LATRONICS®
A NEW WORLD POWER

INSTRUCTION MANUAL
and
WARRANTY REGISTRATION CARD

DC SERIES

FIVE STAGE SMART CHARGER
30A - 12V
15A - 24V

Latronics P.O. Box 73 Moffat Beach Qld 4551 AUSTRALIA

Ph 61 7 5491 6988

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Please Affix Stamp Here

LATRONICS
P.O. BOX 73
MOFFAT BEACH QLD 4551
AUSTRALIA

WELCOME

Latronics products are all proudly designed, engineered and manufactured in Australia. As a specialist power electronics company we produce Inverters & Chargers for a diverse range of applications such as; mining, railways, telecommunications, marine, remote power, motor homes, and other industrial or commercial installations.

In order to produce the most reliable products available, ***Latronics*** Chargers have been designed to endure the most rugged terrain and the harshest conditions across the Australian continent.

All products are engineered using the latest high quality components and manufactured to stringent quality standards, thus ensuring ***Latronics*** customers all enjoy many years of trouble free operation.

It is important to us that you enjoy the maximum benefits from your new Charger in a safe and productive environment. We strongly advise that you read through the next few pages of this manual, which explains all the modes of operation and relevant safety precautions for your new Charger.

Please remember to complete and return your registration card or complete the online registration to validate your 2-year warranty. Please retain your receipt as proof of purchase.

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IMPORTANT !

As an environmentally conscious customer you may choose to Register online at http://latronics.com.au . Once completed online there is no need to post this registration card.

Serial No..... Date card returned.....

REGISTRATION CARD

Your 2-year warranty is only valid if this card or online registration is completed within 3 months of the date of purchase.

Name:.....Post code:.....Serial No:.....

Date of Purchase:.....Supplier:.....

Email (optional): .....Comments:.....

.....

~Where is your Charger being used?
Solar Power ☐ Camping/Caravan ☐ Marine/Boat ☐ Commercial ☐ Backup Supply ☐ Other ☐

~Was your decision made because of?
Features ☐ Value for Money ☐ Appearance ☐ Recommendation ☐ Warranty ☐ Australian Made ☐

~How do you rate the service from your supplier? Fair ☐ Good ☐ Very Good ☐ Excellent ☐

~Did your new Charger meet your expectations? Above Expectations ☐ Yes ☐ No ☐

CHARGER SPECIFICATIONS

CHARGER MODEL	DC-1230	DC-2415
Nominal DC Voltage	12V	24V
Charge Current Continuous	30A	15A
Equivalent RMS Current	45A	22A
Boost Voltage	13.9 -15.2	27.8 - 30.4
Absorb Voltage	13.9 -15.2	27.8 - 30.4
Float Voltage	13.0 -14.0	26.0 - 28.0
Equalise Voltage	14.8 -15.4	29.6 - 30.8
Input Voltage	240 Vac +/- 5%	
Input Frequency	45 - 65 Hz	
Operating Temperature	-10° C to +50° C	
DC to AC Isolation	3500V	
Battery Leads	1 m Long with 10mm mounting Lugs	
Protection Circuitry	Overtemperature, Overload/ Short circuit, Reverse Polarity	
Dimensions	260 mm x 160 mm x 100 mm	
Enclosure	Powder Coated Aluminium	
Warranty	2 years	
Standards	As3100, EN55014 & C-tick	

Due to constant improvements, specifications are subject to change without prior notice.

BATTERY TYPE	EQUALISATION		ABSORPTION		FLOAT	
	HOT	COLD	HOT	COLD	HOT	COLD
Lead Calcium	15.0V	15.4V	14.8V	15.2V	13.6V	14.0V
AGM	NA	NA	14.0V	14.7V	13.0V	13.6V
Gel/SLA	NA	NA	13.9V	14.3V	13.1V	13.5V
Flooded	14.8V	15.2V	14.0V	14.4V	13.2V	13.6V

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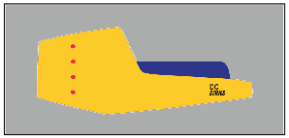
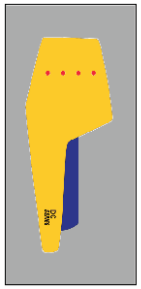
INSTALLATION

- Ensure the Charger has not been damaged in transit.
- The unit must be placed in a well-ventilated and protected area, not exposed to the open environment, and free from contaminates (i.e. exhaust gases, sea air, battery gases, dust).
- A space of 10cm is needed on each side of the Charger for adequate transfer of internal heat.
- The Charger can be mounted vertically on a wall or horizontally on a table or shelf and is designed for indoor use.





DC WIRING

- For best performance, the unit should be placed as close as possible, but not directly on top of the battery supply.
- The Charger DC output voltage is stated on the identification label of the Charger. Check that it is the same voltage as the battery supply.
- The Charger is designed to operate on a 240Vac mains supply only.
- The Charger is fitted with a circuit breaker in line with the battery positive lead, which negates the need for a battery fuse.
- Ensure the Charger is switched OFF before connecting to the Battery. Turn the DC circuit breaker switch to the OFF position and disconnect the AC plug.
- Connect the Charger DIRECTLY to the battery terminals for best performance.
- Battery leads marked RED = (positive), & BLACK = (negative).
- For Automobile Batteries, the battery terminal not connected to the chassis has to be connected first. The other connection is to be made to the chassis, remote from the battery and fuel line. The battery charger is then to be connected to the supply mains.

OBSERVE POLARITY

NOTE: Cables connecting the Charger to the battery are designed to achieve maximum efficiency and output power:

DC CABLES SHOULD NOT BE EXTENDED.

WARRANTY TERMS AND CONDITIONS FOR AUSTRALIA

Latronic Sunpower Pty Ltd ("Latronics") provides the original purchaser of a Latronics product ("You") with the following Limited Warranties as set out in this warranty certificate, in addition to your rights and remedies under consumer law.
The Limited warranty periods of this charger is 2 years. In all circumstances Latronics products are guaranteed from the date of purchase.

Part 1 - Warranty Descriptions

Latronics warrants to You that our products are guaranteed against defects in material or workmanship, when in normal use and service.

What you must do

1.For a Limited Warranty to apply the Registration Card must be validly completed by You and returned, prior to the expiration of 3 months from the date of purchase.

2.You must provide proof of purchase.

3.Latronics recommends You keep your receipt as proof of purchase, should any difficulties arise concerning the return of your Registration Card.

Exclusions:

For the avoidance of doubt, the Latronics product warranties provided herein do not cover damage, malfunctions or service failures caused by, amongst other things:

- Unauthorized opening of the products, repair, alteration or substitution of nonstandard parts;
- Incorrect design and/or installation of 'balance of system';
- Acts of god, accident or similar cause;
- Failure to follow Latronics installation, operation or maintenance instructions;
- Abuse, misuse or negligent acts;
- Power failure surges, lightning, fire, flood, pest damage, accidental breakage, actions of third parties and other events or accidents outside Latronics' reasonable control and not arising from normal operating conditions;
- Suitably qualified personnel not carrying out all AC and DC permanent wiring in accordance with relevant wiring rules.

Products supplied by Latronics, or Latronics agents are supplied under the express condition that no responsibility is implied or accepted by Latronics for any damage to any appliance, equipment or property used in combination with the correct operation of a Latronics product.
All conditions and warranties expressed or implied by statute, common law, equity, trade, custom, usage, or otherwise howsoever are hereby expressly excluded to the maximum extent permitted by law. Where so permitted, the liability of Latronics for a breach of condition or warranty that cannot be excluded is limited (at Latronics option) to the replacement or repair of the goods or of acquiring equivalent goods or the cost of replacing or repairing the goods or of acquiring equivalent goods.

Latronics does not undertake any commitment to guarantee continuity of supply in the case of obsolescence. In addition, Latronics reserves the rights to change its standard product range or specification of any model subsequently without notice and no liability as a result of these occurrences will be accepted.

Part 2 – Returning a Latronics product for service under warranty.

If service is required contact your local supplier/installer or place of purchase for advice.
To Claim Under Warranty:

1.You should contact the Customer Care Centre on 1300 550 204. Product Model number and Serial number need to be readily available to enable prompt processing.

2.If, after investigation, the Customer Care Centre determines the product is or may be defective in material or workmanship and within the warranty period, they will issue instructions on how to proceed with return and shipping to Latronics.

3.When packaging a Latronics product for return appropriate measures must be taken by You to ensure the products are safely packed for transit. Products damaged in transit due to inadequate packaging will be void of warranty.

4.If the product manual has a Warranty Return Form included, this form should be completed and accompany products being returned.

5.If, as a result of further investigation by or on behalf of Latronics, such a defect is confirmed, then Latronics must, at its sole election, either repair or replace your Latronics product. Latronics will also, at their discretion, determine the most appropriate means to return any Warranty repairs (or replacements) to You in a timely manner.

Part 3 - General Information

Replacement of any part or labour involved in repairs will not have the effect of extending the original period of the Limited Warranty of the goods. Any faulty part replaced under Limited Warranty becomes the property of the Company for purpose of examination and claim under proprietary warranty.

Under these product warranties, Latronics is not responsible for and you hereby agree to bear any costs associated with removal, transportation or reinstallation of your Latronics products or any peripheral components in the balance of any system used in conjunction with Latronics products.
Products returned to Latronics without prior authorisation will be returned to the sender at their expense.
All Warranty repairs are completed ex-factory to ensure

- Fast service turn around time
- Specialised, factory trained technicians
- All required components are available (except in the case of obsolescence)
- Thorough testing to all Latronics specifications
- Dedicated test equipment
- Upgrades/updates to latest Latronics standards/specifications (where applicable).

Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

FAULT FINDING

Should the charger appear to be malfunctioning we suggest the following to eliminate any external problems.

1. Turn the charger OFF by disconnecting the AC plug and switching the circuit breaker OFF to disconnect from the batteries.

2. Disconnect all DC battery leads. Clean all terminals by removing all grease/corrosion on both leads and battery terminals.

3. Reconnect all leads and terminals and ensure all connections are tight.

4. Remove other wiring from battery to ensure that the Inverter is the ONLY device connected to battery bank

5. Turn the charger ON via the AC plug and DC circuit breaker on the front panel. Observe the lights on the front panel for status and mode of operation. Refer to charger operation section for full explanation of indicators.

   Note - If battery voltage is below 6V, this will show as battery fault condition and will not charge.

➲ HELPFUL HINTS

* Make sure Green led comes ON when AC plug is connected and turned ON. If Led is OFF check AC fuse.
* When the DC Circuit Breaker is turned ON, check that neither of the Battery fault or reverse polarity indicators are flashing.
* Make sure terminals and leads are not corroded or faulty in any way.

BATTERIES

BATTERY SIZING

To ensure optimum performance, it is important to match the charger size according to the capacity of your batteries. Use this formula as a general guide:

Approx. Charger Size = Battery AH capacity ÷ 10
e.g. 300 AH ÷ 10 = 30A Charger
Minimum Battery size = 100 AH

Note: Do not attempt to recharge non-rechargeable batteries.

MAINTENANCE

Battery terminals require frequent care and maintenance. We recommend an inspection of the batteries and the interconnecting cable connections once every 1-3 months or as recommended by the battery manufacturer.

1. Regularly check all connections; make sure they are always tight. Battery terminals are made of soft lead which will slowly compress over time eventually causing loose connections.

2. Check all connections are free of corrosion. Remove any corrosion and coat the terminals with Vaseline or grease to help prevent future corrosion.

3. Take specific gravity or SG readings of each cell using a hydrometer to check the level and performance of each battery. Alternatively a battery voltage reading for each cell will suffice but may not be accurate for multiple batteries connected in parallel. Report any serious imbalance to your system installer or battery supplier for corrective action.

SAFETY

When working on batteries protective clothing and eye wear should be worn. Extreme care should be taken not to short circuit any battery terminals especially with tools. If in doubt have the work carried out by qualified personnel.

HOW IT WORKS

Boost Mode
Is a high current, high voltage charging cycle to allow maximum charge into the battery as quickly as possible.

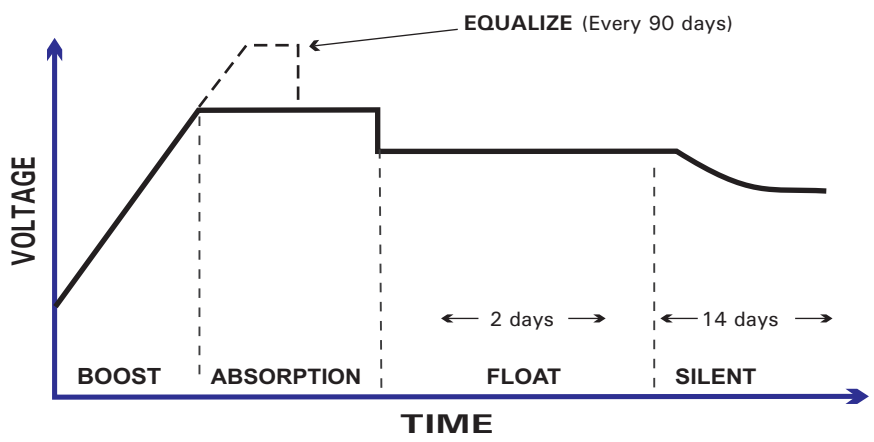
Absorption Mode
The high voltage is maintained while the current is reduced, until the battery is charged to its maximum capacity.

Float Mode
The battery is now held at an optional voltage with a small trickle charge, ensuring the battery is ready for action.

Silent Mode
Remaining in float charge indefinitely has been shown to reduce battery life. Silent mode removes all charging and allows the battery to settle naturally, maximising the life of your battery. The battery is then continuously monitored and automatically topped up as required.

Equalisation Mode
Every 90 days an equalisation cycle is performed to ensure that all cells in the battery are all at an equal state of charge. This prevents battery stratification while also reducing sulfation.

CHARGING STAGES



RADIO FREQUENCY INTERFERENCE

Radio Frequency Interference (RFI) is a phenomenon that exists in modern society and is a problem in many areas of electronics. For users, RFI normally presents itself in the form of static and/or interference when listening to an AM radio and in unusual cases may interfere with TV reception.

Over the years Latronics has continued to invest significant time and effort in the reduction of RFI related emissions from the entire product range, so that they comply with the appropriate International and/or Australian Standards.

Even with this compliance, there are situations where RFI may still be a cause for concern, and can differ greatly from installation to installation. Accordingly, the following is a list of recommendations made to assist in the overall reduction of RFI.

1. Separate DC and AC wiring. Avoid running DC and AC cables in the same conduits and/or cable trenches. It is strongly recommended that DC and AC wiring be separated by the greatest distance possible. In extreme cases, the use of shielded conduit may be necessary.
2. Minimize length of DC cabling. DC cables can act as an aerial, therefore all such cables should be kept as short as is practicable. For best performance minimize DC cable length between charger and batteries and if possible avoid the use of auxiliary DC loads.
3. 240Vac Earth. For household installations, it is recommended that a "good" Earth Stake is located as nearby any Charger as is possible.
4. AM and HF Radios. These types of radio equipment inherently suffer from all forms of RFI, especially when the received signal level is weak. In such cases reception can sometimes be improved by relocation of the radio itself, alternatively the use of an appropriate external antenna and co-axial cable may be necessary. External antennas should be located in a manner that ensures maximum signal strength whilst affording the greatest possible distance away from the Charger and batteries.
5. Televisions. TV signals are transmitted as FM waveforms. This type of signal fundamentally reduces the effects of RFI, therefore the use of a good antenna and feeder cable is normally sufficient to ensure quality reception. Locating the television as far as possible from the Charger may also improve picture clarity.
6. Mobile Installations. Due to the limitations of this type of installation, the best results for the minimization of RFI are usually obtained by maximizing the distance between the Charger and the Radio/Television.

SAFETY

Charger Isolation and Safety

* All Latronics Chargers have an isolation rating of 3500V between AC and DC via the toroidal transformer, which ensures extremely safe and risk free operation.
* All the switching electronics and control circuitry are on the DC output.
* The single pole circuit breaker assembly ensures that when the Charger is switched OFF, it is isolated from the battery supply.
* This charger is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety
* Children should be supervised to ensure that they do not play with the charger.

AC WIRING

* The active and neutral of the 240V AC input are electrically isolated from the battery negative, battery positive, and earth connections.
* The Charger AC input is connected directly to the transformer input winding.
* Latronics Chargers have the AC input (active and neutral) floating with respect to the DC and Earth. The Earth connection is connected to the case only. This configuration provides the highest safety and most flexibility for installation wiring.
* Recommended minimum generator size 1500VA or good quality inverter style generator of 1000VA.
* The AC fuse is located internally on the main PCB.
  Fuse rating is Antisurge/Slow blow 5A.

WARNING: It is important that all AC wiring complies with the requirements of the relevant wiring standards. Any work carried out on AC/Mains wiring is to be performed by Qualified and Licensed personnel only.

STATEMENT OF QUALITY ASSURANCE

The whole of the supplies have been subjected to the Quality System Requirements in accordance with the conditions of AS/NZS ISO 9002: 1994. All items are manufactured with full traceability.
All DC Series 5 Stage Smart Chargers conform to the C-Tick mark for the EMC emission standard En55014

DIP SWITCH SETTINGS

In order to access these options you have to open the Charger. Before altering the settings switch Charger OFF, adjust the setting and switch Charger back ON again. We recommend these adjustments be carried out by qualified personnel or your system installer.

SW1	SW2	Battery Type
ON	ON	Lead Calcium
ON	OFF	AGM
OFF	ON	Gel/SLA
OFF	OFF	Flooded

(Factory Setting)

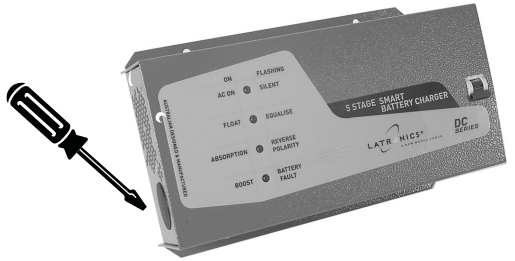
SW3 Temperature
ON = COLD
OFF = HOT (Factory Settings)

SW4 Equalise
ON = ENABLE (Factory Settings)
OFF = DISABLE
* *Note* - Equalise Function is disabled when AGM/GEL battery type is selected.

SW5 Silent Mode
ON = ENABLE (Factory Settings)
OFF = DISABLE

SW6 Special
ON = Special Factory Test Function. Do not use for normal operation
OFF = Factory Settings

LOCATION OF DIP SWITCHES



Removable plug for access to selector switches.
Turn Charger OFF and disconnect AC power cord before removing plug.
Note: Replace plug before reconnecting Charger.

CHARGER OPERATION

When the charger is first switched on all LED's light up for one second while the microprocessor performs a start up and system check procedure.

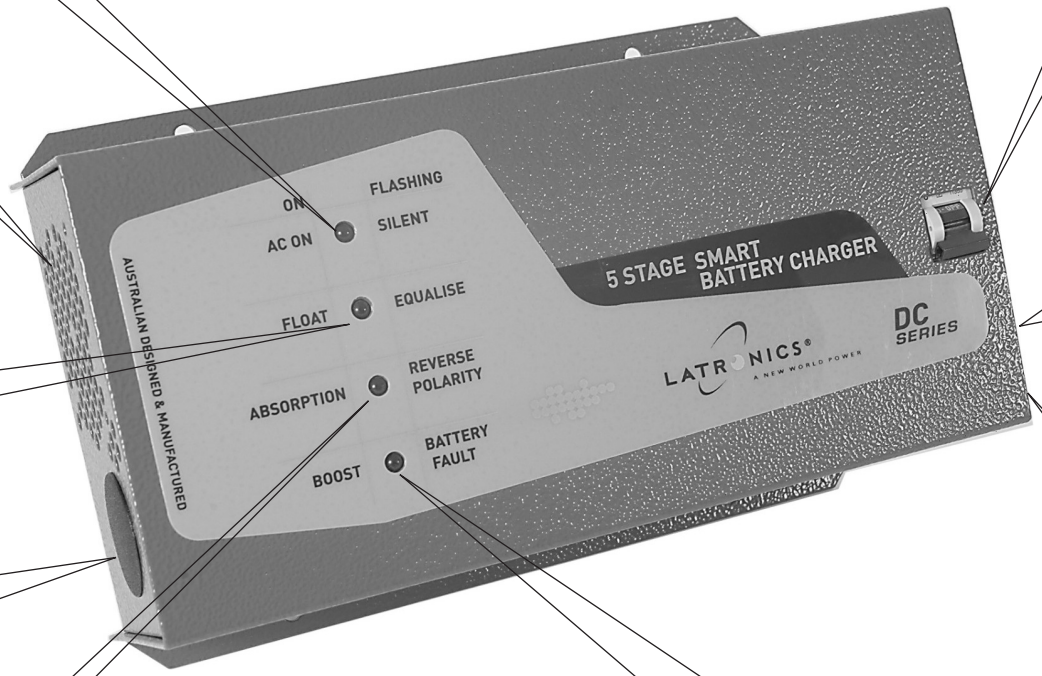
INDICATOR
LED is OFF when no AC power is present.
LED is ON when AC power is present.
LED will flash when charger enters silent mode of charging cycle.

COOLING FAN
Thermostatically and load controlled fan.
Only operates when required.

INDICATOR
LED is ON when charger is in float mode of charge cycle. LED will flash during the equalisation mode of the charge cycle.

SELECTOR SWITCHES
Remove plug for access to selector switches.
See page 5 for details.

INDICATOR
LED is ON during absorption mode of charge cycle.
LED will flash when battery leads are reversed.



DC CIRCUIT BREAKER
In line with battery positive lead
Push up - to turn ON
Push down - to turn OFF and disconnect from batteries.

DC BATTERY LEADS
Located on end.
RED = Battery Positive
BLACK = Battery Negative

AC POWER CORD
Located on end.

INDICATOR
LED is ON during boost mode of charge cycle.
LED will flash for a battery fault condition or no battery connected.
***Note: LED will flash if DC Circuit Breaker is OFF.**