Technical Data

Type of Charger	**8 Step, fully automatic, switch mode with maintenance charging**		
Type of Batteries	**12V Lead acid rechargeable batteries (WET, MF, VRLA, AGM,GEL & Calcium)**		
Input Voltage AC	**220V-240VAC, 50/60Hz**		
Output Voltage	Nominal : 12V		
Input Current	**0.65A RMS Max.**		
Minimum Battery Voltage	2.0V		
Output Power	**60W**		
Charging Voltage	14.4V ± 0.25V	14.7V ± 0.25V	BOOST 16.0V
Efficiency	**80%**		
Charging Current	0.8A	5A Max.	
Ambient Temperature	**-30°C to 50°C, reduced output power at higher temperatures**		
Battery Capacity	1.2-120Ah (charging) up to 160 Ah for maintenance		
Housing Protection	**IP65 (dust and splash proof) outdoor**		
Ripple Voltage	< 2%		
Back Current Drain*	5mA		
Noise Level	< 50dB (Tested from a distance of 50cm)		
Dimensions (LxWxH)	187x63x48mm		
Weight	0.75kg		

* Back current drain is the amount of current drawn by the charger from the battery, when the charger is connected to the battery without the AC power cord connected.

Bulk Charging Times

Battery Size (Ah)	MODE	For ± 80% charge (hours)
6	0.8A	7
8		9
12		14
20	5.0A	4
60		12
80		16
120		24

Batteries below 12Ah should not be charged with 5Amp current

Type of Batteries

WET - **Lead Acid Flooded Battery, (can be serviced).**
MF - **Maintenance Free (Sealed, cannot be serviced).**
VRLA - **Valve regulated Lead Acid (Sealed).**
AGM - **Absorption Glass Matt**
GEL - **Gel Cell (Sealed).**
Calcium - **Lead Calcium, maintenance free.**

Declaration of Compliance

Tested and approved by and conforms to:

EN 60335-1	EN 61000-3-2
EN 60335-2-29	EN 61000-3-3
EN 55014-1	EN 62233
EN 55014-2	

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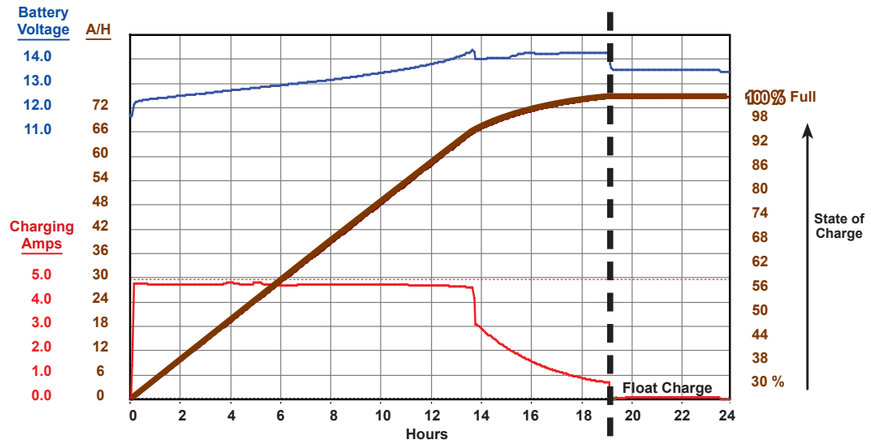
NL - Bat Charger - B - R- Feb 2017

Data Log Graph illustrating the recharge characteristics of the National Luna 5Amp Intelligent Charger applied to a 105 A/H deep cycle battery after it was subjected to a 70% depth of discharge. (i.e. 73.5 A/H was removed from the battery and then recharged over a 24hr period).

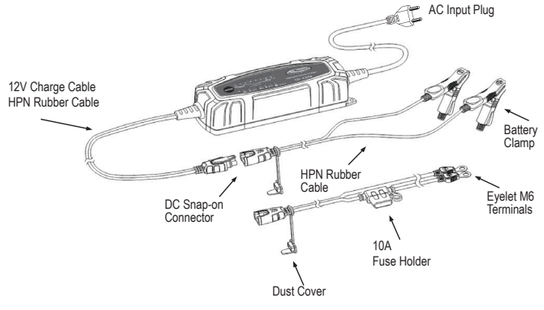


Full Charge

In the above example it can be seen that the battery took approximately 19 hours to reach maximum charge. Thereafter the charger reverts to an automatic float / maintenance state to keep the battery in peak condition.

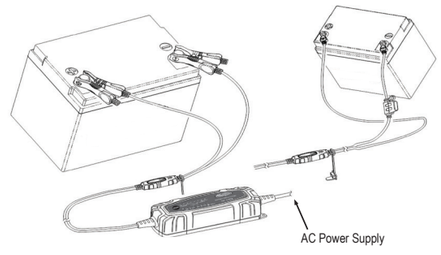
Kit Includes / Contents of Package

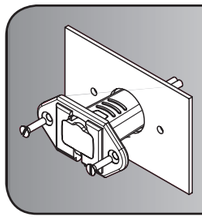
1) NL 5Amp 8 Step Intelligent Battery Charger
2) Quick contact battery leads with clamps
3) Quick contact battery leads with eyelet terminals (Ø 6.5mm) with in-line battery protection fuse (10A) for permanent attachment to the battery posts to allow quick connection/disconnection using a snap-connector.



Charging Set-Up

Charging using battery clamps **Charging using M6 eyelets**





Panel Mount Housing
(Available as an optional extra)

A special housing has been designed to clip over the existing snap-on connector supplied with the battery charger. Simply drill the mounting holes on the panel where required.

Ø - 27mm (Large hole)
Ø - 3.5mm (M3 Screw)

National Luna **Intelligent BATTERY CHARGER**

Charges & Maintains

Flooded (WET), MF, VRLA, AGM, GEL & Calcium Batteries

A compact Dual Function 12Volt Battery Charger suitable for motorcycle, motor vehicle and Deep Cycle batteries

UNIQUE FEATURES - ONE CHARGER DOES IT ALL !

- **Automatically Diagnoses, Recovers & Charges Flooded (WET), MF, VRLA, AGM, GEL & Calcium Batteries**
- **Unique charging and maintenance feature enhances battery life** *(Can be permanently connected)*
- **8 Step fully automatic smart charge & maintenance program**
- **1.2Ah - 120Ah (charging) up to 160Ah battery capacity**
- **Rescues drained batteries over 2 Volt**
- **Includes Quick Connect battery clamps**
- **Includes Quick Connect ring terminals**

0.8A 5.0A

12V 5A

5YR WARRANTY

CE QUALITY ASSURED

SET PDF Min Line Width .25 !!!!!

GOOD REASONS FOR BUYING A BATTERY CHARGER

To get an understanding of good battery maintenance, this document will assist the user regarding the correct charging procedures in order to prolong the life of a battery.

As a general rule, a battery should never be allowed to be left in a discharged state. (This causes unnecessary damage and greatly reduces the life of the battery).

There is a popular misconception that a battery can rapidly re-charge itself in a short space of time. (This is simply not true for most batteries). If not properly re-charged after use, irreparable damage to the battery will occur if not maintained with a full charge.

- Motorcycle - Typically a motorcycle is rarely used and the battery goes flat over time.
- Boating - When a boat is in storage the battery will naturally discharge over time.
- Motor Vehicle - Many motor vehicles are driven short distances on a daily basis, and the battery is never able to reach full charge.
  Most vehicles are fitted with an electronic alarm system that requires power from the battery. In the event of the vehicle being left in storage and not used (i.e. being on holiday) the battery could be completely discharged, causing irreparable damage. Connecting a maintenance charger will keep the battery in peak condition.
- Auxiliary - When camping, an additional auxiliary battery can be used to provide power for 12Volt lighting & refrigeration. (It can take up to 24Hrs to recharge the battery back to full capacity after use).
  - When a Dual Battery System is installed in a vehicle the main battery remains fully charged and only the auxiliary battery is being used (discharged). Even though the car is driven for, say 6Hrs, and the main battery is fully charged, the auxiliary battery has not had sufficient time to recharge completely.
- Household - Should there be a power failure at home, back-up batteries used for motorised gates, computer UPS and alarm systems would need to be re-charged.

Choosing the correct Battery Charger

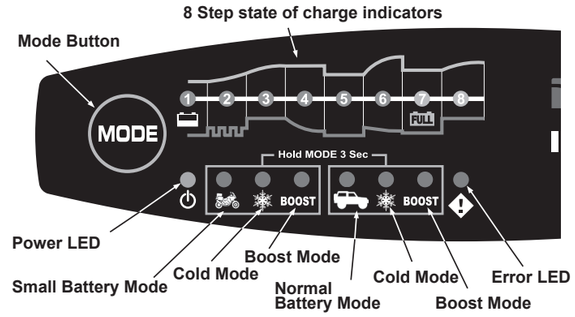
Previously the older type batteries could be serviced and the electrolyte (distilled water) added.
Most common battery chargers were developed to charge these older type batteries.

Most modern batteries are of a sealed maintenance free design, and require specialised charging.
The battery charger must not subject the battery to over charging (gassing) as this will deplete the electrolyte and cause damage to the battery.

Newer batteries such as Dry Cell, AGM and Gel batteries should never be charged with the older type battery chargers.

The National Luna Battery Charger is suitable for all battery types

How The National Luna 5Amp Battery Charger Works

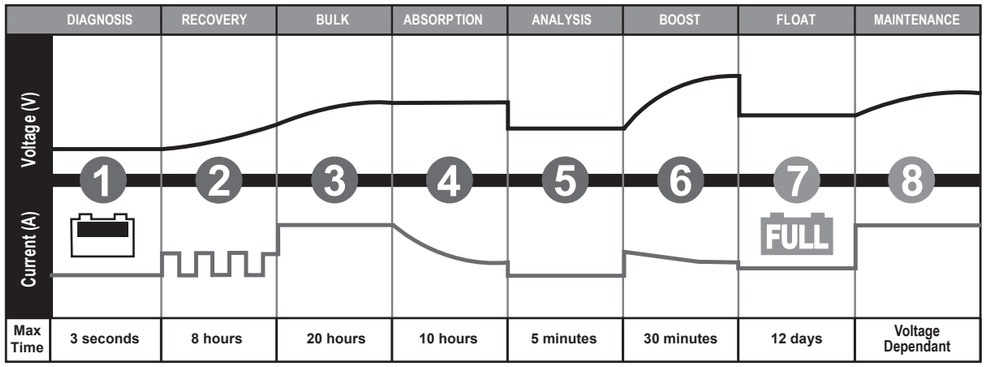


CHARGING MODES

For Batteries less than 12Ah	
	Mode 14.4V/0.8A This mode is suitable for batteries less than 12Ah.
	Mode 14.7V/0.8A This mode is recommended for AGM batteries less than 12Ah. This mode is also suitable for charging batteries in sub-zero temperatures.
BOOST	**Mode 14.4V/0.8A + 16.0V/0.3A** This mode is suitable to recover severely discharged batteries smaller than 12Ah. *(Recommended to boost at least once a year).*
BOOST	**Mode 14.7V/0.8A + 16.0V/0.3A** This mode is suitable to recover severely discharged AGM batteries smaller than 12Ah or charging in sub-zero temperatures.

For Batteries greater than 12Ah	
	Mode 14.4V/5.0A This mode is used for Flooded (WET), MF, VRLA, AGM, GEL, Deep Cycle and Calcium batteries.
	Mode 14.7V/5.0A This mode is recommended for AGM batteries. This mode is also suitable for charging batteries in sub-zero temperatures.
BOOST	**Mode 14.4V/5.0A + 16.0V/1.5A** This mode is suitable to recover severely discharged batteries. *(Recommended to boost at least once a year).*
BOOST	**Mode 14.7V/5.0A + 16.0V/1.5A** This mode is suitable to recover severely discharged AGM batteries or charging in sub-zero temperatures.

THE NATIONAL LUNA NL 5Amp CHARGER PERFORMS AN 8-STEP FULLY AUTOMATIC CHARGING CYCLE



1) Diagnosis : This unique diagnostic function checks the status of a battery and ascertains if the battery can accept charging.
2) Recovery : A deeply discharged battery of over 2.0V can be recovered and charged with pulse charging of a small current.
3) Bulk : 80% of energy is returned in this phase with maximum charging current.
4) Absorption : With use of declining current technology charging up to almost 100% is achieved.
5) Analysis : Checks status of charge. If battery does not retain energy, it must be replaced.
6) Boost : Recovers severely discharged batteries under high voltage charge.
7) Float : Battery is fully charged and ready to use.
The battery is maintained at maximum level by applying low current charge.
8) Maintenance Charge : The charger continuously monitors the terminal voltage in order to determine if a maintenance charging should be initiated to keep battery fully charged. (i.e. When the charger is permanently connected).