# USER’S MANUAL

## Whisper Power Alternator Charge Regulator

**Boost your alternator power and extend your battery life time**

Suitable for all WhisperPower alternators

**Prepared for RPM input**

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**PLEASE READ THIS USER GUIDE CAREFULLY BEFORE USING THE CHARGER.**

**USE PROTECTIVE EYEWEAR WHEN HANDLING BATTERIES**

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## 1. INTRODUCTION

Thank you for choosing a professional quality product from WhisperPower.

This advanced and user friendly charge regulator will boost your alternator power and extend your battery lifetime.

This manual serves as a guide for the safe and effective operation, maintenance and possible correction of minor malfunctions of the WP-ACR.

This manual is valid for the following models:

<table>
<thead>
<tr>
<th>Part number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>80115100</td>
<td>WP-ACR 12</td>
</tr>
<tr>
<td>80115200</td>
<td>WP-ACR 24</td>
</tr>
</tbody>
</table>

This intelligent charge regulator can be used to regulate most types of alternators up to 160A.

For more information about WhisperPower and our product, visit www.whisperpower.com.

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## 2. INSTALLATION

**During installation and commissioning of the WP-ACR, the Safety Guidelines & Measures are applicable at all times.**

**Unpacking**

In addition to the WP-ACR the delivery includes:

- The WP-ACR
- A cable harness
- The WP-ITS temperature sensor
- This user’s manual

After unpacking, check the contents for possible damage. Do not use the product if it is damaged. If in doubt, contact your supplier. Check from the identification labels whether the nominal DC voltage is equal for all supplied components (e.g. a 12V alternator with a 12V WP-ACR and a 12V battery set).

### 3. INSTRUCTIONS

Follow these steps in order of succession as described below:

1. Measure and record the battery voltage at idle.
2. Start the engine.
3. Check for abnormal noise or vibration.
4. The yellow (built-in) LED on the WP-ITS will illuminate, indicating that the charge-cycle begins.
5. Measure and record the battery voltage. The battery voltage should be higher than measured before at step 1. The battery voltage rises until the yellow (built-in) LED illuminates.
6. When the yellow (built-in) LED illuminates the absorption mode commences. Measure and record the battery voltage (at 25°C / 77°F).
7. It should stabilize at 14.4 ± 0.05V for a 12V alternator at 28.8 ± 0.1V for a 24V alternator.
8. An absorption timer starts to keep the WP-ACR in the absorption mode.
9. The battery setting of this timer is 4 hours.
10. When absorption time has elapsed, the green (built-in) LED will illuminate. This means that the float mode has started. If you have followed the above mentioned tests, the charging system is ready for operation. (See chapter 7 for trouble shooting).

### NOTES:

- Use the supplied cable harness for connection of the WP-ACR.
- DC Cables to connect the battery to the alternator are not included in the delivery.
- The alternator wiring is electrically isolated from ground.
- Before wiring make sure the alternator is installed correctly.

### Wiring instructions:

1. Run the DC-cables between the battery set and the alternator. A DC- fuse must be integrated in the positive (see the installation drawing). Do not install the DC-fuse or the DC-distributor before the entire installation is completed.
2. Connect the red wire between the ‘+’ terminal of the alternator and the positive (+) pole of the battery.
3. Connect the black wire of the cable harness between the ‘-’ terminal of the WP-ACR and the negative (-) pole of the alternator.

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## 4. CHARGING CURVE

The WP-ACR controls the alternator’s output voltage. It is designed for optimal recharging of both gel, wet and AGM batteries. Battery charging is accomplished with three automatic stages: **BULK**, **ABSORPTION** and **FLOAT**. A mature, automatic operation is made possible by the microprocessor which is the brains of the WP-ACR.

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## 5. ADJUSTMENTS

Both the WP-ACR 12 and 24 volt are preset factory with settings that will work fine for most batteries. The WP-ACR has three potentiometers to adjust the charging system according to the demands of the electronic installation.

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**CAUTION!**

Incorrect settings of the potentiometers can cause serious damage to your batteries. Adjustments of settings may be undertaken by authorized personnel only. Keep a record of settings changes in this manual.

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**CAUTION!**

Use a 0.1 / 0.5 mm flat blade screwdriver to adjust the potentiometers. Do not attempt to drive the settings past the indicated limits. You will damage the potentiometers.

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**NOTES**

- For testing you might want to reduce the absorption time temporarily, see chapter 5.

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8. TROUBLE SHOOTING
In case of failure, we recommend consulting the Maintenance chapter first (see chapter 7). If you cannot solve the problem with the aid of the table below, contact your local Whispower Service Centre. See www.whispower.com.

Problem
No voltage at all, LEDs are off.

Possible cause
Battery fuse is blown.
Battery connections are loose.
Black [green] wire is loose.

Solution
Replace the fuse.
Clean connections, if crusted.
Reroute and attach [black] wire.

No output power, all the LEDs of the WP-ACR are off. Terminal of the regulator is OK.

Possible cause
Engine is not running.
Fuse in brown [wire] is blown.
Brown [green] wire is loose.

Solution
Start the engine.
Check the fuse and replace if necessary.
Check [brown] wire.

Fused in red [wire] is blown.

Solution
Check the fuse and replace if necessary.
Check field connector on the alternator.
Check red and blue wires to the field windings. Replace alternator.

No output power, only the LED of the WP-ACR is on.

Possible cause
Field winding of the alternator is defective.

Solution
Check black [green] wire.
Replace WP-ACR.

No output power, all the LEDs of the WP-ACR are off. Terminal of the regulator is at 120V.

Possible cause
Alternator is overloaded.
Defective batteries, short circuit between cells.
Capacity of the charging system is too low.

Solution
Switch off the load.
Check batteries and repair if necessary.
Use an alternator with more capacity. Consult your Whispower dealer for advice.
Replace WP-ACR.

9. ACCESSORIES
The WP-ACR comes with a standard cable harness with a normally used Whispower connector to the alternator. An extra accessory is the BOSCH cable harness.

- Furthermore this set includes a temperature sensor to measure the temperature of your battery.

10. TECHNICAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Voltage Part*</th>
<th>12VDC</th>
<th>24VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal operation voltage</td>
<td>12 VDC</td>
<td>24 VDC</td>
</tr>
<tr>
<td>Temperature sensor</td>
<td>Yes, cable length 8m</td>
<td></td>
</tr>
<tr>
<td>Cable harness</td>
<td>Yes, length 1.5m</td>
<td></td>
</tr>
<tr>
<td>Connection plug regulator/alternator</td>
<td>Whispower Alternator</td>
<td>Whispower Alternator</td>
</tr>
<tr>
<td>Alternator type</td>
<td>Whispower, low voltage, brush type</td>
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</table>

<table>
<thead>
<tr>
<th>Electrical</th>
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<tbody>
<tr>
<td>Voltage range - Absorption</td>
<td>14.25 VDC</td>
</tr>
<tr>
<td>Voltage range - Float</td>
<td>13.25 VDC</td>
</tr>
<tr>
<td>Absorption voltage range</td>
<td>13.16 VDC</td>
</tr>
<tr>
<td>Float voltage range</td>
<td>13.13 VDC</td>
</tr>
<tr>
<td>Absorption time</td>
<td>0h, 6.5h</td>
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<tr>
<td>Temperature Compensation</td>
<td>-30°C/60°C</td>
</tr>
<tr>
<td>Float current</td>
<td>100mA</td>
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<tr>
<td>Operation temperature</td>
<td>-20°C – 60°C</td>
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</table>

<table>
<thead>
<tr>
<th>Settings</th>
<th>Head out</th>
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<tbody>
<tr>
<td>Voltage settings</td>
<td>By trimmers on device</td>
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<tr>
<td>Status read-out</td>
<td>LED</td>
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<table>
<thead>
<tr>
<th>Communication</th>
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<tbody>
<tr>
<td>Communication bus</td>
<td>WhispowerConnect prepared</td>
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<table>
<thead>
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<th>Mechanical</th>
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<tbody>
<tr>
<td>Dimensions</td>
<td>[mm]</td>
</tr>
<tr>
<td>[Height]</td>
<td>[Width]</td>
</tr>
<tr>
<td>117 x 120 x 26.67</td>
<td>460 x 473 x 90</td>
</tr>
<tr>
<td>Weight</td>
<td>0.4 kg</td>
</tr>
<tr>
<td>Packaging Dimension</td>
<td>[mm]</td>
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<tr>
<td>Protection Degree</td>
<td>IP65</td>
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11. SAFETY GUIDELINES AND MEASURES

- Safety information and warnings are marked in this manual by the following pictograms: A Presentation, circumstances, etc. which deserves extra attention.
- Carefully observe the following points.
- Special data, restrictions and rules with regard to preventing damage.

12. CE MANUFACTURER DECLARATION

Product: Whispower alternator charge regulator
Whispower guarantees that the unit complies with the relevant standards.

13. LIMITED WARRANTY

Whispower guarantees the quality of this product. It is made to meet high industrial production standards for electronics. This limited warranty is valid for the original purchaser of this product, and is valid from the date of sale, meeting the mandatory warranty rights for the country of purchase. If the product has workmanship defects or damages relating to manufacturing or distribution, contact the store where you purchased the charger for warranty claims. The warranty is void if the unit has been damaged due to careless handling, abuse, unauthorised repair, or has been opened, or labels have been removed. Whispower is not responsible for any consequential costs for the return to the place of purchase. Nor is Whispower liable under any other warranty than this one. This warranty is non-transferable. Note: Measures such as this, %, length etc are approximate.

Art. Nr. | Item
---|---
60115101 | WP-ACR-Cable harness standard
60115102 | WP-ACR-Cable harness BOSCH -optional
60115105 | WP-ACR-DC to DC converter
60120101 | WP-ACR-Temperature sensor - 1.5m cable
60120102 | WP-ACR-Temperature sensor - 8m cable

Aborption voltage adjustment
The factory-settings for the absorption voltage are 14.25 V for 12V battery and 26.5V for 24V batteries (at 25°C / 77°F). When the yellow absorption LED is on, the engine rpm slightly to verify that the charge voltage does not increase. If it does not work for the battery is become fully charged or find a high enough rpm where the voltage does not change anymore. Reset the [red] field connector slightly clockwise to decrease or clockwise to increase the absorption voltage until the desired value is set. With good wiring and good voltage sensing the variation will be within ± 0.3 V. Do not adjust the charge voltage below the recommended limits at the battery manufacturer. Make sure that high voltages may damage sensitive equipment that is connected to the batteries.

Voltage adjustment
The factory-settings for the float voltage are 13.16V for 12V battery and 26.5V for 24V batteries. To change the float voltage, you can maintain the absorption voltage by turning the [red] field connector fully counterclockwise so that the regulator switches over to float mode in about 2 minutes. When the green float LED illuminates, you should wait for approximately 10 minutes because it takes some time before the battery voltage has dropped. You can adjust the float voltage by rotating the [red] field connector if the float voltage is set near 13.0V you may have to switch on some DC loads to get the alternator to turn on because it takes some time for the voltage to settle to the higher absorption voltage. Be sure to turn the [red] field connector to its initial setting when finished.

Temperature adjustment
Factory setting of the absorption time: 4 hours. This is appropriate for most systems. Exceptions might be:
- If the temperature adjustment to do some intermittent overcharge to regain lost capacity.
- If the battery is not charged and start the engine each day.
- Temporary reduction for testing purposes.
- From the factory, the start from the regulator will be close to the 10th crack position. If you require a different time, you may calibrate the scale and make a new setting. Adjustable range: 2 minutes up to 4.5 hours.

AdDITIONAL FEATURES
- Straight-forward installation. The easy Installing of the WP-ACR because of the 4 mount-holes design. This mounting pattern does fit a 0.5" or the WP-ACR DIN rail mounting kit (this is an optional accessory).
- Battery temperature sensor. The temperature affects the batteries ability to receive charge. This product, equipped with the WP-ACR RTD Temperature sensor to optimize the charging process so that the life time of the battery will be extended. If the temperature sensor requires a temperature below -20 or above 65 degrees will the WP-ACR automatically be turned off.
- RPM limited and compensating: If your alternator is able to read out the RPM you can calibrate your battery charging even further by the automatic adjustment of the charge voltage.
- Standard and BOSCH compatible. The harness cable is compatible for a standard connection to the alternator and a BOSCH connection.

7. MAINTENANCE
The WP-ACR is entirely maintenance-free. It has no user-servicable parts. The device may be cleaned using a soft, damp cloth. The charge regulator must be disconnected when being cleaned.

Electrical connections
Check the wiring at least every six months. Damage to faults, loose connections, burned connections, burned cables etc. must be corrected immediately.