



# NBC 12V 2BLC/2BLCRxx0

## 1 Introduction

NBC 12V 2BLC / 2BLCR is a complete solution to use only one product to control and charge one or two independent batteries 12V 7.2 Ah acid lead. The batteries are recharged and monitored independently even when they are connected in series between them.

## 2 Functionality

NBC 12V 2B is the ideal solution to recharge and analyze 12V batteries, remaining always connected to the battery without any risk and without need to disconnect the battery from the equipment. This allow to maintain the battery always charged also through long (up to months) idle period. The battery charger provides a maximum current up to 0.3A per each stage. This product is suitable for standard batteries (acid lead) which normal charge could be evaluated at 0.057A per each Ah of capacity.

Each recharging stage is equipped with its own microprocessor to allow an automatic analysis on the battery behavior.

### **Battery status monitoring during normal function (in presence of main voltage):**

- Battery disconnected or short circuit (LED battery LIT with RED color, alarm output ACTIVATED)
- Battery connected and charged, voltage higher than 12.8V (LED battery LIT with GREEN color, alarm output NOT ACTIVATED)
- Battery connected and in charging, voltage in the range 11.5V - 12.8V and recharging current greater then 50mA (LED battery blinking RED and GREEN, alarm output NOT ACTIVATED)
- Battery connected with voltage lower than 11.5V. The battery is considered not compliant (battery damaged) with the required specifications (Battery LED LIT with RED color, alarm output ACTIVATED)

### **Battery status monitoring during emergency condition (lack of main voltage power supply):**

In an emergency status, so when the battery starts running, the device allows you to track the battery voltage. When the battery voltage drops below 9.5V the device will give an alarm (RED LED ON and alarm output ENABLED).

NBC 12V 2B uses a single universal supply voltage ( $V_{in}$  from 110-230VAC). The version 2B LC Rxx0 version allows to have a relay output for signaling the absence of mains voltage, in this case 2 relay options are available for a mains voltage of 110Vac and 230Vac.

## 3 General Technical Data

GENERAL TECHNICAL DATA	
Input voltage	110÷230 Vac, 50÷60 Hz
Battery charger voltage (no load)	13,6 V
Max Current (for battery stage)	0.300 A max
Battery type	12V – 7,2Ah acid lead
Connection cables sections	Battery cables: min 0.75 mm <sup>2</sup> / Alarm cables: min 0,35 mm <sup>2</sup>
Protections	Short circuit, over current, over temperature. Automatic restart after fault removal.
Housing	Box IP 20, Thickness 26mm, Height 120mm, Width 79mm
Battery Full Charging Time	24 h
Working Temperature	0° ÷ 50°C
Storage Temperature	-5° ÷ +70°C

## 4 Battery status

The control unit is able to detect certain conditions that allow an analysis of the status of the battery:

Battery status during normal function (presence of main voltage)				
Battery status	(LedPower)	(Led Batt.)	Output Alarm	Description
Battery disconnected, short circuit or discharge	On Green	ON Red	Allarm On (Closed)	Voltage lower than 11.5V
Battery connected and charged	On Green	On Green	Allarm Off (Open)	Voltage higher than 12.8V
Battery connected in charge	On Green	Blink Red/Green	Allarm Off(Open)	Voltage in the range 11.5V – 12.8V

Battery status during emergency condition (lack of main voltage)				
Battery status	(LedPower)	(Led Batt.)	Output Alarm	Description
Battery worn out	Off	ON Red	Allarm On (Closed)	Voltage lower than 9.5V
Battery connected and charged	Off	On Green	Allarm Off (Open)	Voltage higher than 9.5V

### **Only for NBC 12v 2BLCRxx0**

Main voltage status	Uscita a relay (C, NO, NC)
Presence of main voltage	C-NO Closed , C-NC Open
Lack of of main voltage	C-NO Open, C-NC Closed

## 5 Connectors

### Input:

Name	Description	Range V	Max I
N	Neutral	110-230 Vac	250mA
F	Phase	110-230 Vac	250mA

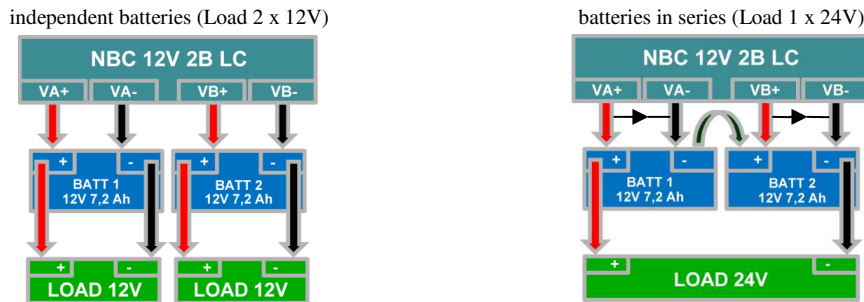
### Output:

STEM S.r.l. via della Meccanica, 2 I-27010 Cura Carpignano Pavia Italia Tel. +39 0382 583011 Fax +39 0382 583058 [www.stemsrl.it](http://www.stemsrl.it) [stem@stemsrl.it](mailto:stem@stemsrl.it)  
 Soggetto a modifiche tecniche senza avviso, nessuna responsabilità sarà assunta per ogni dettaglio. © STEM S.r.l.

Name	Description	Range V	Max I
VA+	Battery voltage + (A channel)	5-15Vdc	0.300A
VA-	Battery voltage - (A channel)	5-15Vdc	0.300A
ALA	(O.C. NPN type)Alarm for "A battery damaged"	0-30Vdc	0.05A
VB+	Battery voltage + (B channel)	5-15Vdc	0.300A
VB-	Battery voltage - (B channel)	5-15Vdc	0.300A
ALB	(O.C. NPN type)Alarm for "B battery damaged"	0-30Vdc	0.05A
C *1	Common	230 Vac	1A
NO*1	Normally open	230 Vac	1A
NC*1	Normally close	230 Vac	1A

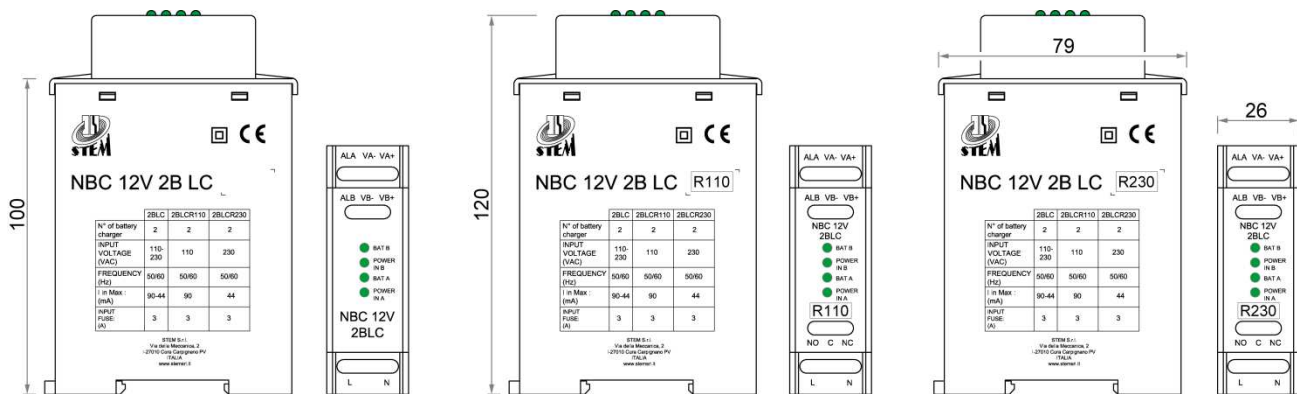
\*1 ONLY FOR VERSION NBC12V\_2BLCRxx0

## 6 Connection diagram



\*In case of connecting in series batteries, it is necessary to insert a bypass diode which protects the battery charger if the battery has an open element, preventing any current passing through the device. The model and sizing of the diodes must be evaluated based on the electrical characteristics of the load.

## 7 Mechanical



Dimensions and Markings

## 8 ORDER CODES

Code	Description
NBC 12V 2BLC	Basic version voltages from 110VAC to 230VAC
NBC 12V 2BLCR110	version voltages from 110VAC
NBC 12V 2BLCR220	version voltages from 230VAC

### ASSEMBLY

Installation must be performed by authorized personnel only. The NBC12V2 BLC / 2BLCR unit must be assembled in a suitable operating area (switch cabinet, protective housing, at least IP 54). The unit is installed by clipping it to a standard 35 mm top-hat rail in accordance with EN 50022. All the outputs have to be isolated from the main power supply

### SERVICE AND INSPECTION

The correct operation of the control unit NBC12V 2BLC / 2BLCR must be controlled by the operator periodically checking the follows:

- Simulate the battery is faulty, disconnected and short-circuited
- correct closing of the connections.

In the event of damage or wear and tear, the damaged system component must be replaced.

### Liability coverage is void under the following circumstances:

- if instructions are not followed
- non-compliance with safety regulations
- installation and electrical connection not performed by authorized personnel
- non-implementation of functional checks.