
X-BOX

Aperto Torantriebe GmbH - Directions for Use

X-Box

Table of Contents

Product description
Scope of delivery
Exploded view of middle X-Box unit
Parts list - middle X-Box unit
Exploded view of outer X-Box unit
Parts list - outer X-Box unit
Inside view of system
Installation instructions for 3-piece X-Box unit
Installation and connection of the gate operator
Indicator symbols of the middle X-Box unit
Recharging the battery units
Status indicators of the battery units (left and right units)
Technical data of the 3-piece X-Box battery unit
Technical data of the 3-piece X-Box battery unit/fuses
X-Box spare parts list
Recharging the battery units with the X-Charger
X-Charger safety information and technical data
Car Charger
Technical drawing and dimensioned drawing of the Car Charger
Recharging with the Car Charger / Safety information for the Car Charger
Solar module
Mounting the solar module on a flat roof and on a wall
Technical data - solar module

X-Box

Product description

The X-Box is a stationary-mounted power supply unit, equipped with two detachable battery boxes for charging at a mains connection, for operating sectional doors, tip-up doors, up-and-over doors, ceiling track doors, side-opening doors and side sectional doors. With the Aperto Car Charger, it is optionally possible to charge the X-Box via the cigarette lighter in the car or by means of an Aperto solar module.



All the components and additional devices described in these instructions are designed to be operated and connected only in accordance with the X-Box operating instructions. Any other use is expressly prohibited and will render the warranty null and void. In addition, use of the X-Box for other than its intended purpose may pose unforeseen risks and hazards.

X-Box

Scope of delivery

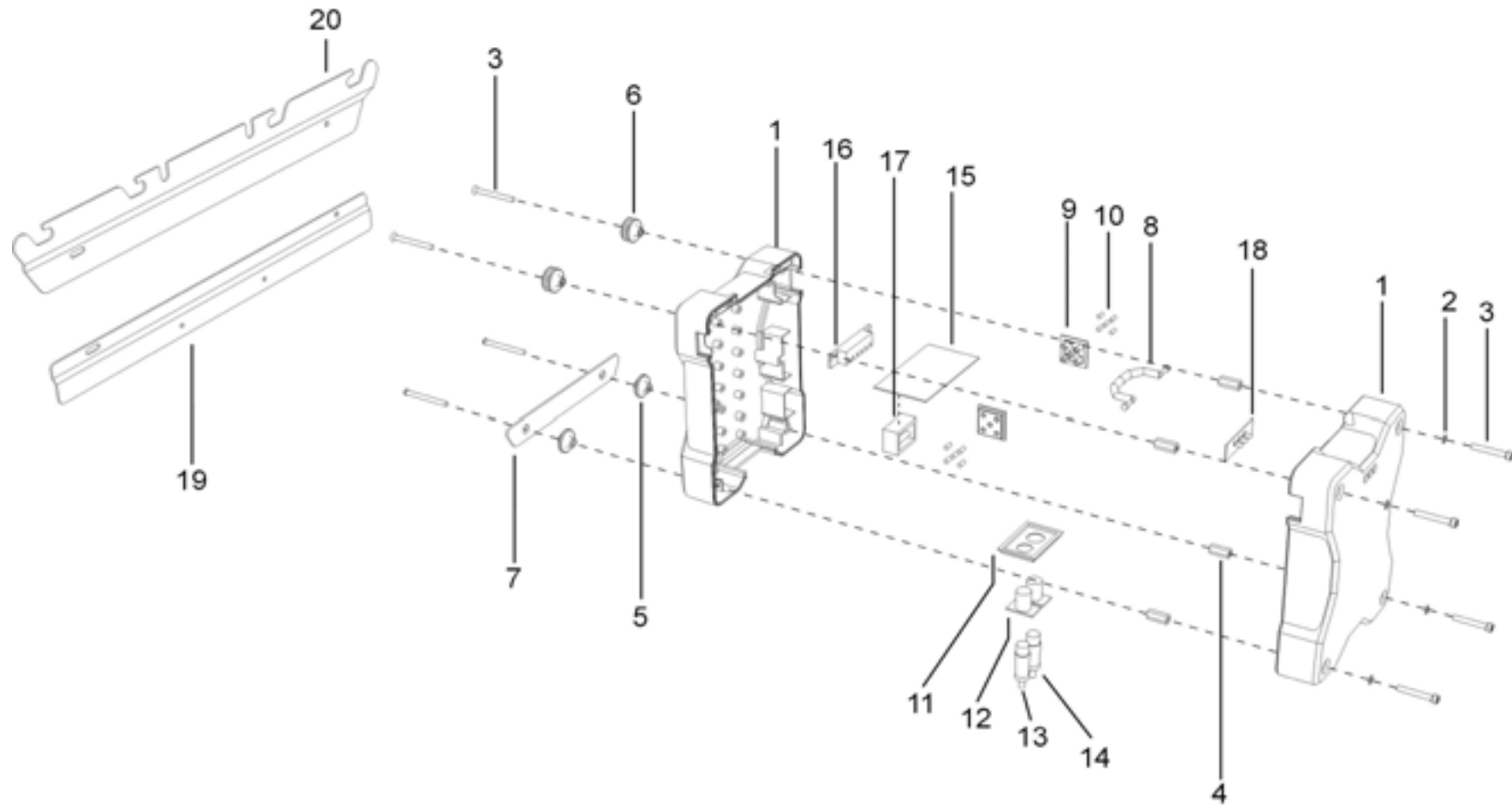
3-piece X-Box system consisting of:

- 2 Battery units (outer units) in housing with carrying handle, with visual and audible status indicator and each with two charging sockets.
- 1 Electronic control/charging unit with visual and audible warning (middle unit).
With one plug-in socket for the gate operator and one plug-in socket for the optional solar module.
- 2 Mounting rails with installation material (the bottom rail is already secured to the X-Box unit).
- 1 X-Charger - mains charger
- 1 Preinstalled electronic solar charging unit for optional solar module



X-Box

Exploded view of middle X-Box unit



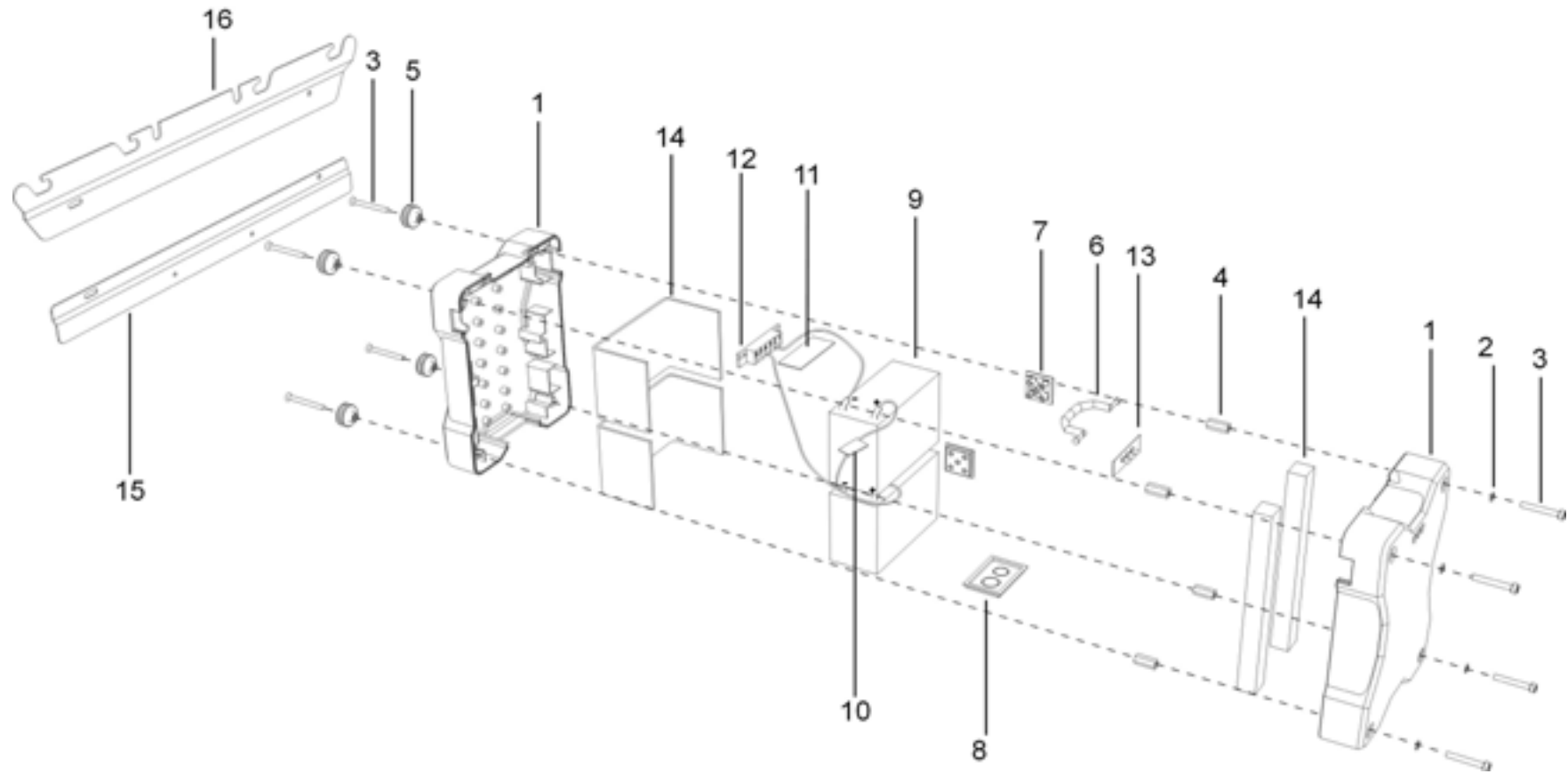
X-Box

Parts list - middle X-Box unit

Item	Description	Designation/Dimensions	Quantity
1	X-Box cover (front and rear)	ABS, 2x	2x
2	Washers	DIN 125 galv. M6	4x
3	Front: Cheese head screws	DIN 912 galv. M6 x 40mm	4x
3	Rear: Cheese head screws	DIN 965 galv. M6 x 60mm	4x
4	Countersunk head screws	DIN 965 galv. M6 x 60mm	4x
5	Hexagon spacer	Galv. 4.6 M6 x 25 mm	2x
6	X-Box attachment element	ABS	2x
7	Rail for adjustment and stabilisation of outer battery units		1x
8	Handle	ABS	1x
9	Mounting plate for connector		2x
10	Pins for connector		8x
11	Retaining fixture for solar connection		1x
12	Socket for solar connection		1x
13	Left connection: Connector for gate operator		1x
14	Right connection: Connector for solar panel		1x
15	Central PCB		1x
16	Direct push-on terminal strip		1x
17	Fuse on central PCB (glass tube fuse)	8 A, slow-blow	1x
18	PCB for LEDs		1x
19	Bottom wall-mounting rail (fixed), powder-coated steel	632.0 x 57.5 x 5.0 mm	1x
20	Top wall-mounting rail, powder-coated steel	708.4 x 99.0 x 3.0 mm	1x

X-Box

Exploded view of outer X-Box units



X-Box

Parts list - outer X-Box units

Item	Description	Designation/Dimensions	Quantity/ X-Box unit
1	X-Box cover (front and rear)	ABS, 2x	2x
2	Washers	DIN 125 galv. M6	4x
3	Front: Cheese head screws	DIN 965 galv. M6 x 40 mm	4x
3	Rear: Cheese head screws	DIN 965 galv. M6 x 60 mm	4x
4	Countersunk head screws	DIN 965 galv. M6 x 60 mm	4x
5	X-Box attachment element	ABS	4x
6	Handle	ABS	1x
7	Mounting plate with sockets for connectors of middle X-Box		2x
8	Blank socket - DUMMY -		1x
9	Lead-acid batteries	12 V, 7.2 Ah	2x
10	Polyswitch	10 A	1x
11	Solar PCB/solar charger		1x
12	Direct push-on terminal strip		1x
13	PCB for LEDs		1x
14	Shock absorber/foam material		4x
15	Bottom wall-mounting rail (fixed), powder-coated steel	632.0 x 57.5 x 5.0 mm	1x
16	Top wall-mounting rail, powder-coated steel	708.4 x 99.0 x 3.0 mm	1x

X-Box

Inside view of 3-piece system



X-Box

Installation instructions for 3-piece X-Box unit

1. Mark the horizontal position of the top mounting rail on the wall.
2. Secure the top mounting rail in exact horizontal and vertical position with the supplied installation material (possible either with hexagon head cap screws or fixing anchors). Attach middle X-Box unit to bottom mounting rail. **IMPORTANT:** Take into account wall thickness of garage.
3. Secure the bottom mounting rail together with the top mounting rail in horizontal and vertical position. To ensure trouble-free operation, these two rails must be absolutely parallel and perpendicular to each other.
4. If this is not the case it will not be possible to reliably attach and detach the battery units and the contacts may be bent.
5. Once the bottom mounting rail has been installed, attach the left and right battery units of the X-Box and slide together with the middle X-Box unit.
6. A short audible warning signal sounds for approx. 3 seconds.
At the same time, all 3 LEDs in the middle X-Box unit light up briefly.

X-Box

Installation and connection of the gate operator

The gate operator is to be assembled and installed as described in the supplied Aperto installation instructions.
The connector of the gate operator cable must then be plugged into the middle X-Box unit
The teach-in procedure for the gate operator can then be performed as described in the Aperto installation instructions.

ATTENTION: It is essential to work step-by-step through the Aperto installation instructions.

X-Box

Indicator symbols of the middle X-Box unit

- Green LED indicator lamp flashing:

Recharging is taking place via a solar module (optionally available) connected to the middle X-Box unit.

- Yellow LED indicator lamp illuminated:

Only while the door is moving or during operator lighting persistence period (operator is active).

- Red and yellow LED indicator lamp flashing/an audible warning signal sounds at the same time:

Warning signal – batteries must be recharged.

- Red LED indicator lamp flashing:

The battery units were not recharged despite the warning signals. Exhaustive discharge protection has tripped and switched off the operator. The battery units need to be recharged immediately.

X-Box

Recharging the battery units

Remove one of the two outer battery units from the mounting rail. For this purpose it is advisable to grip the recess in the battery unit and carefully pull apart by approx. 2 cm. The battery unit can then be removed from the mounting rail by pulling the handle upwards.

It can now be taken into the house for recharging.



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Status indicators of the battery units (left and right units)

1. Green flashing: The battery is fully charged.
2. Yellow flashing: The battery is less than half charged.
3. Red flashing: The battery is almost flat and needs to be recharged immediately.

X-Box

Battery technical data

Maintenance-free lead-acid batteries with safety valve. The nominal voltage of the batteries is 2 V per cell. By way of internal recombination (recombination of various charged ions to create neutral elements) the cells can be accommodated in a sealed housing as the batteries emit virtually no gas. The batteries can be used in any position and are rechargeable. The batteries are connected in series to produce a system voltage of 24 V.



X-Box

Technical data of the 3-piece X-Box battery unit

- Discharge voltage (voltage must not drop below this level):	21 V
- End-of-charge voltage of lead-acid batteries (after charging):	approx. 30 V
- Capacity:	14.4 AH
- Off-load voltage (some time after charging):	25.6 – 26.2 V
- Self-discharge/day:	< 0.1 % of nominal capacity
- Service life (when used for intended purpose):	min. 3-5 years (Eurobat Standard)
- Dimensions of one battery unit (L x W x H):	210x110x270 mm
- Dimensions of 3-piece unit (L x W x H):	710x110x270 mm
- Weight of individual X-Box:	5.7 kg
- Weight of 3-piece X-Box:	16.2 kg
- Mounting rail material:	Powder-coated steel
- Housing material:	Non-flammable ABS (acrylonitrile butadiene styrene)
- Standby mode:	In temperature range between -10°C and +45°C
- Mains charger:	Min. charging time of batteries 10 h
- Car Charger (optional):	Min. charging time of batteries 10 h

X-Box

Technical data of 3-piece X-Box battery unit/fuses

Fuse, middle X-Box unit:

An 8 A slow-blow glass tube fuse is located on the central PCB.

Fuse, outer X-Box units:

Polyswitches are provided on the units between the batteries.

These switches are fuses that open in the event of short-circuit current and close again once the problem has been rectified.

Fuse, Car Charger:

An 8 A slow-blow glass tube fuse is located in the Car Charger.

Fuse, 12 V connector:

There is also an 8 A slow-blow glass tube fuse in this connector.

X-Box

X-Box spare parts list

- Complete battery unit, including cover (top and bottom shell)
- Complete middle unit, including cover (top and bottom shell)
- Glass tube fuse 8 A, slow-blow
- X-Charger
- Car Charger

X-Box

Recharging the battery units with the X-Charger

To recharge the X-Box battery unit, place it standing upright with the handle facing upward close to a socket outlet and charge with the X-Charger as described in the following:

- Plug in the small connector of the X-Charger on the left or right side into the recharging socket.
- The other connector is plugged into the mains.
- Charging starts automatically, i.e. the small LED on the X-Charger lights up red.
- Recharging time: min. 10 hours, however, the battery can be recharged for considerably longer. The battery cannot be overcharged.
- The red flashing LED goes out during the charging procedure and the green LED begins to flash.
- On completion of the charging procedure, the green LED lights up permanently and the small LED on the X-Charger changes colour between red and yellow. The longer the yellow intervals and the shorter the red intervals, the fuller the battery.
- After charging, the battery unit should be reattached to the mounting rail and pushed up against the middle X-Box unit.
- The other battery unit should be recharged as described above the next day at the latest.



X-Box

Safety information for X-Charger

- Protect the X-Charger from moisture.
- Use only in closed rooms.
- Keep out of reach of children.
- Immediately unplug the connector if the charger emits smoke or flames.
- Do not insert any objects into the ventilation slots of the charger. Danger of electric shock or short-circuit.

Technical data of X-Charger

- | | |
|---------------------|---------------------|
| - Mains voltage: | 230 V AC $\pm 10\%$ |
| - Mains frequency: | 50 Hz |
| - Charging voltage: | 31 V DC |

X-Box

Car Charger (optional)

The Car Charger (optionally available) is a charger used to recharge the battery unit from the vehicle socket (cigarette lighter). Make sure that the vehicle socket is not switched off when the ignition key is removed. The vehicle battery must also be in very good condition.

Safety information:

The battery unit should be charged only while driving. Make sure that the battery unit is recharged while in an upright position with the handle facing upwards.

Dimensions of Car Charger

Length x width x height in cm:

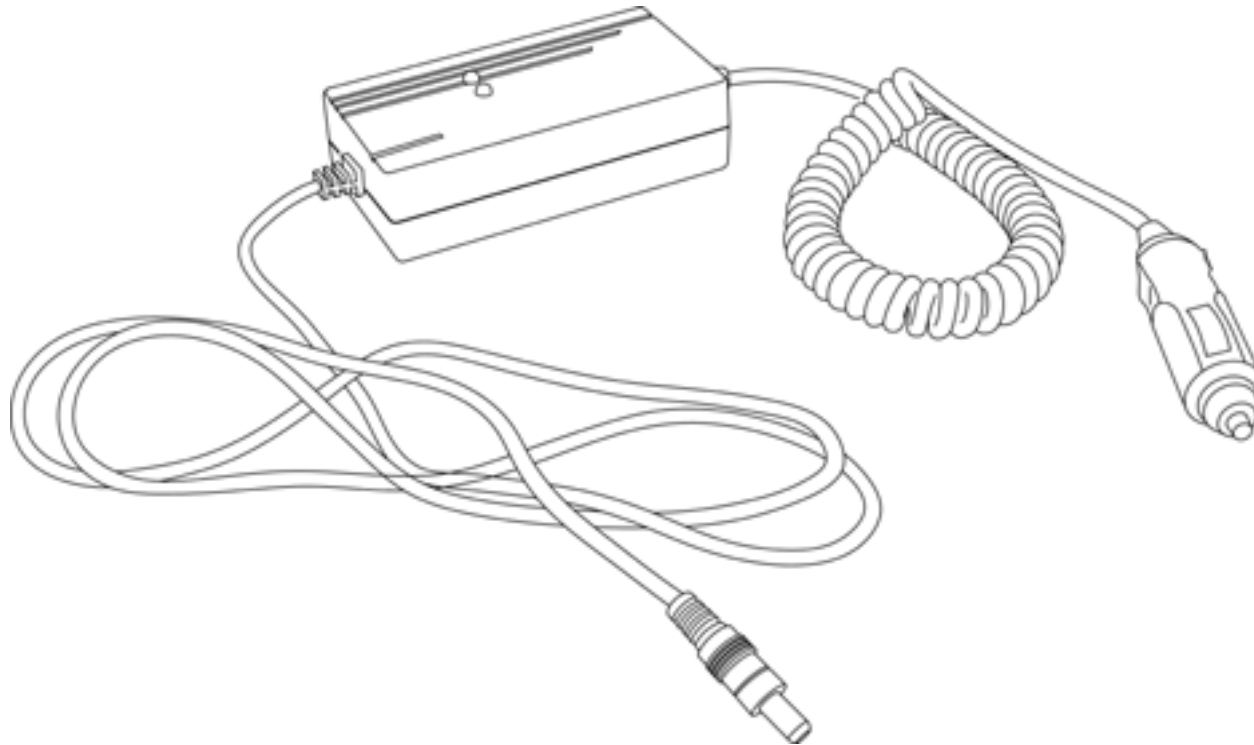
11 x 6 x 3.5

Item No.: AZ11736



X-Box

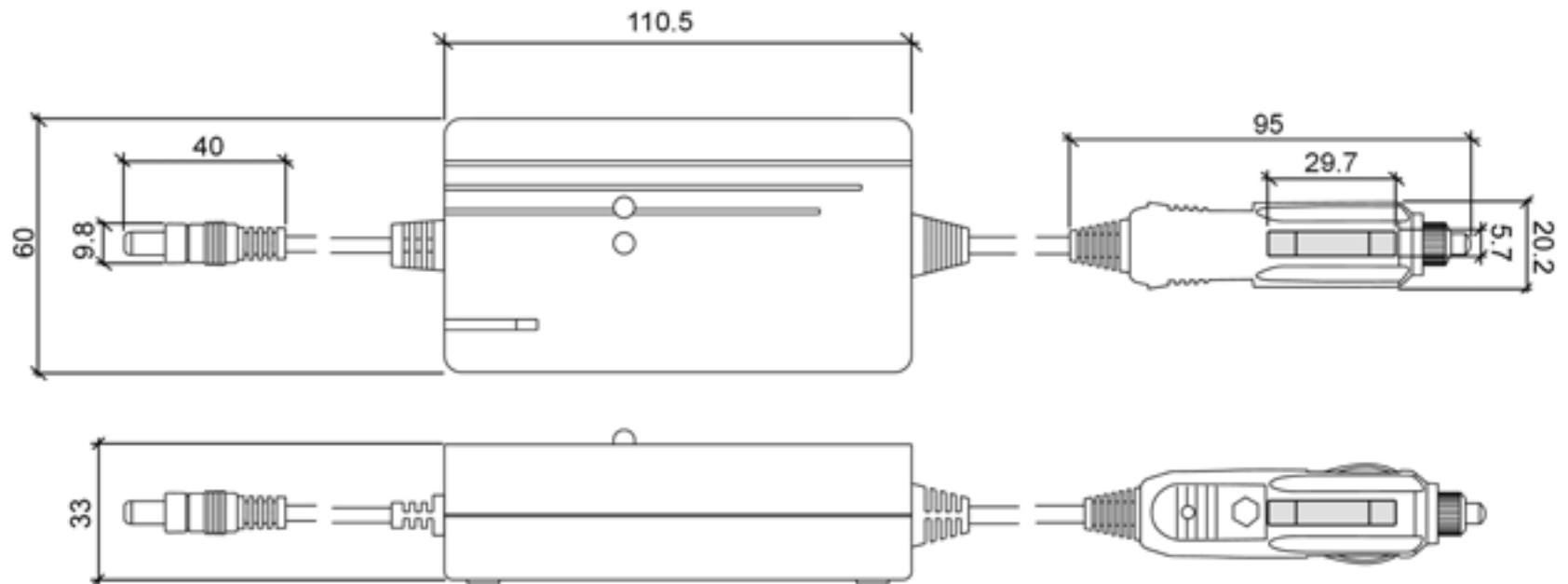
Technical drawing of Car Charger



Perspective of Car Charger

X-Box

Dimensioned drawing of Car Charger - including glass tube fuse -



Top view and side view

X-Box

Recharging with the Car Charger (optional)

To recharge the X-Box battery unit, place it standing upright with the handle facing upward close to a socket outlet in the car (cigarette lighter) and charge with the Car Charger as described in the following:

- Plug in the connector of the Car Charger on the left or right side into the recharging socket.
- Plug the connector with the red end into the vehicle socket.
- Charging now begins automatically. The green LED begins to flash.
- Recharging time: min. 10 hours, however, the battery can be recharged for considerably longer. The battery cannot be overcharged.
- The green LED lights up permanently to show that charging is completed.
- After charging, the battery unit should be reattached to the mounting rail and pushed up against the middle X-Box unit.
- The other battery unit should be recharged as described above the next day at the latest.

Fault signalling:

A flashing red LED may mean:

- Car Charger overheating protection has tripped, i.e. recharging is switched off. Once cooled down, the Car Charger will restart the charging routine automatically.
- Voltage of vehicle battery too low. Car Charger has switched off to ensure the vehicle can be started.

The battery can only be recharged again while driving or after a longer trip.

X-Box

Safety information for Car Charger

- Make sure that the vehicle battery is in good condition.
- Protect the Car Charger from moisture.
- Use only as described in these operating instructions.
- Keep out of reach of children.
- Immediately unplug the connector if the charger emits smoke or flames.

Technical data of Car Charger

- Input voltage: 11.5 – 13.5 V
- Charging current from Car Charger to X-Box: 1.3 A / 31 V
- Charging current from vehicle battery to Car Charger: 3 A / 12 V
- Heat protection shutdown
- Exhaustive discharge protection for vehicle battery
- Material: ABS
- Dimensions L x W x H: 11 cm x 6 cm x 3.5 cm

X-Box

Solar module (optional)

The solar module dispenses with the need to regularly recharge the battery boxes with the X-Charger or the Car Charger. The solar module must be mounted with the mounting fixture on a horizontal surface. This ensures that the module is set at the required angle of 30°.



X-Box

Mounting the solar panel on a flat roof (optional)

The horizontal mounting fixture is secured on an 8 cm thick concrete slab with the dowels provided. The local wind conditions must be taken into account. If higher winds prevail, a heavier concrete slab should be used. The concrete slab prevents the mounting fixture melting into the bitumen layer on hot summer days (all pebbles or gravel should be removed before placing the concrete slab on the bitumen layer).

Mounting the solar module on a wall (optional)

With the aid of the optionally available wall-mounting bracket and the supplied screws and dowels, the wall-mounting fixture is secured on the wall and the solar panel then mounted on it. The solar module should then be turned to face southwards. Make sure that the mounting fixture is installed in a horizontal position. Avoid shading by buildings and trees (the winter sun is considerably lower in the sky).

After mounting and aligning the solar module, the solar cable must be appropriately routed into the garage (not through the roof) and connected to the middle X-Box unit.

During daylight, the green LED indicator lamp on the middle X-Box unit begins to flash. The batteries are now continuously recharged when the solar module is exposed to light.

X-Box

Technical data of solar module

- System voltage: 24 V
- No-load voltage: max. 49 V
- Output: max. 23 W
- CIS technology (excellent current yield at low light levels)
- UV-resistant connecting cable with XLR connector
- Mounting fixture for flat roofs
- Dimensions (solar module only): W 600 mm x H 40 mm