

pulsar

SPORT

PROFESSIONAL BATTERY MANAGEMENT

USER GUIDE

Order No.:

41450

LRP

ELECTRONIC

LRP electronic

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Dear Customer,

You have purchased the Pulsar Sport Charger (referred to as PSC in this pamphlet) - one of the most advanced battery management systems currently on the market. Through the use of the latest digital technology, the product achieves very high performance and reliability. The following features give the PSC decisive benefits (see later for detailed description):

- LCD with 1x16 digits
- Professional charger for up to 7.0 A
- Multiprotection system (triple protection)
- Digital microprocessor-controlled with PCS-2 and auto-restart system
- PWM circuit for efficient charging under all conditions
- Intuitive, logical navigation
- Storage for user-defined programs

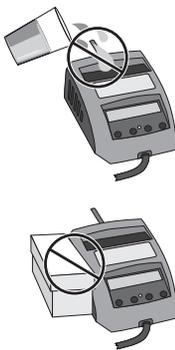
Don't forget to read the complete instructions for use carefully before you start to operate the PSC. Make sure you have understood all the points.

TECHNICAL DATA

Dimensions	100x153x70 mm	PCS-2	yes
Weight	400 g	Auto restart-system	Yes
Input voltage	11 to 15 V	Multiprotection system	3-way
No. of cells	1 to 8	LC Display	1x16
Charge current	0.1 to 7.0 A	LED	Yellow
Trickle charge	Yes (On/Off)	Keys	4
Delta peak	5 to 80 mV	13-awg output wire	Yes

WARNING NOTES

- Only use the PSC to charge quick-chargeable nickel-cadmium or nickel-metal-hydrate packs. If you try to charge other cell types (e.g. lead, lithium-ion, etc.), it may cause damage to the cells or the PSC.
- Avoid any contact of your PSC with water or other liquids.
- Never cover the cooling slots on the PSC. Only place your PSC on constant-temperature surfaces. Never place on carpets or cloths.
- Never allow the PSC to operate without supervision and never keep your PSC connected to a power supply, car battery or battery pack when it is not in use.
- Only charge serially switched battery packs containing 1 to 8 cells. Never charge parallel switched cells.



- Always comply with the charging instructions of the battery manufacturers and matchers and never exceed their specifications (refer to the additional sheet for adjustment tips).
- Never use a power supply with more than 15 V output voltage. Never try to operate the PSC directly from a 110/230 VAC power source. For best performance, we recommend the LRP Power Supply (#43150).
- Make sure you connect the terminals with the correct polarity, on both the input and output sides! Red indicates the positive pole and black the negative pole.
- New chargers may produce a slight odor in the first few hours of service due to materials curing inside the device.
- If individual cells in the pack heat up excessively, immediately stop the charging process.



SPECIAL FEATURES

PCS-2 (Peak Capacity System)

The voltage charge curve of NiMH cells may vary considerably at the start of charging due to cell construction. Conventional chargers interpret this incorrectly delta peak reached and terminate the charging process (false peak). The PSC has the LRP-exclusive PCS which contains advanced algorithms to detect this phenomenon. This ensures reliable full charging. PCS-2 allows perfect full charging of all cell types by means of an adjustable delta peak and high-precision digital-filter detection of all parameters during the entire charging process. The PSC signals full charge and end of charge by an alert buzzer that sounds for 3 minutes at 4-second intervals.

Auto Restart System

As a worldwide innovation, the PSC continues to charge after the input voltage fails and displays the duration of the power failure if it last longer than 3 mins. A total power failure at races is no rarity and this feature allows you to fully charge your battery packs within the remaining time at increased charge current. The PSC keeps you informed of the length of the charge interruption. Example: "Int14min" (for 14 min interruption) is displayed in alternating sequence.

Changing the Current During a Charge

The charge current can be changed during a charge by pressing INC+ or DEC- without interrupting the process. This change is not stored. The next time you start charging, the device takes the data settings stored under "Settings". Refer to PCS-2.

PWM Circuit

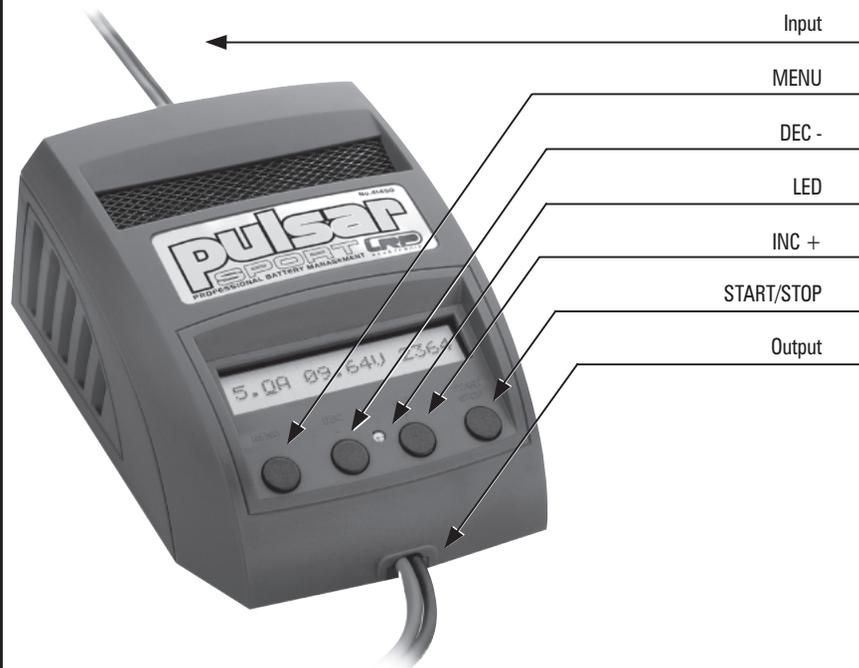
The PSC ensures efficient charging by using the latest digital technology.

There are many benefits here:

- maximum charge current already for low input voltage
- maximum charge current for 1- to 4-cell battery packs
- very low heat dissipation
- more charges from a car battery since the charger has a higher efficiency

TERMINALS/DISPLAY/OPERATION

The PSC was developed with the main objective placed on easy operation of all features. Intuitive navigation by means of 4 keys makes it very easy to use and the LC-display offers perfect, reliable control of all parameters.



Keys

MENU	Scrolls or jumps through the function list
DEC -	Decrements the underscored value.*
INC +	Increments the underscored value.*
START/STOP	Next program step / Start a program / Cancel a running program

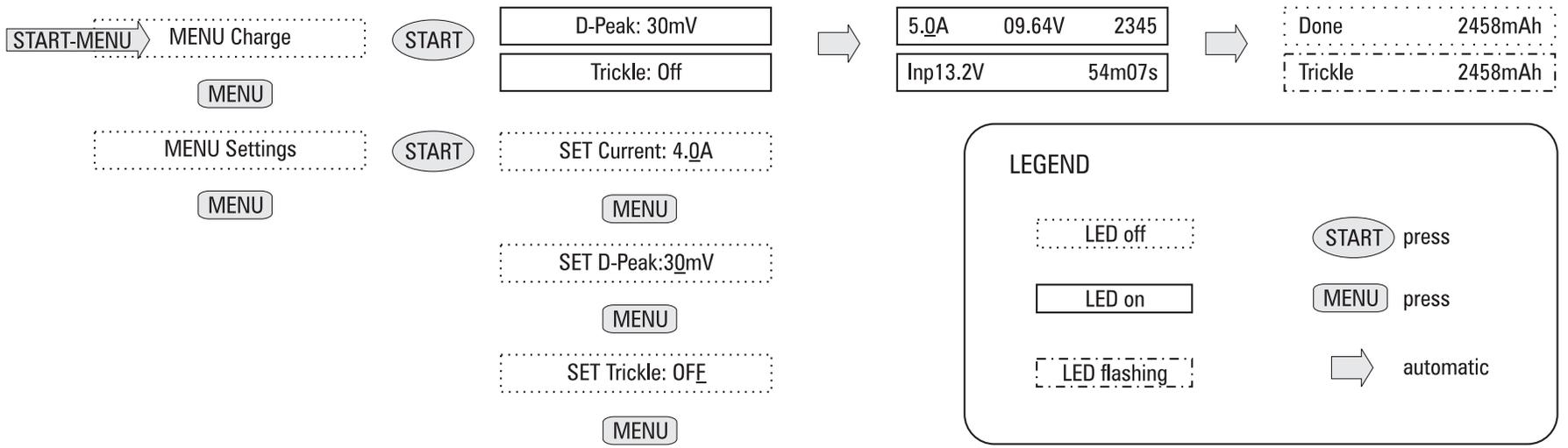
* Key has high-speed function for rapid setting (hold down key to change value faster).

Displays

The messages below appear in alternating sequence so that you can keep check of all key information:

Charge current	Battery voltage	Input voltage
5.0A	09.64V	2364
Charge Capacity		Time elapsed since start
		Inp13.2V 54n04s

PROGRAM STRUCTURE



SETTINGS

The PSC is supplied with factory settings which you can customize in the Main menu under „Settings“. The values you change under „Settings“ are stored automatically. You can compile your personal charge profile and retrieve it at any time.

To reset your PSC to factory settings, proceed as follows:

- Disconnect input voltage
- Hold down MENU key while reconnecting the input voltage..

CHARGE

SET Charge Current

The charge current can be set variably from 0.1 A to 7.0 A. If not otherwise specified by the battery manufacturer, the quick charge current should be maximum twice the nominal capacity for Sub-C cells typically used in RC-models.

SET Trickle Current

This current, which flows after delta peak cutoff, is adjustable from 0.0A to 0.1A (Off / On) to achieve the highest possible voltage for NiCd cells. Set this function to Off for NiMH cells and On for NiCd.

SET D-Peak (delta peak)

You only obtain the best battery full charge if you "overload" the battery slightly. In practice, it isn't overcharged but at optimum full charge. The battery voltage drops at the end of the charging process (delta). The size of the drop (delta peak) is adjustable in the range from 5 mV to 80 mV. The higher the value, the hotter the battery will be at charge end. We recommend you start with the factory setting of 30 mV.

TROUBLESHOOTING GUIDE

The PSC is protected against faults and operator errors by the Multiprotection System. Faults are displayed on the LCD. Some faults may interrupt the charging session.

Display	Possible Cause:	Response...
BATTERY FAILURE	<ul style="list-style-type: none"> → Wrong battery polarity → Short-circuit at output → Battery defect → No contact to battery 	Operation interrupted after 5 s warning buzzer (returns to Main menu).
INPUT FAILED	<ul style="list-style-type: none"> → Input voltage too low → No input voltage → Terminal on PS/Car battery disconnected 	Resumes automatically when input voltage restored
INPUT TOO HIGH	<ul style="list-style-type: none"> → Input voltage too high → Power pack defective? 	Resumes automatically when input returns to acceptable level (< 15.8 V)
TEMPERATURE HIGH	<ul style="list-style-type: none"> → Temperature too high → Charge current too high 	... alert buzzer stops after 5 seconds (returns to Main menu).

LCD

LCD stays dark, no function → Change the fuse

Input Low

If input voltage too low, the PSC will continue to charge and set the charge current automatically to make sure full battery charge is achieved. If this function is active, "Inp Low" appears in the LCD alternating with the input voltage reading. You cannot increase the charge current manually.

Temp Hi

If the temperature is too high, the PSC will continue to charge and set the charge current automatically to make sure full battery charge is achieved. If this function is active, „Temp Hi“ appears in the LCD alternating with the input voltage reading. You cannot increase the charge current manually.

Fuse

The PSC has an additional internal fuse which protects the charger from irreparable damage if operated incorrectly! The PSC is supplied with a replacement fuse. It is easy to replace. Proceed as follows: Make sure that nothing is connected to the PSC. Slacken two screws in the housing base and fold open the housing. Remove the defective fuse. Insert a new fuse and then close the PSC.

REPAIR PROCEDURES/WARRANTY

In case of problems first check the trouble shooting guide or contact the hobby shop where you bought the product or contact your national LRP-distributor. In case of damage, repair fees are normally far below the recommended retail price of a new unit. **Hobby shops are not authorized to replace products thought to be defective.**

Warranty can only be accepted if it is claimed by the customer on the warranty sheet. Original sales receipt including date of purchase needs to be included. Otherwise, no warranty can be grant.

For quick repair and return we definitely need your address, detailed description of the malfunction and the original sales receipt. Repair may be refused without sales receipt.

To guarantee a proper repair, cut off or worn receiver plugs, wires and switches will be replaced and charged in any case. Any product treated severely with silicone or anything similar inside, might not be repairable.

Products sent in for repair that operate perfect normally will be charged with a service fee. Therefor first check with the trouble-shooting guide.

LRP guarantees this product to be free from defects in materials or workmanship for 90 days from the original date of purchase verified by sales receipt.

This warranty doesn't cover: suitability for specific operation, incorrect installation, components worn by use, application of reverse or improper voltage, shipping, tampering, misuse like any soldering inside the unit, poor installation, replacing of wires on the board, connection to electrical components not mentioned in the instructions, mechanical damage, immersion of water and cutting off the original wires, plugs, connectors and switches.

Our warranty liability shall be limited to repairing the unit to our original specifications. Because we have no control over the installation or use of this product, in no case shall our liability exceed the original cost of this unit. We can't accept any liability for any damage resulting from using this product. By the act of installing or operation this product, the user accepts all resulting liability.

WHAT SHALL I DO?

- Package your product carefully.
- Send parcel to your national LRP distributor.
- Distributor repairs/replaces the product.
- Shipment back to you usually by COD (cash on delivery), but is subject to your national LRP distributor's general policy.