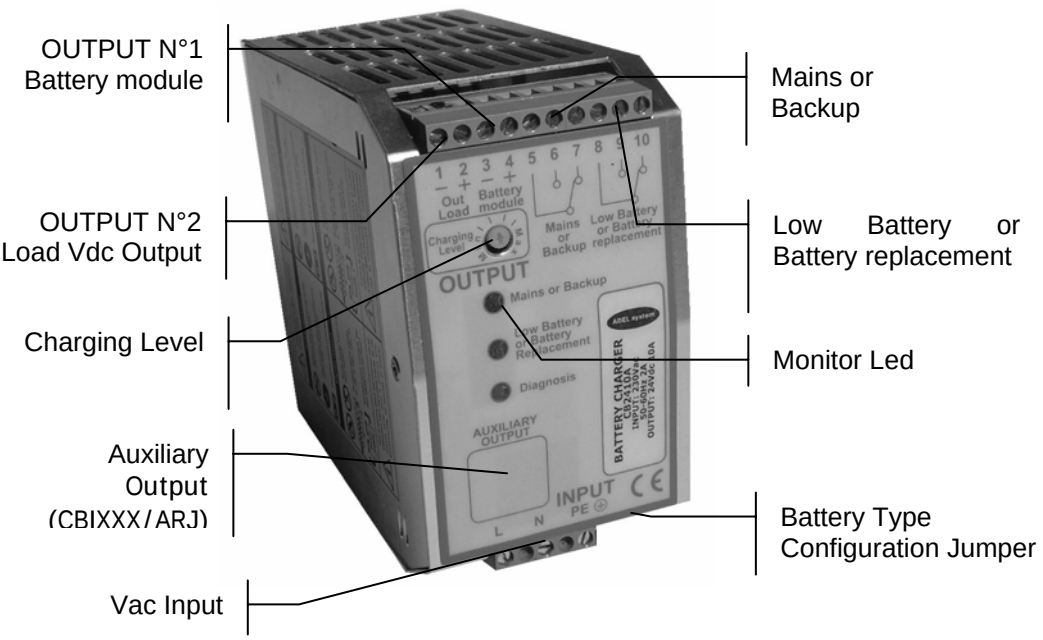
ADEL system

CBI123A – CBI123A/S – CBI123ARJ

Intelligent Battery Charger

Thank you for having chosen one of our products for your work. We are certain that it will give the utmost satisfaction and be a notable help on the job.

General Description:



Application

CBI battery charger is a range of microprocessor-power supplies witch correctly charge sealed lead-acid batteries at all time maximizing performance and life span.
Charge the battery in multi-stage principle, Fast and Trickle and automatically the device, check the battery efficiency in a lifetime to prevent any risk of damage to the battery and allow leaving the charger permanently connected. Before begin the operations of installation consult the manual.

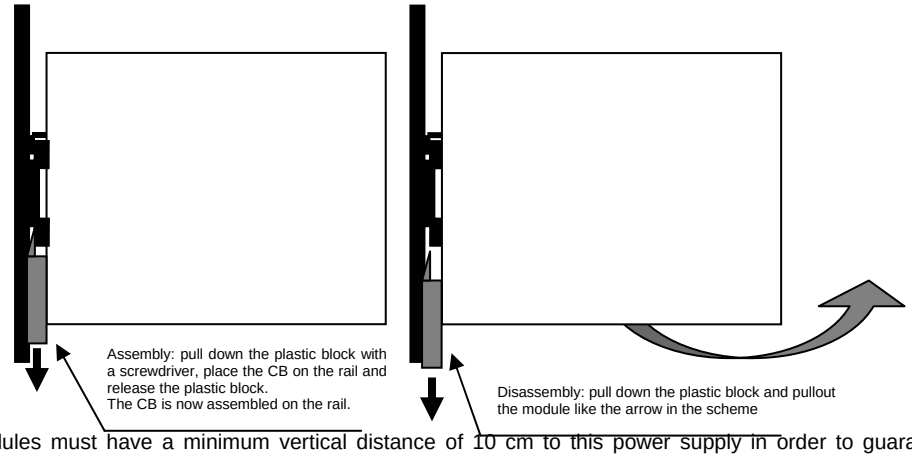
Mains Characteristic

- Nominal Input Voltage: 115 - 230 Vac
- OUTPUT 1: for connection to Battery
- OUTPUT 2: for connection to Load
- Fast and trickle battery charge In according to DIN 41773
- Signaling: replace battery, low battery, mains or buffering
- Overload and short circuit protections
- Safety isolation in according with EN 60950
- Output 12 Vdc 6 A 50° C also without mains
- Degree of protection IP20
- Rail DIN mounting

Instruction Manual

ADEL system srl Via L. Barchi 9/B, 42100 Reggio Emilia (Italy) – Tel. ++39-0522-345518
Fax. ++39-0522-345551 – Internet: www.adelsystem.com – e-mail: info@adelsystem.it

Rail mounting:



⚠ Other modules must have a minimum vertical distance of 10 cm to this power supply in order to guarantee sufficient auto convection.

Use and Connections

Caution: Switch off the system before connecting the module. Never work on the machine when it is live.

Charging Level Current: With trimmer from 20% to 100% of In. Select the max. battery charge current estimated from 10 to 25% of the nominal capacity.

Battery module (Output 1) 3-4 Pin: Battery Input and diagnosi led: very fast blinking= recovery charging (when the battery is too low) , fast blinking=fast charge, slow blinking=trickle charge

Out Load (Output 2) 1-2 Pin: Output voltage 12 Vdc is made via the +, - .

Mains or Backup: Mains with led off and closed contact (5-6), Backup with led on and closed contact (5-7).

⚠ Note: switching of the relay Backup should be filtered with a delay of at least 5 seconds, example: connection to PLC.

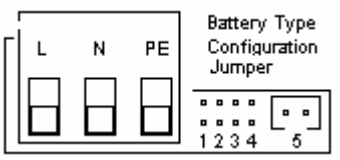
Low Battery or Battery replacement: Normal condition with battery OK, led Off and closed contact (8-9), Low Battery with battery NOK, led ON and closed contact (8-10), Battery replacement alarm with Power ON , led ON and closed contact (8-10); (see diagnostic Led)

Life Test Battery : In trickle charge condition check every 4 hours, internal impedance (5 blinking Diagnosis Led)

Diagnosis Led

Very fast blinking= recovery charging (when the battery is too low, Under 10 Vdc)
Fast blinking= fast charge.
Slow blinking= trickle charge (floating charge)
1 blinking= Reverse polarity battery; Bad input voltage battery.
2 blinking= Battery not connected.
3 blinking= Short circuit battery element.
4 blinking= Over Load.
5 blinking= Bad battery.(Internal impedance Bad or Bad battery wire connection)

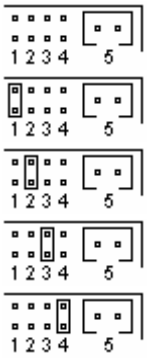
Battery Type Configurations



Caution: Switch off the system before Setting the jumper. Only jumper in position 5 Refresh ON/OFF state whit Power.

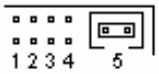
Notice: in the model CBIxxxA/S, without mains voltage, closing the contact pos. 5 for 1 second and will start-up the unit.

Position jumper Setting:



- Open Lead (Charge): Trickle =2.23 Fast=2.40/cell
- Sealed Lead (Charge): Trickle =2.25 Fast=2.40/cell
- Sealed Lead (Charge): Trickle =2.27 Fast=2.40/cell
- Gel Battery (Charge): Trickle =2.30 Fast=2.40/cell
- Life Test Battery

- No jumper no Fast Charge (pos. 5)



Compensation Recharges in temperature (Only version XXX/ARJ)

Connecting to RJ45 (AUXILIARY OUTPUT) cable RJTEMP (supplied separately), the CBI is will vary the tension of battery charging in function of the temperature:

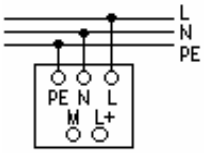
- Fast Charge: -2.5mV/°C
- Trickle Charge: -1.5mV/°C

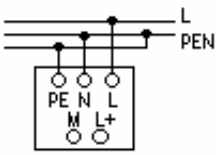
If the sensor is not connected or if the sensor is defective, the led Low Batt is on and the led Diagnosis continues to show the status of the battery: trickle charge, fast charge or recovery charge.
N.B.: the sensor place on cable RJTEMP must be applied on the battery.

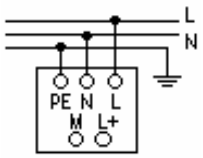
Cable connection

The following cable cross-sections may be used:
At the Input: 0.2÷2.5 mm^2 rigid / flexible
At the Output: 0.2÷2.5 mm^2 rigid / flexible
Strip the connection ends: 7mm

Input: The input connection is made by the screw connections L, N, PE ⏚.







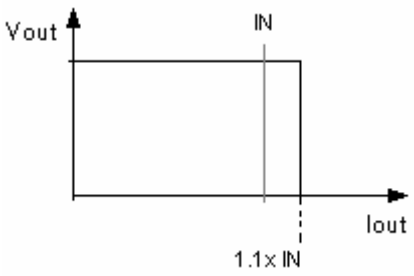
Protection

On the primary side: the device is equipped whit a internally fuse T 4 A/250Vac. If the internal fuse is activated, it is most probable that there is a fault in the device. If happen, the device must be checked in the factory.
On the secondary side Battery and load: The device is electrically protected against short circuits and overload.
Inversion polarity: the module is protected against inversion of battery polarity.
Over current and output short circuit: the unit limits the output current at max. 12 A in normal rating.
Deep discharge : not possible. The unit disconnects the battery when a minimum voltage level is reached.
Battery Test: Automatic. Every 20 sec. check polarity and battery. Every 4 hours in trickle charge, make the test of the battery efficiency. The fault is signalized with relay commutation and diagnosis led blinking.

Characteristic Curves

Short circuit and overload

The output of the device is electrically protected against overload and short circuit. At nominal voltage the device can supply 1.1 the nominal Current without switching off. In the case of higher overload, the operating point traces the curve illustrated in figure. As the overload increases, the output voltage is reduced until zero.



Thermal behavior

The device supplies the nominal output current at ambient temperature of up 50°C. For ambient temperature of over 50°C, the output current must be reduced by 1% per °C increase in temperature. Max 70°C.

Standards and Certification

Electrical safety

The device must be installed in according with EN60950. The device must have a suitable isolating facility outside the power supply unit, via which can be switched to idle.

General Standard

Immunity in according with EN50082-2, level 4, class B
Radio interference suppression in according with EN 55011 class A (industrial areas)

Features

Input Data

Nominal Input Voltage (2 x Vac)	110- 230 Vac
Input voltage range	93 ÷ 264 Vac
Inrush Corrent (Vn – In)	≤ 14 ≤ 5 msec.
Frequency	47 ÷ 63 Hz
Input Current (Nominal input Voltage)	0,7 - 0.4 A
Internal Fuse	F 4 A
External Fuse (recommended)	Fast 6 A

Output Data

Output Voltage Battery Bulk Charge / Nominal Current	Max 14.4 Vdc / 3 A
Output Voltage Battery Trickle Charge / Nominal Current	Max 13.5 Vdc / 3 A
Adjustment range of charge (In adj)	20 ÷ 100% In
Output voltage in Backup mode	13.5 ÷ 11 Vdc
Type of charging characteristic	U/I
End of charging voltage (Bulk charge)	Max 14.4 Vdc
End of charging current (Bulk charge)	0.3 A
Type battery up to	25 Ah
Start up with capacitv load	≤ 30.000 μF
Switching on after applying mains voltage	2,5 sec. max
Current max.	1.1 x I_N ± 5%
Residual Ripple	≤ 60 mV_{pp}
Minimum Load	No
Efficiency	≥ 81 %
Short-circuit protection	Yes
Over Load protection	Yes
Over Voltage Output protection	Yes
Reverse battery protection	Yes

Climatic Data

Ambient Temperature (operation)	-10 ÷ +50 °C
Ambient Temperature (Storage)	-25÷ + 85 °C
Humidity; no moisture condensation	95 % a 25°C

General Data

Isolation Voltage (Input/ output)	3000 Vac
Input ground insulation	1605 Vac
Electrcal safety	EN 60950
Degree of protection	IP 20
Protection class	I with PE connected
Dimension (w-h-d)	65x115x135
Weight	0.6 Kg approx

In according to EMC 89/336/EEC and Low voltage 93/68/EEC	CE