

Instruction Manual

Waterproof Battery Chargers (IP65)

Atlas-1800W Series: IP65 water resistant. With one or multiple, selectable charge profiles and customized parameters.



Safety Rules and General Warnings

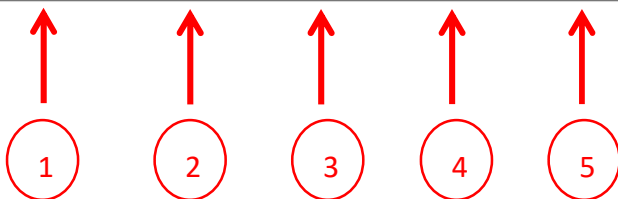
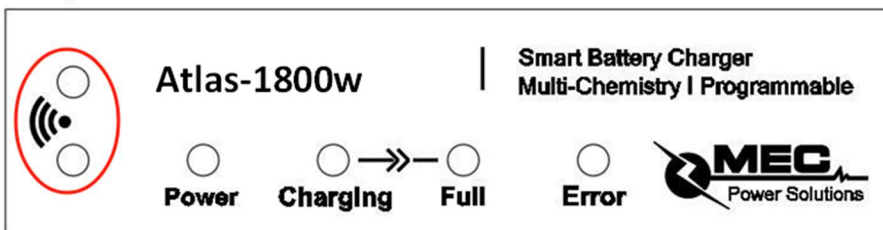
- Persons, who are not able to use the charger in a safe way, because of their physical, sensory or mental incompetence, or because of their lack of experience, should not use without the control or instruction from a skilled or qualified person.
- The charger runs with 230 Volts alternating current, which is not suitable for children – Danger of Life. And beware of risk of electric shock at all times.
- Ensure sufficient air ventilation; do not cover the vent outlet while charging in progress.
- Avoid flammable gases, solvents or vapours all the time. Prevent open flame or sparks while charging in progress. Explosion RISK!
- The charger is exclusively designed for charging rechargeable batteries and must not be used for other purposes. Corresponding model should be selected for particular lithium-based or lead-based batteries.
- You should take into consideration of the charging instructions issued by the battery manufacturer before charging. Check also if the charge profile fits your battery and application.
- DO NOT OPEN or DISMANTLE the charger. Repair work must only be processed by authorized technical staff.
- If the mains connection of the charger is damaged, it must be replaced with an original wire which is available at MEC or authorized dealers.
- NEVER place the charger on top of the battery while charging in progress.
- The charger should be protected against direct solar radiation or temperatures over 40°C.
- The AC Input Use 12 AWG wire, If the mains connection of the charger is damaged, it must be replaced with an original wire which is available at MEC or authorized dealers. Output Use 8mm sq wire.
- The DC cable must not be cut, shortened or extended under any circumstances.
- Keep the charger in dry room (rel. humidity <80%). Clean with dry cloth only. Avoid fluid of any kind to get into the charger.

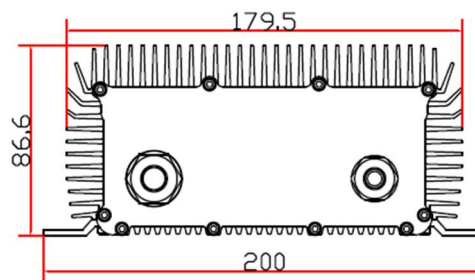
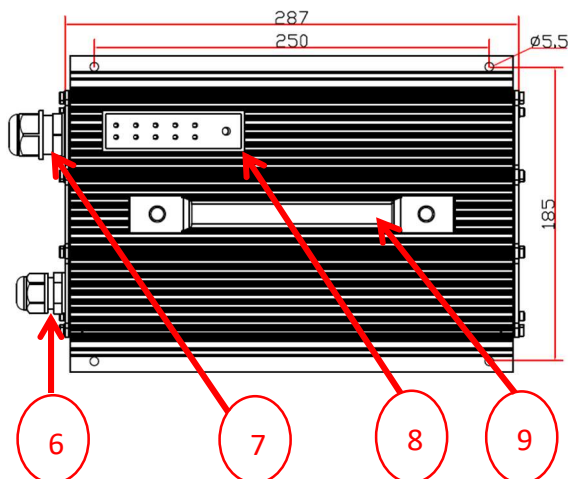
Special Features

- IP65 water resistant.;Extruded aluminum alloy housing
- Battery type (Li-ion-, LiFePO4, AGM, WET Battery) selectable
- Microprocessor-based 4-Step charging technology with soft start and automatic re-start of the charge cycle
- Battery "wake-up" function by sending out programmed "wake-up" pulses
- LED indicators showing corresponding charge status and errors; Distinctive warning of battery being in a state of deep discharge
- Replacing charging configuration files through IR infrared function
- Protection against short circuit, reverse polarity, over temperature or overload
- Lead-acid battery type No current/voltage on DC cable when no battery is connected
- Under-Voltage protection, need to restart the charger

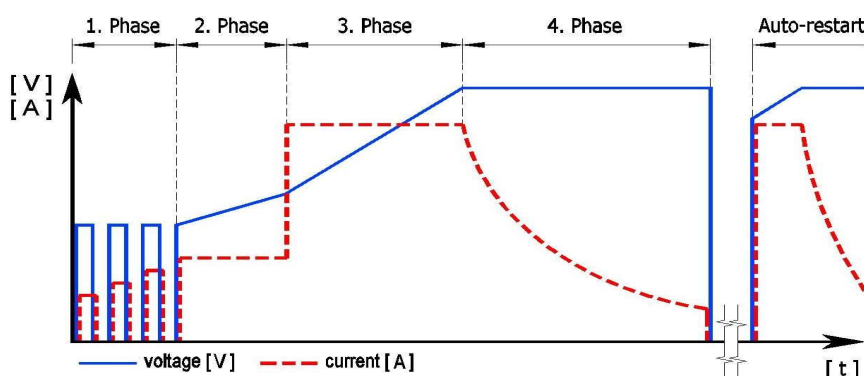
Product Configuration

1. IR connection LEDs	2. Power LED (Green)	3. Charging LED (Yellow)
4. Full LED (Green)	5. Error LED (Red)	6. AC Cable
7. DC Cable/ Connect Terminal	8. LED Board	9. Handle





4-Step Charge Profile



	1. Phase (Pulsing)	2. Phase (CC1)	3. Phase (CC2)	4. Phase (CV)	Auto Restart
	Auto Wake-up	Soft-start	Konstantstrom Constant Current	Konstantspannung Constant Voltage	Auto Restart
Ladespannung max. Charge Voltage max.	Nominal Voltage	~70% Nomial Voltage	Nominal Voltage	Nominal Voltage	Nach vorbestimmter Anzahl v. Tagen / Batt. Spannung
Ladestrom max. Charge Current max.	50% I_{max}	50% I_{max}	I_{max}	I_{max}	
Ladestrom min. Charge Current min.	25% I_{max}	25% I_{max}	50% I_{max}	10% I_{max}	At a pre-set number of days or voltage level
Schaltkriterium für nächste Phase Trigger Criterion for next Phase	3.0V/cell (10 cycles)	$U_{bat} \geq 2.5V/cell$ / timer 4h	$U_{bat} \geq U_{max}$ / timer 20h	$I_b < I_{min}$ / timer 8h	

Charge parameter can be changed, on request.

Preparation – Before Charging

General Checking

- Check thoroughly the charger itself including all the cables show no damages.
- Take into consideration the charging instruction issued by the battery manufacturer.

Charging Cable – Polarity Checking

WARNING: Check the polarity before mounting onto a plug:

- Red cable = Plus (+)
- Black cable = Minus (-)
- Subject to actual product (current connect terminal)

DC Mains Supply Checking

- Make sure the DC cable must not be cut, shortened or extended under any circumstances.
- Make sure the mains supply complies with the technical specification requirements of the charger.

Before Connecting the Charger to the Battery

- Choose the appropriate battery type for connection, the Battery Type LED (Li-ion, LFP, AGM or WET) shows the selected battery type. (Noted:

This feature needs to be customized)

- Make sure the charger is switched off and disconnected from the mains supply.
- Then connect the terminals of the charger to the battery (Red cable to the positive (+) terminal of the battery; then Black cable to the negative (-) terminal).
- Finally connect the power cable of the charger to the mains supply, and switch on the charger.

Charging the Battery

ATTENTION:

Before operation please make sure that neither the power cable nor the charger including the charging cable show any damage and make sure that the mains supply complies with the specification.

Please consider the charging instructions from the battery manufacturer before charging.

Connect the charger to the battery and start charging (initial use):

- Make sure that the charger is disconnected from the mains supply.
- Connect the charging cable with the plug of the battery.
- Select the battery type.
- Connect the power cable of the charger with the mains supply.

The charging process starts automatically and runs through the following stages:

Getting Ready: Auto Wake-up

Yellow Charging LED ③ and Green Full LED ④ are blinking alternately. During this pre-charge phase, the charger sends out series of controlled current pulses to reactivate the BMS (if any) and bring in a voltage to the battery for getting ready for the charging process. If no battery or defected battery pack is connected, the Red Error LED ⑤ blinks. In this case, switch off the charger and check the battery pack.

Phase 1: Soft Start

Yellow Charging LED ③ keeps on lighting. The charger regulates the initial charging current to better prolong the battery life.

Phase 2: Constant Current Charging

Yellow Charging LED ③ blinks slowly. The battery is being charged to 80% of its capacity at this stage.

Phase 3: Constant Voltage Charging

Yellow Charging LED ③ blinks quickly. The battery is being charged to its maximum capacity. When the Green Full LED ⑤ turns on, the charger can now be disconnected from the battery.

Phase 4: Float Charging (for lead-based batteries only) or Auto Restart

Green Full LED ④ keeps on lighting indicate the battery has reached its full capacity. If the battery keeps connecting to the charger, auto restart of the charging cycle will take place after 15 days or when the battery voltage has dropped to under 3.6V/cell (Li-ion Battery) or 3.2V/cell (LiFePO4 Battery).

Disconnect the Charger from the Battery:

- First, disconnect the charger from the mains supply.
- Then, disconnect the charger from the battery.

Charging Advice and Battery Care

Charging Advice:

- If the charger must be disconnected from the battery during the charging process, please FIRST disconnect the charger from the mains supply. The continuation of the charging process is equal to a new charging cycle; all relevant points of the Operating Instructions have to be considered.
- To lengthen the lifetime of the battery, please do not stop the charging process before the battery is fully charged. The charger will automatically stop when the charging process is completed.

Battery Care:

- Never expose the battery to high temperatures, as this causes permanent battery capacity loss.
- Never deep-discharge or overcharge the battery, cells can be damaged irreversibly.
- If possible, always disconnect the battery from the load when being stored over long period of time.
- Store battery in a dry and cool place at about 40-60% of its rated capacity.

Errors and Troubleshooting

General Errors Description	Solutions
No LED lighting or blinking after connecting to the mains	<ul style="list-style-type: none"> • Check if the charger is connected to mains supply properly • Check if there are any problems with the mains supply
Green POWER-LED is on, charger is connected to the battery, but the charging process seems not working	<ul style="list-style-type: none"> • Check the connection to battery • Check if the battery is damaged or has been deeply discharged
Error-LED blinking (N x blinking / 2 secs pause)	• Please refer to the table below for RED Error-LED ④ Blinking Signals

RED Error-LED ④ Blinking Signals

Blinking Signal (continuous looping)	Error Description
1 x	1. Excessive aging of the battery (the voltage is too low, lower than the voltage of start.) 2. After pre-charging, the battery voltage is still lower than the Start voltage
2 x	The battery voltage exceeds the maximum voltage that the charger can output
3 x	Battery temperature is too low
4 x	Battery temperature is too high
5.x	The charger temperature is too high
6.x	Wake up failure
7.x	Charging timeout
8.x	Charging procedure is full, battery offline
9.x	Mode selection button stopped working

Advice for Disposal



It is prohibited to dispose the charger with household or residual waste removal (WEEE-Richtlinie 2012/19/EU und EAG-VO). The charger must be disposed at designated disposal points. For the protection of our environment, please check at your communal administrative agency of your nearest disposal point.



The charger conforms to the RoHS-directive EU 2015/863, for the restriction of the use of certain hazardous substances in electrical and electronic equipment.



Disclaimer of Warranty

The warranty period (see our General Terms and Conditions) starts with the charger being dispatched by the manufacturer. The Company accepts liability by guaranteeing to working hours and spare parts only.

For damages caused by non-observance of the operating instructions, inappropriate start up or handling as well as dismantling, reconstructions or modifications of the charger, the warranty claim expires and the Company assumes no liability for consequential damages to any properties or persons in connection with or arising from the purchase and use of the charger.

We reserves the rights to configure the charger as per actual needs and the manual may not reflect the most updated conditions of the product at all times. Please contact us should you need any technological support.

Technical Specifications

DC Output								
Cell type	LiFePO4 Batteries 3.6V/cell (max.)			Li-ion Batteries 4.2V/cell (max.)			Lead-based Batteries	
	16S	20S	23S	14S	17S	20S	48V	60V
Charge Volt. max. (+/-1%)	57.6V	72V	82.8V	58.8V	71.4V	84V		
Charge Current max. (+/-1%)	30A	25A	22A	30A	25A	22A	30A	25A
Efficiency max.	>93% @ 230V							
Output Power, nom.	1800W							
Ripple	<1%							
Back Current	<1mA							
Charge Cable	1.5m open cable ends							
AC Input								
Input Voltage	230VAC / 50Hz							
Power Cord & Plug	Country Specific							
Enclosure								
Material	Extruded aluminum alloy housing. Anode surface treatment							
Dimension / Weight	287*200*97mm/ ca. 5.2kg (Noted:The size of the structure shall be subject to the actual object)							
LED-Indicators	Mains, Error, Charging, Full and Battery type Indicator							
Protection Class	1							
IP Code	IP65							
Operating Temp.	-20°C to +40°C							
Cooling	Nature Cooling							
Special Features								
4-Step Charge Characteristics**	Charge Cut-off at "Battery-Full" (Current Detection)							
Charge Parameter	Charge Profile Configurable via IR-Port							
Automat. Battery Wake-up	The charger, after "Power-on", activates the BMS with pre-defined voltage pulses							
Device Protection	Over temperature, Short circuit, Reverse polarity, Overload protection							
Certification								
	CE, UKCA							

Specifications of the battery manufacturer take priority!

** Different charge profiles available on request.

Subject to technical modifications. We assume no liability for misprints.