using the charger, read the operating instructions and all safety instructions for the battery being charged and the respective vehicle.

The charger is not for charging dry cell batteries suitable. These can burst and cause injury to people and damage to property.

Check the charger cables before use. The cables and the bending protection must not have any breaks. A charger, its power cord is damaged, must be returned to the specialist dealer.

A damaged one cable must be replaced by a specialist workshop..



Risk of electric shock



Risk of explosion



Risk of short circuit



Risk of chemical burns



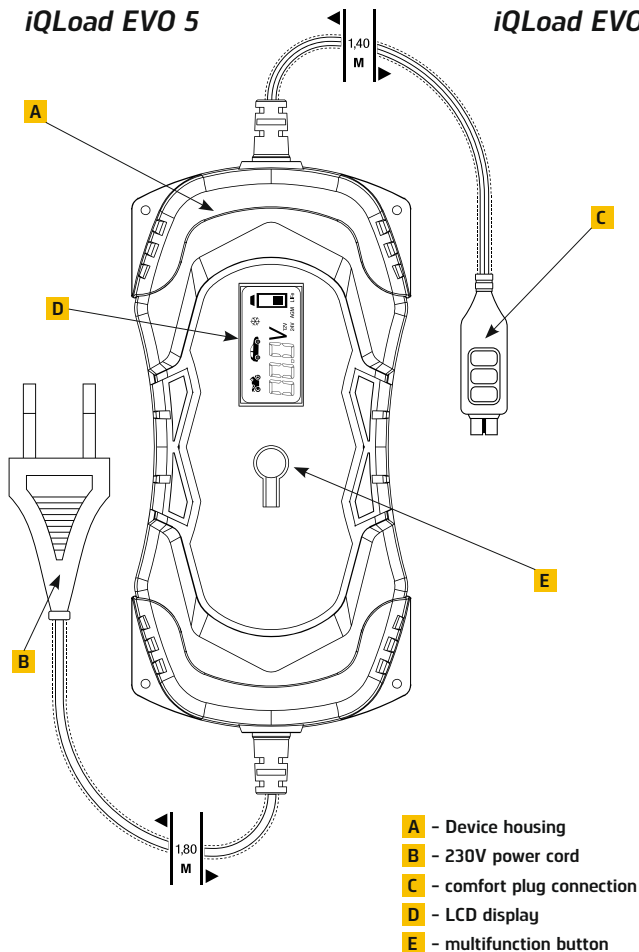
Fire hazard



risk of injury

iQLoad EVO 5

iQLoad EVO 7



Technical data	iQLoad EVO 5	iQLoad EVO 7
AC mains voltage	220–240 VAC, 50–60 Hz	
Mains current	0.5 A - 1 A	
Ambient temperature	-20°C bis +40°C (Output power will be at high temperatures automatically reduced)	
Battery types	lead acid battery (maintenance-free and open, Ca / Ca), AGM, VRLA, SLA, GEL, LiFePO4	
Battery capacities	from 2 Ah to 110 Ah	from 20 Ah to 225 Ah
Charging current max.		
6 Volt	2.5 A	
12 Volt	5 A	7 A
24 Volt		3.5 A
Charging voltage max.		
6 Volt	motorcycle /car: 7.2 Volt snowflake: 7.4 Volt	
12 Volt	motorcycle/car: 14.4 Volt snowflake: 14.7 Volt	
24 Volt		motorcycle/car: 28.8 Volt snowflake: 29.2 Volt
Back discharge current	< 0.72 Ah / Monat	
Ripple	0.2 Volt / 0.2 A	
Dimensions (mm)	170 x 80 x 45	195 x 95 x 59
Insulation class (housing)	IP 65	

FUNCTIONS

The chargers have an advanced and efficient microprocessor charge control. This includes fully automatic diagnosis, rescue, charging and maintenance / trickle charge functions.

It is not necessary to remove and / or disconnect the battery to be charged from the vehicle.

After manually selecting the battery charging voltage as well as the battery type, the charger automatically checks the battery status and from this determines the individually required further loading steps.

This ensures an optimal and gentle charge for the connected battery.

If the manually set battery voltage is not applicable, or the battery is defective and can no longer be reactivated (desulfation / rescue function), the charging control automatically interrupts the charging process. (The display shows "Er1" - code - see also troubleshooting). Through the automatic function "**trickle charge**", the charger can be connected to the battery permanently. This will hold the battery to the maximum age-related maximum state of charge.

CHARGE LEVEL DESCRIPTION

The chargers have a 9-stage, microprocessor-controlled charge control. The charging levels are automatic selected to the battery condition executed accordingly:

NOTE *The following values refer to a 12 volt lead-acid battery (MF)!
With 6Volt / 24Volt charging voltage or other battery types, these values differ slightly.*

- **Level 1 - Diagnosis**

The charger checks the connection to the connected battery. Unless the polarity has been reversed or the measured battery voltage is below **3** volts the error message "Er1" appears in the display. The charging process is canceled immediately. If both parameters are met, the processor switches to charge level **2**.

- **Level 2 – Desulfation (lead batteries only)**

Provided that the measured battery voltage is between a minimum of 3 volts and a maximum of 10.5 Volts, the desulfation process begins. Here are short voltage peaks of up to 15.8 volts, fed to the battery. In the course of this process, the measured voltage gets up to more than 10.5 volts, charging stage 3 begins. If no voltage rise above the limit voltage of 10.5 volts within 6 hours, the charging process is aborted and the battery is considered defective classified - error message "Er2" is displayed.

NOTE *This function is only activated with a measured battery voltage of less than 10.5 volts, otherwise pre-charging begins immediately.*

- **Level 3 – Subpoena**

The charger charges the battery with a limited constant current until a voltage of 12 volts is reached.

- **Level 4 – SoftStart**

The charger increases the charging current intensity, which is measured when a voltage of 12.8 volts has reached its maximum.

- **Level 5 – main charging phase (CC1 to CC3)**

The current strength made available is analogous to the increasing voltage, reduced in three stages. This phase ends when a charging voltage of 14.6 volts is reached.

- **Level 6 – saturation charge**

The charging current made available is limited to a maximum of 300 mA. Simultaneously the charging voltage is kept at 14.6 volts.

- **Level 7 – rest / monitoring phase**

The current and voltage supply to the battery is interrupted for a few minutes, so that the electrochemical processes could become stable in the battery.

- **Level 8 – charge completion monitoring**

Provided that the voltage of the charged battery drops back again within 2 minutes less than 12 volts (cell short circuit), the battery is classified as defective and the error code "Er2" is shown in the display. In that case, have the battery checked or dispose of them in an environmentally friendly manner.

If this is not the case, the charger switches to **level 9**.

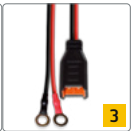
- **Level 9 – trickle charge**

If the voltage of the battery has fallen again to 12.8 volts, a limited charging current up to a voltage of 14.6 volts is. Subsequently the charger monitors the voltage of the battery without charging. When the voltage of the battery falls back to 12.8 volts, begins level 9 again. This training phase is dependent on the self-discharge of the battery (lower voltage limit 12.8 volts) and is as often as required until the charger is disconnected from the batterie.

PACKAGE CONTENTS

!!! Check the contents of the package immediately after purchase and before use.
The packaging must contain the following parts:

- 1 x charger [1]
- 1 x binding post adapter [2]
- 1 x ring adapter [3]
- 1 x cigarette lighter adapter [4]
- 1 x extension [5]
- 1 x storage bag [6]
- 1 x this printed instruction manual



If you notice any damage to one of the parts, or if parts are missing, so do not use the charger. In this case, contact your directly dealer from whom you bought the charger.

BEFORE USE

WARNING! Read and understand before using the charger and its accessories these operating instructions as well as the operating instructions for the battery and the vehicle in which the battery to be charged is installed.

- Observe and follow all warnings and safety instructions contained herein.
- Wear protective goggles and acid-proof protective gloves.
- Provide adequate ventilation during the entire charging process for sure.
- Before connecting the charger, clean the battery poles of the battery to be charged.
- If the battery to be charged has removable ventilation caps, before connecting the charger to the battery, check its fluid level and fill the individual cells with distilled water if necessary (observe instructions and level markings on the battery).

SECURITY FEATURES

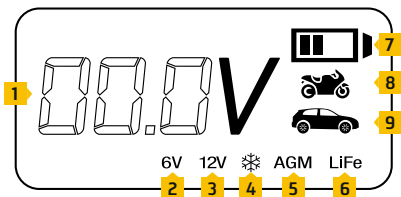
The chargers are equipped with extensive safety functions in order to prevent damage to the charger itself and the connected battery as well.

These include protection against:

- ✓ wrong connection (polarity reversed)
- ✓ short circuit
- ✓ automatic loading termination
- ✓ overvoltage
- ✓ overheating
- ✓ sparking
- ✓ overload



IQLOAD EVO 5 DISPLAY DESCRIPTION



- Numerical display:** shows the current charging voltage (volts) on the battery. In the event of an error, the message "Er1" appears here (see error messages).
- Selected charging mode **6** volts.
- Selected charging mode **12** volts.
- Snowflake symbol:** Selection for very low ambient temperatures (close to or below 0 °C).
- AGM** battery charging mode.
- LiFePO4** battery charging mode.
- Loading progress:** Shows the loading progress. Once all the bars are permanently recognizable, the connected battery is at the maximum, fully charged due to age. The charger switches then automatically to trickle charge mode.
- Motorcycle symbol:** Selection recommended for batteries with low capacity (see technical data).
- Vehicle symbol:** Selection for batteries with normal and large capacity recommended (see technical data).

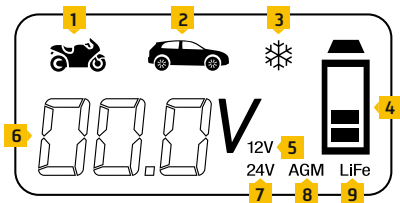
NOTE

The different charging modes are selected in the following sequence:

12V vehicle -> 12V vehicle winter -> 12V vehicle AGM -> 12V vehicle LiFe ->
 12V motorcycle -> 12V motorcycle winter -> 12V motorcycle AGM -> 12V motorcycle
 LiFe ->
 6V motorcycle -> 6V motorcycle winter.

The last selected charging mode is saved and is switched on again of the charger is displayed.

IQLOAD EVO 7 DISPLAY DESCRIPTION



- Motorcycle symbol:** Selection recommended for batteries with low capacity (see technical data)..
- Vehicle symbol:** Selection for batteries with normal and large capacity recommended (see technical data).
- Snowflake symbol:** Selection for very low ambient temperatures (close to or below 0 ° C).
- Loading progress:** Shows the loading progress. Once all the bars are permanently recognizable, the connected battery is at the maximum, fully charged due to age. The charger switches then automatically to trickle charge mode.
- Selected charging mode **12** volts.
- Numerical display:** shows the current charging voltage (volts) on the battery. In the event of an error, the message "Er1" appears here (see error messages).
- Selected charging mode **24** volts.
- AGM** battery charging mode.
- LiFePO4** battery charging mode.

HINWEIS

The different charging modes are selected in the following sequence:

12V vehicle -> 12V vehicle winter -> 12V vehicle AGM -> 12V vehicle LiFe ->
 12V motorcycle -> 12V motorcycle winter -> 12V motorcycle AGM -> 12V motorcycle
 LiFe ->
 24V vehicle -> 24V vehicle winter-> 24V vehicle AGM.

The last selected charging mode is saved and is switched on again of the charger is displayed.

CONNECT THE CHARGER

NOTE *The charger is designed in such a way that removal and / or the disconnecting of the battery from the vehicle is not necessary. First connect the included connection accessories (pole terminals, ring eyelet fixed connection or on-board socket / cigarette lighter adapter) with the plug connection on the charger. If necessary, you can also use the extension cables with each of the three charging adapters. The charging connection of the charger and its accessories are reverse polarity protected constructed. You can therefore only use the accessories in one plug-in position with the charger (note the notch on the sockets).*

TERMINAL CONNECTION (2)

Clamp the red (+) pole connection terminal to the positive pole (+) of the battery. Clamp the black (-) pole connector to the negative pole (-) of the battery. The black (-) pole connection terminal can also be connected to the vehicle body (refer to the operating instructions of the vehicle!). Make sure that both terminals make good contact and sit tight.

RING EYELET FIXED CONNECTION (3)

Connect the red (+) ring eyelet to the positive (+) pole of the battery. Connect the black (-) ring eyelet to the negative (-) pole of the battery. The black (-) ring eyelet can also be connected to the vehicle body (please refer to the operating instructions for the vehicle!). Make sure that both ring eyelets are in good contact and sit tight.

ON-BOARD SOCKETS / CIGARETTE LIGHTER ADAPTER (4)

NOTE *The adapter has a control LED and a build in replaceable fuse. As soon as the adapter is plugged into a live on-board socket, the control LED in the connector lights up. Shouldn't this be the case, check the fuse inserted in the adapter. To do this, separate first the adapter from the charger and the on-board socket. Now unscrew the knurled nut at the tip of the adapter. Suitable pliers may have to be used to open the knurled nut (right-hand thread). Replace the broken fuse always with a fuse of the same type and identical performance information. There is a 10A micro fuse in the plug ex works (6 x 30 mm) installed.*

Plug the on-board socket / cigarette lighter adapter into the provided socket in the vehicle.

Make sure that the adapter plug is firmly seated and check for lean contact. In many vehicles, the on-board voltage socket / cigarette lighter socket does not work until the ignition is switched on (see vehicle operating instructions). To charge the battery, in these cases, the ignition must be switched on.

EXTENSION CABLE (5)

The supplied extension cable can be used in combination with any of the connection adapters, if necessary. Always ensure that the plug connections are firmly seated.

START CHARGING

Connect the mains plug of the charger to a 230V mains socket. As soon as the charger is supplied with mains voltage, the ambiente light and the display back-light, lights up. The currently measured battery voltage is shown in the display.

NOTE The display will show "Er1" if there has none battery connected to the charger in advance, or the voltage of the connected battery is below 3 volts. If none battery is connected to the charger, every further operating function is automatically blocked!

ATTENTION *If the battery has "reverse polarity" (plus (+) and minus (-) connection interchanged) connected, "Er1" is shown in the display! All operating functions are still blocked. Disconnect the charger from the battery to be charged and start again with the section "Connecting the charger".*

First select, by repeatedly pressing the "MODE" button (E), the required charging voltage and the desired charging mode (see section display description). The charging voltage and the battery technology must match the battery to be charged (see instructions / type label of the battery).

ATTENTION *The various charging voltages can be selected:*

iQLoad EVO 5 charger

6 volt charging mode:

Minimum voltage of the connected battery 3 volts

Maximum voltage of the connected battery 8 volts

If the voltage of the connected battery is above 8 volts, the 6 volts charging mode is not shown in the display and cannot be selected by pressing the "MODE" button!

12 volt charging mode:

Minimum voltage of the connected battery 3 volts

iQLoad EVO 7 charger

12 volt charging mode:

Minimum voltage of the connected battery 3 volts

Maximum voltage of the connected battery 18 volts

24 volt charging mode:

Minimum voltage of the connected battery 18 volts.

If the voltage of the connected battery is below 18 volts, the 24Volt charging mode is not shown in the display and cannot be selected by pressing the "MODE" button!

ATTENTION *Never charge a battery with a different charging voltage than this is stated on the label of the battery. This harbors considerable dangers and can destroy the battery.*

NOTE *If you have selected the wrong charging voltage (volts), disconnect the charger from the mains and the battery to be charged and start again with the section "Connecting the charger".*

The selection of the charging mode and the charging voltage is shown in the display of the charger (4) and the charging process begins after a few seconds automatically, if the "MODE" button is no longer pressed. To find out about the current charging progress, you can use the "Numerical display" and "Charging progress" indicators in the display (see section display description). Unless the connected battery is recognized as defective in the course of the charging process, the error message "Er1" appears in the display (see error messages). In this case, first disconnect the charger from the mains voltage and then from the battery to be charged.

NOTE When the battery is fully charged, the charger switches automatically to the trickle charging mode. You cannot select the trickle charging mode manually, it is activated automatically by the charging control of the charger, after the charging process has been completed.

CHARGING TIME

The charging time of a battery is determined by various factors and can therefore not be based on the general technical parameters (voltage (volts) and capacity (Ah)) of the battery. Several factors like e.g. remaining charge capacity, ambient temperature and age-related capacity, have a considerable influence on this.

For this reason, the chargers have a charging progress indicator (see section display description), which indicates the current state of charge, at any time during the charging process.

END THE CHARGING PROCESS

First remove the power plug from the 230V AC socket.

Then disconnect the black (-) pole from the negative pole of the battery.

Then disconnect the red (+) pole clamp from the positive pole of the battery.

The charging adapters and the extension cable supplied with the charger, can be stored safely in the enclosed storage bag, when not be in use..

ERROR MESSAGES

Possible causes "Er 1" / "Er 2" display :

- The battery voltage measured by the charger is below 3 volts. The connected battery is not recognized, all operating steps are blocked.
- The manually selected charging mode does not match the connected battery (wrong charging voltage selected)
- The loading process was canceled.
- Despite desulfation (level 2), the battery cannot be charged within 6 hours to the required minimum voltage. The battery is considered defective classified and the charging process is aborted.
The main charging process (level 1 to level 7) cannot be carried out completely within 48 hours. The battery is classified as defective and the charging process will be aborted.

- The voltage of the charged battery drops in level 7 (rest / monitoring phase) again below the set charging voltage within 2 minutes. The battery is classified as defective and the charging process is aborted (display "Er2").
- The temperature of the charger is outside the operating specifications. The charger has interrupted the charging process to protect against overheating. Provide adequate ventilation and allow the charger to cool down.

CARE, CLEANING AND MAINTENANCE

- After disconnecting the charger from the battery, clean the charging adapter every time after the charging process is finished.
- Remove dirt and moisture from the charging adapters. This serves to ensure optimal electrical contact and corrosion damage to avoid on the charging adapters.
- Roll up the cables without kinking or twisting, when you not use the device and its accessories.
- Only clean the charger and its accessories with a soft, dry one cloth.
- Always store the charger and its accessories in a clean, ventilated and dry place.
- Never open the charger, it does not contain any serviceable parts..

SERVICE QUESTIONS

Should you still have questions despite studying these operating instructions for commissioning or operation, or should unexpectedly one technical problem with the charger or its accessories occur, so please contact your specialist dealer.

DISPOSAL

The packaging is made from environmentally friendly materials, so that you can dispose them of, at a local recycling center.

Do not throw electrical devices in the household waste! According to European directive 2012/19/EU (WEEE Directive) old, used or broken electrical devices, which should to be disposed, must be collected separately and then be recycled in an environmentally friendly manner.

Find out about disposal options for old electronic devices with your municipality or city administration.

Images may differ slightly from the product.

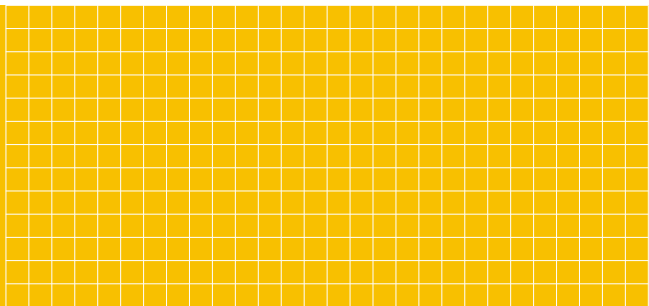
We reserve the right to make changes in the interest of technical progress.

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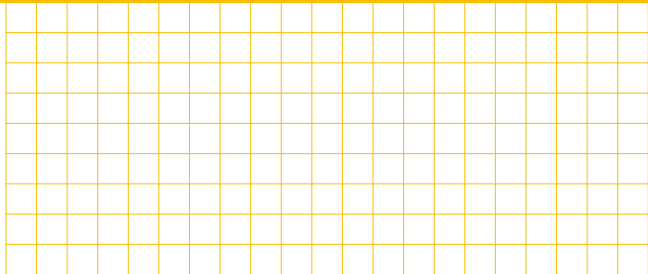
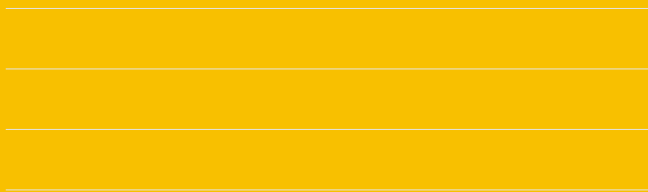
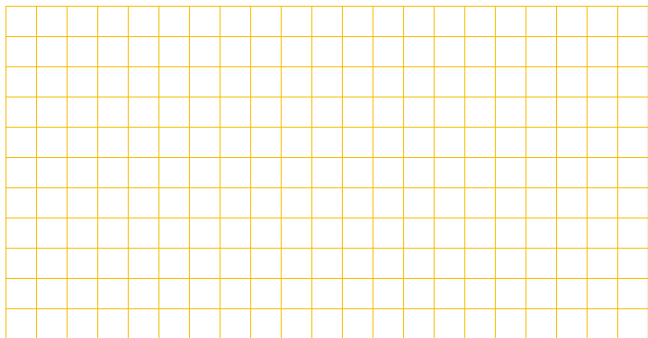
Changes due to further development and technical progress are reserved.

We accept no liability for mistakes and printing errors!

NOTES



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