

**USER
MANUAL**



**FIRST
NATIONAL
BATTERY™**

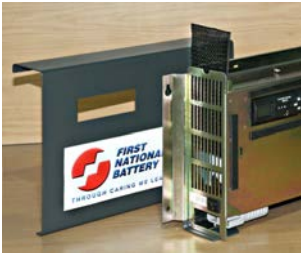
THROUGH CARING WE LEAD

Motive Power Charger FS 1



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Warnings



Keep naked flames away from batteries on charge



Risk of battery explosion



Be aware of battery fumes and electrolytes



Do not dispose of batteries in the garbage

Pb



Electrical hazard exists inside the charger, do not remove the side cover



Always recycle lead acid batteries

Pb



Battery electrolyte is highly corrosive



Wear eye protection when working near batteries

Installation: location



Location:

The charger could be mounted on a wall/ frame in a suitable and safe location to ensure protection against accidental contact with the lift truck, or its fork tynes.

Installation: wall mounting



Wall mounting options:

1. Remove the AC & DC cables to reduce the weight.
2. Mark out the wall to suit the 4 fixing holes.
3. Fix the charger to the wall using the type of fastener to suit the wall material.

Note: the top fixing holes are keyhole to simplify hanging the charger with the top two screws loosely fitted.

4. Plug in the AC & DC cables.
5. Plug the AC cable into a suitable AC power outlet.

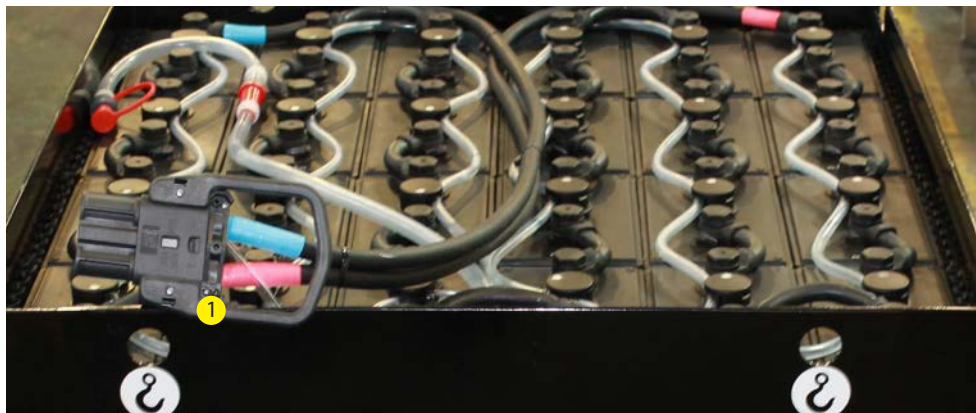
Note: It is recommended that AC power is left on between charge cycles. The current consumption when not charging is very small.



Depending on its configuration, the charger may draw up to 15A mains power.

Ensure a suitable mains supply connection is available.

Operating Instructions



1. Ensure battery cables and connectors are in good condition



2. Check start/stop switch to "O"
3. Charger plugged in and turned on
4. Charger rating matches battery
5. Plug in the battery

6. Set start/stop switch to "I"
7. Red LED, battery charging
8. Amber LED, charge complete
9. Set start/stop switch to "O"

Operating Instructions

1. Before plugging in the battery, check that the battery leads are in good condition.
2. Check that the start/stop switch is set to "O" (off).
3. Check that the charger is plugged into a suitable power point and that the power is turned on.
4. Check that the Voltage, Amp hour & Type (flooded or gel) indicated on the charger display matches the actual battery to be charged.
5. Plug in the battery.
6. Set the start/stopswitch to "I"(on).
7. Check that the red LED on the controller illuminates to indicate the charge has commenced.
8. Amber LED indicates charge complete.
9. Once the charge is complete, set the start/stopswitch to "O" (off) and then disconnect the battery.



When waiting for a battery to be connected, the controller display shows the voltage, ampere hour capacity and the type of battery it is programmed to charge, for the operator to check and ensure the battery to be charged matches the charger program.

During the charge cycle, the display indicates the charge current, ampere hours returned,

time on charge, charge cycle, and the battery & cell voltages.

At the end of the charge, the finishing conditions are displayed until the battery is either disconnected, or the Start/Stop switch is set to Stop.



The GREEN LED on the controller is illuminated when the charger is powered up.

Front Panel



1. Start/ Stop Switch

2. Status Indicator LEDs

3. Controller Push buttons
4. Controller Display

5. Mini USB Port



- Display when No Battery
Connected or start/stop
switch set to "0"

Display when Charging

Display when Charge Complete
1. RED LED indicates charging

2. AMBER LED indicates charge complete

3. GREEN LED indicates charger is
powered up

4. Up Button

5. Enter Button

6. Down Button

<div>CONNECT BATTERY</div> <div>48V</div> <div>FLOODED</div> <div>200 AHR</div> <div>40A</div>	<div>Config:</div> <div>Voltage</div> <div>Amphrs</div> <div>Battery</div> <div>Type</div> <div>Current</div>	<div>CHARGING</div> <div>BATTERY VOLT=</div> <div>56V</div> <div>FLOODED</div> <div>40A</div>	<div>Battery</div> <div>Display:</div> <div>Current=</div> <div>Amphrs=</div> <div>Charge time=</div> <div>State=</div> <div>Batt volt=</div> <div>Cell volt=</div>	<div>COMPLETE</div> <div>FINISH TIME=</div> <div>04:30:15</div>	<div>Rolling Display:</div> <div>Charge time=</div> <div>Bulk time=</div> <div>Finish time=</div> <div>Termination=</div> <div>Batt volt=</div> <div>Cell volt=</div> <div>Finish volt=</div> <div>Amphrs=</div>
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Note: When a battery is first connected, or at charge complete, the display backlight illuminates automatically; at any other time pushing any button will illuminate the backlight for a short time.

Front Panel

1. Start/ Stop switch

"O" = Stop Charge

"I" = Start Charge

2. LED Indicator Lights

Red	Amber	Status
On	Off	Charging
Flashing	Off	Minor fault, but charging
Off	On	Charge complete
Flashing	On	Minor fault, but charging completed
Flashing	Flashing	Major fault, charge may be incomplete

3. Controller Push-buttons

To enable equalise charge after the next charge cycle

Plug in the battery **but** before selecting "I" with the start/stop switch

- Push up button to select "Equalise next cycle"

- Push enter button to allow changing

- Push up button - select "Enable"

- Push enter button to accept change

- Push down button - select "Store"

- Push enter button to "Store"

- Push down button to return to "Connect Battery"

- Select "I" with the start/stop switch

4. Controller Display

Shows different information depending on the status of the charger, see pages 7 & 8.

5. Mini USB Port



When a MINOR fault is indicated, the charge cycle has still completed and in most cases can be disregarded. When a MAJOR fault is indicated, the charge cycle has not been completed and the occurrence **MUST** be reported to First National Battery Service.

Maintenance/ Service/ Warranty

Maintenance

Provided it's installed correctly in an appropriate location and is not abused, the charger will require little maintenance. The only requirement is to monitor the air inlet filter at the front of the charger for dirt build up. The power module internal to the charger housing requires a good supply of cooling air during the charge cycle. A blocked filter will affect the charger cooling ability, and could lead to the charger turning down its maximum output to prevent overheating of the power module. An extremely blocked air filter could cause longer charge times, inability to charge the battery correctly or premature wear-out of the power module.

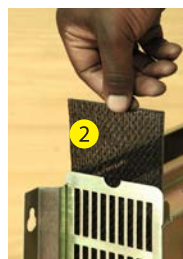
The recommended service interval is 12 months but this will vary depending on the location of the charger and the number of charge cycles performed. The fans in the power module only run during the charging cycle and are speed controlled. If the charger output is small the fans will only be turning slowly. At full power there is a considerable requirement for cooling air and the fans will be working hard with considerable hot air being exhausted from the rear of the charger. The exhaust air from the right side of the charger should never be restricted. The intermittent nature of the fans results in a long fan service life with no scheduled replacement of fans being required.

The filter material is an electrostatic polypropylene type that is easy to clean with compressed air to blow out any dirt & dust build up. Before attempting to clean the filter it is necessary to remove it from the housing by removing the 2 screws at the bottom and removing the cover from the housing. Whilst no hazardous voltages are exposed with the front cover removed it is recommended that before removing the cover both AC & DC cables are unplugged. With the front cover removed the filter can be withdrawn from behind the housing grill and taken to an appropriate place to clean. The electrostatic filter provides a good compromise between filtering and clogging, but a small quantity of dust will enter the power module during normal operation. A small quantity of dust in the power modules will generally not cause problems, however excessive build ups or where the material ingested is corrosive, conductive or wet will cause issues, resulting in premature "wear-out" of the power module.



1. Remove the two screws at the bottom and remove the front cover with a rotational action from the bottom.

2. Remove the filter element from the front of the power module and take to an appropriate place to clean.



Maintenance/ Service/ Warranty

Service

Should the charger show both the red & amber indications flashing there has been a serious fault that has prevented the charge cycle being completed. Take note of the error display on the controller display and contact First National Battery for instructions. Should the red indicator be flashing, but the amber on steady, the charge has been completed satisfactorily but with a minor fault. Contact First National Battery only should this be occurring on a regular basis.

First National Battery
0800 112 600 Toll free

Warranty

First National Battery warrants that the product is free from defects in material and workmanship and agrees to remedy any defect (or at its option replace the product) for a period of one year from the date of purchase. This warranty covers both parts and labour. Parts may be replaced under this warranty with new or remanufactured parts.

This warranty will not apply to any product that has been improperly installed, misused, abused, used in ways for which the product was not designed, altered or repaired in any way which may affect the performance or reliability of operation, damage sustained by power surges or electrical storms, or shipping damage, or repaired by any unauthorised repair centre.

Please contact First National Battery prior to shipping any products for repair. All shipments must be shipped prepaid and include proof of the date of your original purchase. Please include your name, address, phone number, email address and brief description of the problem.

First National Battery makes no other warranties, express or implied, including any warranty of fitness for a particular purpose. In no event shall First National Battery be responsible for indirect or consequential damages or lost profits, even if First National Battery has been advised of the possibility of such damages. First National Battery's sole obligation shall be the repair or replacement of the nonconforming product.

This User Manual applies to Modular charger FS1 which can accommodate a single power module inside. The configuration of the charger is specific to a particular type and rating of battery. The charger requires a 15A single phase AC power cable, but can be wired to a 3 phase, earth and neutral supply. Should the charging requirements, or lift truck change, the charger may under certain conditions need to be reconfigured by the First National Battery Technician to suit the new requirement.



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