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Batterien & LED Beleuchtung

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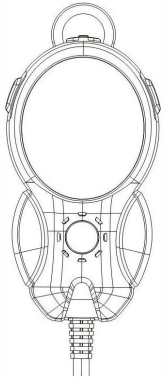
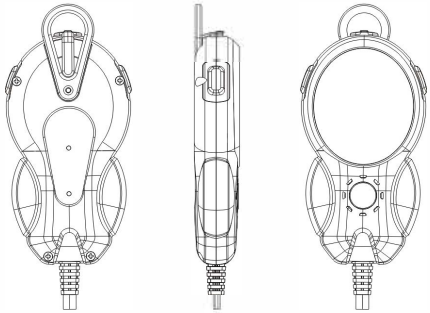
LEAD

PD30W POWER ELF

Bidirectional Mini Charger User Guide



Please go through this user guide before your first use of Power Elf .



Featured with 3 functions:

Volt Meter

When connecting with 12V lead acid battery or 12.8V LiFePO4 lithium battery, it displays the battery's voltage, and also can be used as volt meter.

Charger for Battery

At IN mode, it can charge 12V lead acid battery or 12.8V LiFePO4 lithium battery through its type C interface from mobile phone charger,power bank,portable power station.

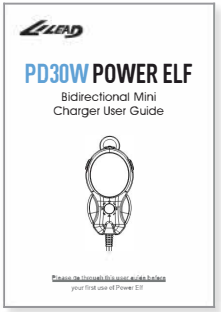
Charger for Mobile Phone

At Out Mode, it can charge your electronic devices (like mobile phone or iPad) from the 12V lead acid battery or 12.8V LiFePO4 lithium battery,even when your motorcycle is running.

Accessory List

Product body
Line length 1.2m

O Type terminal
0.6m



Users Manual

Battery clamp
0.6m

Type C cable
1m

Detailed description

Funcional instuctions

IN	**In mode Indicator**: The product defaults to IN (input) mode upon powering on, allowing users to charge a 12V battery via an external power source.
OUT	**Out mode Indicator**: Pressing the button indicator for 1 second switches the product to OUT (output) mode. In this mode, users can power devices such as mobile phones using the 12V battery. Charging mobile phones while riding a motorcycle is also possible in this mode.
13.5v	**Voltage Indicator**: When a 12V battery is connected to the product, it displays the battery voltage with an accuracy of ±0.15V.
	Battery Damage Indicator: In IN mode, if the battery voltage falls below 10V and continuous charging at 0.8A for 5 minutes fails to raise the voltage above 10V, the product deems the battery as damaged. It stops charging and the fault indicator light flashes to notify the user of the issue.
	Mode Switching: Press and hold the button for 1 second to switch between IN and OUT modes. LiFePO4 Battery Activation: If the charging indicator does not light up in **IN** mode, the LiFePO4 battery may be in discharge protection mode. **In this case, press and hold the button for 3 seconds in IN mode to activate the battery**. Once activated, the charging indicator will start to blink slowly, indicating that the battery is charging normally.
	Battery Charging Indicator: In IN mode, the charging indicator blinks while charging a 12V battery. When the battery charging voltage reaches 14.5V and the current is < 0.3A for 2 consecutive minutes, the battery is considered full, and the charging indicator remains illuminated. Subsequently, the battery charging voltage drops to 13.5V, entering float charging mode, and the charging indicator remains illuminated unless the product is powered off and restarted.
	Discharge Fault Indicator: In IN mode, if there is a short circuit between the positive and negative terminals, or when the portable power bank automatically sleeps,it will causePD30 output again,this discharge fault indicator lights up. In OUT mode, if the battery voltage falls below 11V, the discharge fault indicator will also light up.

Connection

01 Connect to battery

Users can use O type terminals to connect the positive and negative terminals of the battery and tighten them with screws. If the battery is installed in a motorcycle or vehicle, it is recommended to use this method for connection, which facilitates daily battery maintenance and charging.

Use battery clamps to clamp the positive and negative terminals of the battery. If the battery is placed separately, it is recommended to use this method for connection, which facilitates easy disassembly

02 Connect to Power Elf

Users can use mobile phone chargers, power banks, or mobile energy storage devices to power the product. To maximize the performance of the product, it is recommended to use a 30W or higher-power charger/power bank to power the product.

03 Charge to battery

IN Mode: When the plug is inserted, the Battery Wizard will begin charging the 12V battery.

04 Charge to Phones

OUT Mode: The product can draw power from the 12V battery to charge digital products such as mobile phones.

IN Mode

The default mode is IN when Power Elf is powered on, it can charge 12V batteries from power supply.

BATTERY SPIRIT APPLICATION

CHARGE &MAINTAIN

SCOOTER

ATV

JETSKI

SNOWMOBILE

MOTORCYCLE

LAWN MOWER

12V MOTORCYCLE,SNOWMOBILE,LAWN MOWER, ATV, ETC..

MAINTAINONLY

CAR

SUV

TRUCK

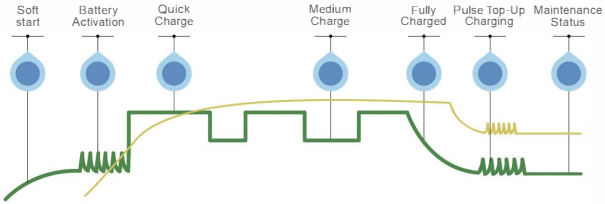
NOTAPPLICABLE

RV

TRACTOR

BOAT

Smart Charging by 7 Steps



Steps	Functions	Note
1	Soft Start	Diagnose battery status to prevent fire of touching when charging the battery
2	Battery Activation	If the battery voltage is < 10V, pls use Power Elf to charge the battery, the charging current is ≤ 1A, then battery will be activated.The battery charging indicator slowly flashes. **If the 12.8V LiFePO4 lithium battery is in discharge protection state, please press the button indicator for 3 seconds,then battery will be activated.** If the charging continues for 5 minutes and the battery voltage is still < 10V, the charging will be stopped and the battery damage indicator flashes.
3	Quick Charge	When the battery voltage is > 10V, Power Elf will quickly charge the battery,maximum charging current of 2A.
4	Medium Charge	In order to reduce battery emissions of acid gas and prevent charger overheating, Power Elf will automatically switch from quick charge to medium charge, the charging current down to 1A. Steps 3 and 4 will alternate until step 5.
5	Fully Charged	When the battery voltage reaches 14.5V, Power Elf will charge the 12V battery at a constant voltage of 14.5V until the current is < 0.3A. The battery charging indicator will turn into constant light,no flash. This means the battery is fully charged.
6	Pulse Top-Up Charging	After it is fully charged, if the battery voltage drops rapidly below 13.5V, the Power Elf performs pulse top-up Charging to the 12V battery, until the battery voltage stabilizes above 13.5V. At Pulse Top-Up Charging stage, the Power Elf shows the voltage jumps repeatedly between 13V and 14.8V. When the battery voltage cannot be maintained above 13.5V, it means the battery is still at Pulse Top-Up Charging stage. Pulse Top-Up Charging is no harm for 12V lead-acid battery,instead it can effectively improve lead-acid battery performance.
7	Maintenance Status	After the battery voltage is maintained above 13.5V, Power Elf will automatically reduce the charging voltage to 13.5V and then enter the float charge maintenance status.

※ Some power banks/portable power stations may automatically shut down when its discharge current is < 0.3A, in this case Power Elf will not be able to enter step 6 maintenance status, as there is no power input. To avoid such situations, users can choose a power bank that would not automatically shut down,or choose cell phone charger.

OUT Mode

The default mode is IN when Power Elf is powered on. Users can press the button indicator to switch to OUT mode.
In OUT mode, users can charge electronic devices such as mobile phones through 12V battery. When the motorcycle is running, it can also be used normally.

Product specifications

IN Mode	
Input	Mobile phone chargers
	Power bank
	Portable power station,and other power supply devices
Output	DC 14.5V/ 2A (Require ≥30W Charger or power supply devices)
	DC 14.5V/ 1.2A (Require 18W Charger or power supply devices)
	DC 14.5V/ 0.6A (Require 10W Charger or power supply devices)
Voltage limit	14.6V
Temperature range	Working: -10°C— 45°C, -50°F— 113°F
	Storage: -20°C— 60°C, -68°F— 140°F
Charging mode	Fully automatic
Suitable for batteries	12V Lead acid battery
	12.8V LiFePO4 lithium battery

OUT Mode	
Input	12V Lead acid battery
	12.8V LiFePO4 lithium battery
Output	5V_3A, 9V_3A, 12V_2.5A,15V_2A, 20V_1.5A, MAX 30W
Supported protocols	PD2.0\3.0\QC2.0\3.0\AFC\FCP\SCP\PPS\Apple\BC1.2\Samsung
Certificate	CE, FCC, RoHS

Warning

1. With IN mode, Power Elf is intended solely for charging or maintaining 12V lead-acid batteries or 12.8V lithium iron phosphate batteries. Do not use it for any other purpose.
2. Lead-acid batteries may release flammable and explosive gases. Strictly prohibit smoking or open flames during charging.
3. To minimize damage to the Power Elf's wires and plugs, please disconnect the plug instead of pulling the wires forcibly when disconnecting.
4. Using non-compliant delay wires may cause fires or accidents that harm people.
5. Do not use the charger, Power Elf, or wires if they are damaged.
6. Do not disassemble the Power Elf as it may cause battery malfunction or fire, leading to safety accidents.
7. If you need to clean the Power Elf, please ensure that it is disconnected from the power source.
8. Avoid charging batteries through computer/laptop USB ports to prevent damage to the computer.

Warranty

The product is warranted for 1 year from the date of purchase. The manufacturer does not provide warranty for the following issues:

1. Damage caused by using the product beyond its specifications, in extreme temperatures, or in inappropriate environments.
2. Disassembly of the product.
3. Damage to the product, wires, or plugs.
4. Inability to provide proof of purchase or the product being beyond the warranty period.