

# Smart battery coupler relays

**RCB+**



Adjustable  
current



Stabilized  
charge



Protected against  
reverse voltage



Compact



Current limitation selector

ADJUSTABLE  
from 30A to 120A

FIXED  
50A or 80A

## Presentation

With the increasing use of Lithium batteries (LiFePo4) for on-board electrical systems, compatibility between different battery types has become a major issue. Indeed, the cohabitation between starter batteries, often lead-acid, and lithium batteries for service requires specific management of energy flows, particularly during alternator operation.

RCB+ smart coupler relay responds to this challenge by providing an efficient and secure connection between these two types of battery.

The device is capable of managing the current coming from the alternator, either 12 or 24VDC, up to 200A, by limiting it to the service battery, while protecting starter battery charge.

Product range	RCB-ADJ-120A	RCB-50PL	RCB-80PL
Maximum current to the house battery	Adjustable (30 to 120A)	50A	80A
<b>Input</b>			
Input voltage tolerance	From 8VDC to 32VDC		
Voltages	12VDC or 24VDC		
Protection current decoupling	200A +/-10%		
<b>Output</b>			
Both size Input & Output	M8		
Ground isolation	>500VDC		
Maximum voltage drop	0.2VDC		
<b>Environment</b>			
Cooling	Natural (Fanless)		
Operating temperature	From -25°C to +65°C (-13°F to 149°F)		
Consumption	1.2mA@12V / 0.9mA@24V		
<b>Casing</b>			
Length, height, depth	159 x 100 x 36 mm (6,25 x 3,93 x 1,41 in)		
Weight	0,45kg (1 lb)		
<b>Standards</b>			
RoHS Compliant / IEC60335-1 / ISO8846/SAE J1171 (Ignition protected)			

# SMART BATTERY COUPLER RELAYS RCB+



## How RCB+ works :

One of the RCB+'s key features is its ability to limit the current flowing between the alternator and the service battery. Thanks to a setting wheel for the adjustable version, the user can adjust the current between 30 and 120A, guaranteeing flexibility according to the on-board system's needs.

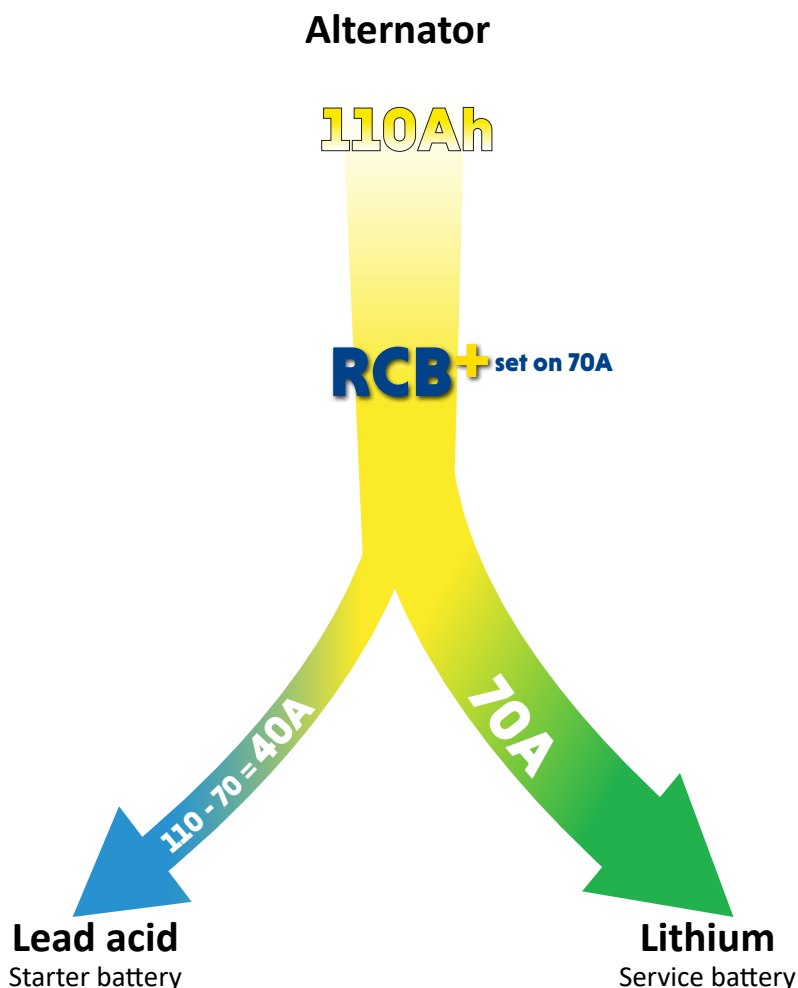
It is recommended to retain around 30% of the alternator's capacity for the starter battery; for example, for a 110Ah alternator, the limit could be set at 70A for service bank. This fine-tuned management preserves the alternator from overload while optimizing the battery charge (see illustration below).

Compact and lightweight this unique compact relay is designed to be used in harsh environment. Its innovating technology based on low frequency switching mode offers stabilized output charge current and protection against reverse voltage to avoid damages on the alternator.

On the RCB-ADJ-120A model the black selector wheel of the encoder can be removed for safety or maintenance reason. In some cases RCB+ can replace a DC-DC charger. The On/Off entry allows the switch On/Off of the charging of the lithium battery

## Coupling and decoupling principle

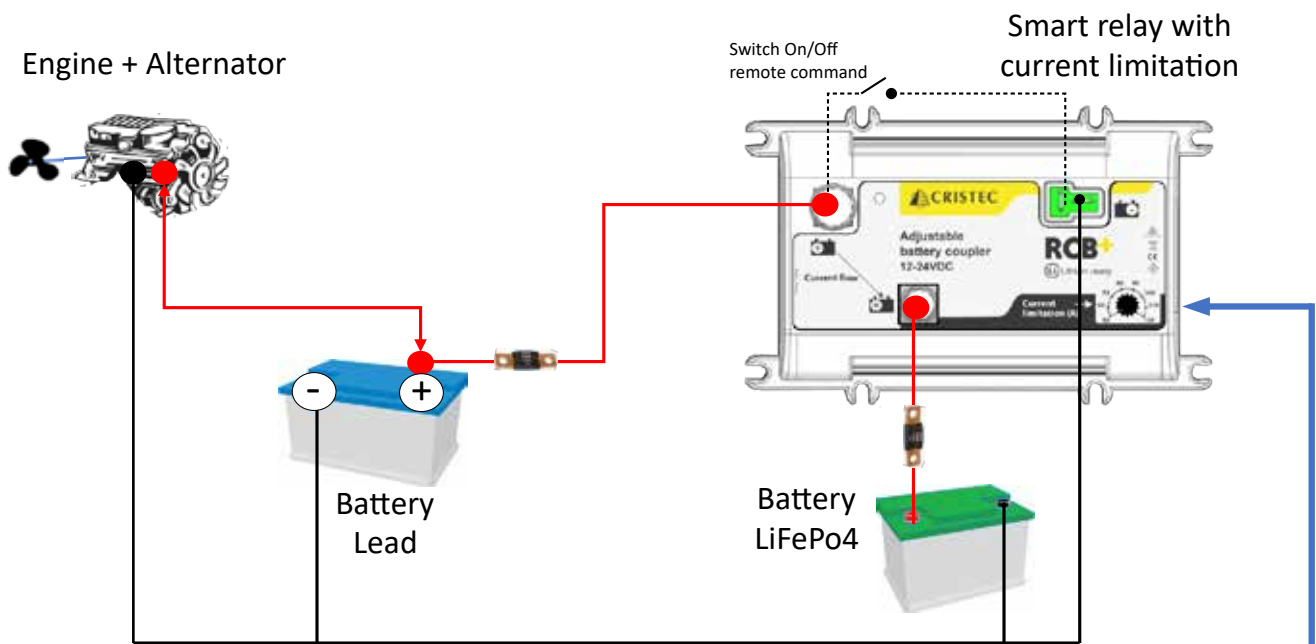
12 VDC	Input		Output	24 VDC	Input		Output
Coupling	> 13V for more than 90s	&	>10,5V	Coupling	> 26.0V for more than 90s	&	>21V
	or				or		
Decoupling	>13.6V for more than 30s	&	>10,5V	Decoupling	>27.2V for more than 30s	&	>21V
	> 16V				> 32V		
	or				or		
	< 12.4V for more than 10s				< 24.8V for more than 10s		
	or			or			
	< 12.7V for more than 30s			< 15.4V for more than 30s			



# 12V

# 24V

## Typical installation



Limit the current in the lithium battery to preserve the alternator and ensure the charging of the starter battery

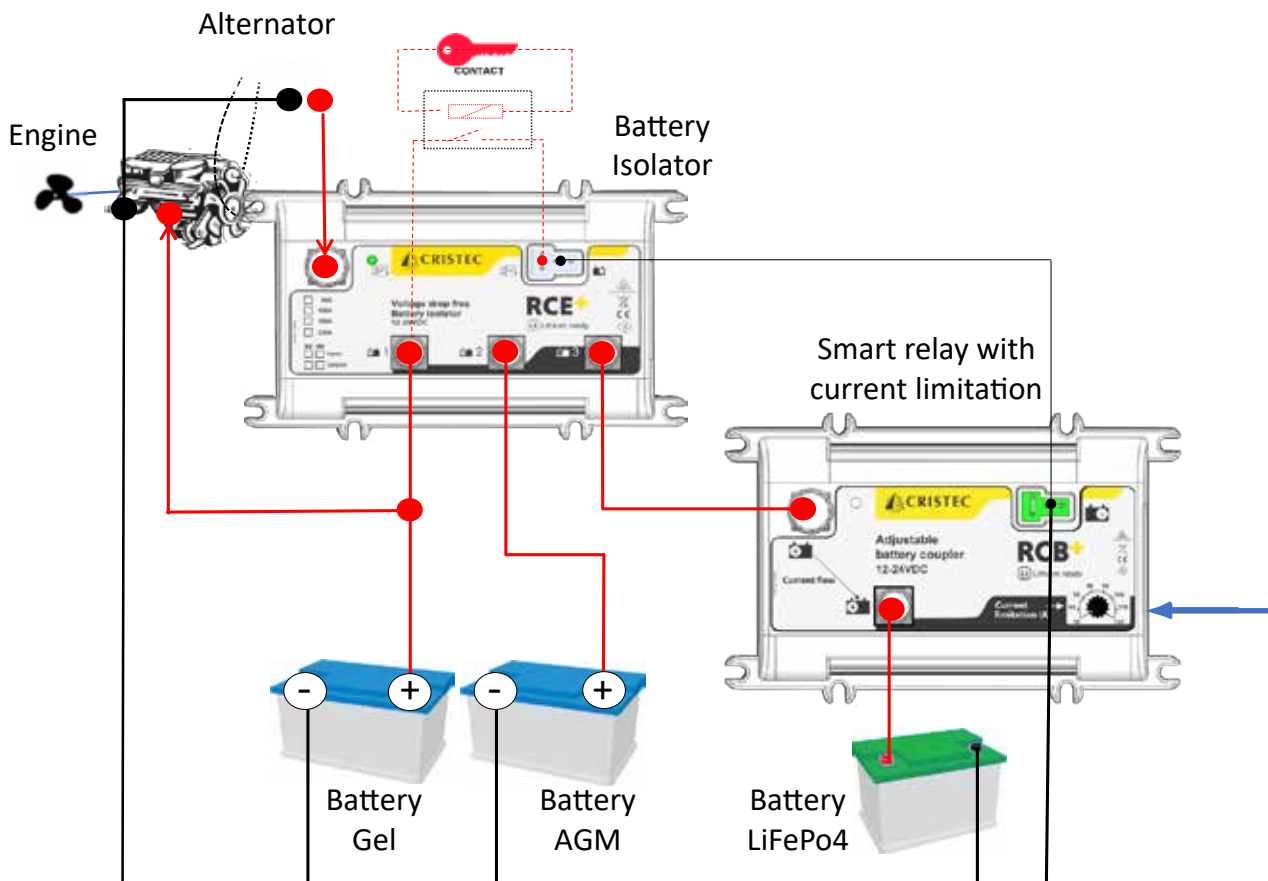
### A unique feature

The remote switch ON/OFF command allows to manage the charge/discharge process of the lithium battery.

# 12V

# 24V

## Typical installation with various types of batteries



RCE+ smart relay limits current to the lithium battery from the RCB+ battery isolator.

Limit the current in the lithium battery to preserve the alternator and ensure the charging of the starter battery