



 USER MANUAL

 GEBRAUCHSANLEITUNG

 GEBRUIKSAANWIJZING

RANGE EXTENDER

12.6V13A / 29.4V07A

Contact:

info@rebel-cell.com | +31 (070) 7107424 | www.rebel-cell.com



Introduction

Congratulations on the purchase of the **Range Extender**. This will allow you to recharge your Rebelcell 12V AV or 24V battery 'on the go' via the alternator of your (outboard) engine and extend your battery range. The Range Extender (hereafter RE) is suitable for use with (outboard) engines with a 12V alternator that meet the following output requirements:

Type	Capacity	Suitable Outboard	Rebelcell battery
Range Extender 12.6V13A	165 W	> 15A alternator output	12V70 AV and up
Range Extender 29.4V7A	200 W	> 17A alternator output	All 24V Rebelcell batteries

In your package:

- 1x *Range Extender* (12.6V13A or 29.4V7A)
- 1x connecting cable set for RE:
 - 1x output cables for RE with integrated fuse and ANEN connector
 - 1x input cables for RE with integrated fuse and ANEN connector
 - 1 x cable with M8 and ANEN Connector (for Rebelcell battery)
 - 1 x grey ANEN Connector (for cables from starter battery to RE)

Additional cables are required to connect the RE to the starter battery (*not included, for specifications please see the Installation guidelines*).

Features

- **Optimal charging profile:** the RE provides the correct charging profile (charge voltage and current) to charge your Rebelcell battery. The RE will limit the alternator current if it is too high and adjust the charge voltage to the required voltage to charge your Rebelcell battery correctly.
- **Starter battery discharge protection:** the RE continuously monitors the voltage in the starter battery and will only allow current flow to the RE if the starter battery voltage is above 13.2V. This ensures that the starter battery is not accidentally discharged by the RE.
- **Overcharge protection:** the RE will automatically limit the charge current to the Rebelcell battery when battery is almost full and will shut down if battery is completely full to avoid overcharging.
- **Temperature protection:** the 'dynamic thermal output control' feature will limit the charge current to reduce the temperature and, if required, shutdown if temperatures for the RE are too high. The RE will automatically restart if temperatures are within the specification.
- **Short circuit protection:** automatic shutdown with short circuit and restart when there is no short circuit.
- **Reverse polarity protection:** on input
- **Charge indicator:** if the LED on the RE is on your battery is being charged.
- **2 year warranty**

Safety precautions and warnings

The RE has been engineered with a safe and long user life in mind. It is important to thoroughly review this instruction and follow the safety precautions. Not doing so may invalidate the warranty and result in the malfunctioning of your RE and further damage.

- Only use the RE with (outboard) engines with alternators that meet the minimum output current requirement as outlined in the table above. If the alternator output current is lower than required the Range Extender will stop current flow to the Rebelcell to avoid discharge of the starter battery.
- The RE is not suitable for use with (outboard) engines with a charging coil (instead of an alternator). The capacity of the charging coil is insufficient to charge both the charger battery and the Rebelcell battery.

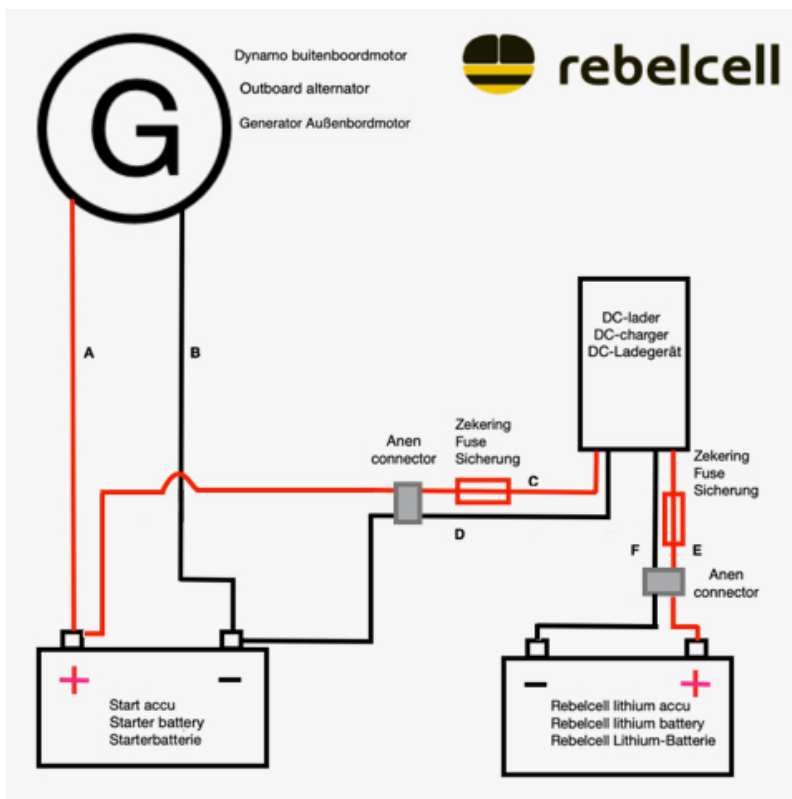
- Only use the RE with the suitable Rebelcell battery! Use with an unsuitable battery can lead to irreversible damage to your battery or equipment. Damage due to incorrect use is explicitly excluded from warranty.
- Mount the RE in accordance with the installation guidelines in a dry and cool place with sufficient space around for ventilation and cooling. Consult a certified electrician if required for installation.
- **Never** mount the RE on the bottom of your boat or in a location that does not remain dry. The RE is not waterproof. Water damage is explicitly excluded from warranty.
- The maximum cable length on both sides (input and output) of the RE is 4 meters. Longer cables may result in lower voltage and incomplete charging of your battery.
- Please ensure that battery and RE are connected correctly and the + and – are not reversed!
- Failure to use correct fuses and cables voids the warranty.

Installation

What do I need?

- **(Outboard) engine** with 12V alternator
- **Range Extender** with the connecting cable set for RE
- **Other connecting cables** (not included): **6mm²** cable is recommended if the distance between starter battery and range extender is **maximum of 4 meters**.

If distance between starter battery and range extender is > 4 meters please consult your installation partner or electrician. Cable size in mm² depends on length, currents and connectors.



Connection schematic

Step 1: mount the RE within 1 meter of the Rebelcell battery in a dry and cool place with sufficient room around for ventilation and cooling.

Step 2: connect input cable C, D and output cable E, F to the RE. Then connect the remaining cable (with M8 and grey ANEN connector) to the Rebelcell battery.

Step 3: make the cables from the starter battery to RE according to specs and attach the extra grey ANEN connector from the cable set.

Step 4: connect the starter battery cable to the RE (C,D) by clicking the two ANEN connectors together. And do the same with the cable from the Rebelcell battery to the RE (E,F).

Charging

If you start your (outboard) engine the alternator will charge your starter battery. Only after the starter battery is charged to full capacity the RE will engage and charge the connected Rebelcell battery with the correct voltage and current. The RE can top up / charge the Rebelcell battery during use of your outboard. The charging speed depends on alternator output current and use of outboard engine: high RPM delivers higher charge current than low RPM. A suitable AC-charger might be needed to fully charge your Rebelcell battery.

Warranty

Your RE has a standard 2 year warranty from date of purchase. Please check our general terms and conditions for the detailed warranty conditions and keep your purchase invoice as you need it in case of warranty claims.

Technical datasheet

Model	Range Extender 12.6V13A	Range Extender 29.4V7A
Technical parameters		
Capacity	160 W	200 W
Galvanic separation	yes	yes
Input voltage range	9 – 18V	9 – 18V
Output voltage	12.6V	29.4V
Output charge current	Max 13A	Max 7A
Charge indicator	yes, via LED	yes, via LED
Input / output isolated	Ja, >400 V RMS	Ja, >400 V RMS
Output Ripple & Noise	<50mV RMS	<50mV RMS
Peak efficiency	85%	85%
Parallel connection	no	yes, max 2
Temperature range	-20° to +30°C (current flow will be lowered to 0 at 70°C)	-20° to +30°C (current flow will be lowered to 0 at 70°C)
Humidity (non condensing)	Max 95%	Max 95%
Dimensions	176 x 88 x 50 mm	176 x 88 x 50 mm
Weight	0,6 Kg	0,6 Kg
Connectors input / output	Non-isolated yellow AMP-connector (Quick Connect M 6.3 mm)	Non-isolated yellow AMP-connector (Quick Connect M 6.3 mm)
Protection features		
Overcharge / short circuit protection	yes, output	yes, output
Over voltage	yes, input and output	yes, input and output
Reverse polarity protection	yes, input	yes, input
High temperature protection	yes	yes
Input fuse	25A inline (+ cable)	30A inline (+ cable)
Output fuse	15A inline (+ cable)	10A inline (+ cable)
Certification		
CE	yes	yes
Security class (IEC 529)	No IP rating / not waterproof	No IP rating / not waterproof
Automotive	yes	yes
EMI/EMC	EN50081-1 (EMI), EN50082-1 (EMC) European Automotive Directive 95/54/CE.	EN50081-1 (EMI), EN50082-1 (EMC) European Automotive Directive 95/54/CE.
Warranty	2 years	2 years