



PRATIK ^{PHF} 812

PHF-HD3-1201P-24/25

User Manual
Manuel de l'Utilisateur
Manual del Usuario



www.tecnikchargers.com

PHF-HD3-UM-201708

Important safety instruction. Keep these instructions. This manual contains important instructions for the safety of the user and operation of the device.

GENERAL WARNINGS

- 1) Before each use of the charger the instructions set out below must be carefully read and abided by.
- 2) The failure to follow these instructions and/or failure to install/use properly the charger could endanger the operator and/or damaging the device, voiding the manufacturer's warranty.
- 3) The battery charger cannot be used as a component in systems which provide life support and/or medical devices, without explicit written authorisation from TECNİK.
- 4) The battery charger must not be used by personnel with reduced physical, sensory and mental capacity or with lack of experience and/or knowledge, unless they are properly supervised and instructed by a person responsible for their safety.

WHERE TO INSTALL

- 6) Never place the charger in the immediate vicinity of the battery in order to prevent corrosion and/or damage to the charger create by the gases produced by the battery during the charge process. Place the battery charger as far away from the battery as the length of cables permits.
- 7) Do not install the charger in a closed space or in such a way that prevents proper ventilation. The charger vents and fan require a 1 inch (30mm) clearance to operate properly. To facilitate heat dissipation, the charger must be positioned vertically using the mounting holes.
- 8) Do not use the charger outdoors or extreme climates.
- 9) Do not expose the charger to rain, water splashes or humidity.
- 10) Do not install the charger in caravans and l or similar vehicles.
- 11) Do not install the charger near any heat sources or in areas with high concentrations of dust.
- 12) Do not install the charger near any potential sources of flammable material, for example methane gas pipes or fuel depots (petrol, kerosene, ...).
- 13) Do not mount the charger onto surfaces manufactured out of combustible materials, like wooden shelves or walls.

BATTERIES

- 14) Follow the specific safety instructions provided by the battery manufacturer carefully, for example, whether or not to remove cell caps during charging and the recommended charge rates.
- 15) Working in the vicinity of a lead-acid battery is dangerous, as batteries generate explosive gases while charging. Therefore smoking and/or generating open flames and/or sparks must be avoided.
- 16) Never charge a frozen battery.
- 17) Batteries must be charged in specific, well-ventilated areas.
- 18) In order to reduce risk of injury only charge Lead-Acid, GEL or AGM type, Lithium polymer or Lithium Ion batteries. Do not charge other types of rechargeable or non-rechargeable batteries as they could explode causing damage and/or injury.

FURTHER SPECIFICATIONS FOR LITHIUM BATTERIES

19) In order to charge Lithium Polymer and Lithium Ion batteries, a BMS (Battery Management System) must always be used, including an active and passive safety system, in compliance with safety regulations in force.

20) With the possibility of the BMS overriding the charger's normal operation during cell balancing phases, it rules out for any reason whatsoever, that the charger is responsible of damage to the battery, a fire or an explosion due to an error in the BMS software.

21) The charger's user configurable options such as output voltage selection, output current and charge curve, is entrusted to the control and supervision of the end user and TECNIK is not liable for any consequences resulting from the selection of the incorrect level of voltage. If in doubt, the user should ask a qualified professional for clarification.

22) The charger's tolerance thresholds, as far as levels of over-voltage and overcharging are concerned, are used only for the safeguarding of the charger's components and have no safety functions for the battery itself, the safety of which depends solely on the BMS, even when the charger is connected to the battery, whether the latter is being charged or not.

23) Should the user want to use the charger on a specific on-board system or non-standard application, it is the user's responsibility to inform TECNIK. In this case, the user must provide TECNIK with all necessary designs, diagrams and technical documents. TECNIK cannot be held responsible for any damage resulting from the use of the charger after opening it and/or modifying it and/or inserting it into other systems.

24) Under no circumstances can TECNIK be held responsible for the malfunctioning, explosion or damage by fire of the batteries, as the safety of the battery is the task of the BMS and not of the charger.

CHECKING CABLES, GRID, GROUNDING

25) Do not transport the battery charger by pulling on the cables as they could be damaged. Use the handles, if provided.

26) Before using the charger, check that the sleeving on the input and output cables are in good condition. Should one of the cables be damaged, have it replaced by a TECNIK qualified technician.

27) Check that the input voltage on the data plate of the charger is compatible with the available AC source.

28) Check the compatibility of the Ac input plug supplied with the charger: the use of adaptors is not recommended (illegal in Canada and U.S.A.).

29) The battery charger must be plugged into a socket fitted with an ground wire. Should the socket not be equipped with an ground connection, do not use the device before having a suitable socket installed by a qualified electrician.

30) The power socket to which the charger is to be connected must be protected by an electrical device by law (fuse and/or automatic cut-out), capable of absorbing an electrical current 10% higher than the current consumption stated on the charger's data plate.

31) Do not open the charger as there are no parts which can be serviced and/or replaced by the user. Only specialised personnel, authorised by TECNIK may carry out servicing which involves opening the actual device. Electrical/electronic components inside may cause electric shocks even if the device is not plugged in.

CHECKING BATTERY CHARGER OPERATION AND PROGRAMED CURVE

- 32) Before charging, make sure that the charger is adjusted for the voltage of the battery, that the charging current suits it's capacity and that the selected charging curve (for lead-acid batteries, or for airtight GEL or AGM type batteries, Lithium Polymer or Lithium Ion batteries) matches it's type.
- 33) We recommend fitting a fuse between the charger and the battery. The fuse must be installed in series with the connection to the positive terminal of the battery. The rating of the fuse must be proportionate to the nominal output current of the battery charger, the diameter of cable used and the environment in which it is to be installed.
- 34) We recommend unplugging the charger from the main AC supply before connecting and disconnecting batteries.
- 35) During normal operation of the charger, the external surface may become hot and may remain so for a certain period of time after it has been switched off.
- 36) The charger needs no special maintenance, only regular cleaning procedures, to be carried out according to the type of working environment. Cleaning procedures should only be carried out on the external surface of the battery charger. Before starting any cleaning procedures, the AC input cable and DC output cables must be disconnected. Do NOT use water and/or detergents in general and/or pressure washers of any kind when cleaning.

LACK OF USE

- 37) If safe operation of the charger can no longer be ensured, stop the device and ensure that it cannot be put back into operation.
- 38) The specifications set out in this manual are subject to change without any notice. This publication replaces any previously supplied information.

OPERATING MANUAL

PHF-HD3-1201P-24/25

TECHNICAL FEATURES

- › Advanced technology high frequency system.
- › Charging process fully controlled by microprocessor.
- › Universal input voltage: 100-240 Vac
- › Charging process initializes in "soft start" mode.
- › Available on request: Automatic reset on insertion of a new battery and automatic charge cycle start.
- › Protection against polarity inversions, short-circuits, over-voltages or anomalies by means of an output relay.
- › Battery to battery charger connection without sparks on the output terminals with obvious advantages for active safety, thanks to the recognition of the battery voltage downstream of the normally open output relay.
- › Signaling of possible anomalies by LED indicators.
- › Insensitive charge parameters in case of $\pm 10\%$ network voltage oscillations.
- › Efficiency > 85%.
- › Output ripple at maximum charge lower than 100mV.
- › Start of the charge cycle even with 2V batteries.

OPERATING PRINCIPLE

To use the charger, plug the the AC input cable in to an outlet and then connect the battery/battery pack to DC output cable. The charger will start by checking the battery voltage for a few seconds and then begin the charging process and the red LED will turn on. If a battery is not connected or if there's a problem with the DC signal, the yellow LED will flash. When the charging process starts, the output relay closes and the current of the first phase rises slowly until the nominal programmed value is reached. If the user disconnects the battery during the charge, the charger will reset itself after a few seconds and restart the charge process if the battery is reconnected. There are three (3) LED indicators that provide charging status and error codes. Refer to the table below for descriptions of the visual signals.

VISUAL SIGNALS

SIGNAL (LED)	DESCRIPTION
<i>Red LED flashing (twice)</i>	The charge curve is set for LEAD-ACID batteries
<i>Green LED flashing (twice)</i>	The charge curve is set for AGM/GEL batteries
<i>Red LED on</i>	First phase of charge in progress (0-80%)
<i>Yellow LED on</i>	Second phase of charge in progress (81-99%)
<i>Green LED on</i>	Charge complete or maintenance phase in progress

ERROR (LED)	DESCRIPTION
<i>Yellow LED flashing</i>	Unsuitable battery / Battery not connected / Output short-circuit
<i>Red LED flashing</i>	Safety timer exceeded / Internal short-circuit

DIPSWITCH SETTINGS

Dipswitches **SW1** and **SW2** are located behind on the top right of the white label. You can access them by carefully removing the label and re-sticking it once configured as desired.

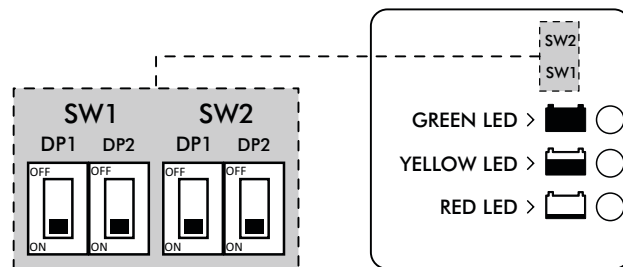
SW1: Adjusts the charge curve for various battery types with various combinations of DP1 and DP2

SW1/DP1	SW1/DP2	CHARGE CURVE
ON		15A
OFF		25A
	ON	Stop at END of CHARGE
	OFF	Float at END of CHARGE

SW2: DP1 adjusts the charging current and DP2 the output voltage.

SW2/DP1	CHARGING CURRENT
ON	IuIa Wet
OFF	GEL/AGM Battery

SW2/DP2	BATTERY VOLTAGE
ON	12V
OFF	24V



DC OUTPUT CABLES (BATTERY)

AUXILIARY RELAY CABLES

The auxiliary relay contact is normally closed and opens when the battery charger is turned on. It can support a maximum current of 1A on inductive load or 2A on resistive load.

AC INPUT CABLE