

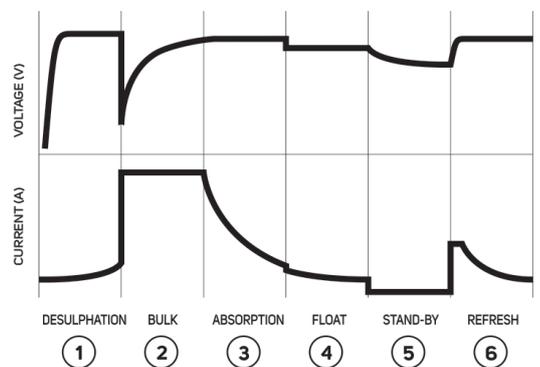
# Enhanced features and innovative functions for the new CBE battery chargers

Two newly designed devices fit into the CBE switching battery charger range, with power ratings of 16 and 22 Amp: they are suitable for lead-acid, lead-gel and even AGM batteries.

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CBE extends its range of switch-mode battery chargers with two new models, CB516/3 and CB522/3. CB516/3, already available, is a newly designed device developed to charge 12V batteries and represents the natural evolution of CB516, the most popular battery charger in Europe for the last 10 years. This new-generation model – with its 16 Amp maximum current supply – is capable of an even more efficient charge, not only of lead-acid and lead-gel batteries (as its predecessor did), but – thanks to appropriate hardware and software modifications – it does also permit an optimal charge of newly designed AGM batteries. The charging process is completely automatic, with different voltage and current values according to the position set using the internal selector. It has no fewer than six phases instead of the previous four, thanks to the introduction of the new desulphation and refresh functions.

Phase 1 – **Desulphation** – takes place only when the battery charger is switched on and if the battery requires it (the purpose, obviously, is to counter sulphation, a process that may occur on service batteries installed on recreational vehicles because of their particular use). Phase 2 – **Bulk** – charges the battery with maximum current until the end-of-charge voltage is reached.



Selector on position "A"	15,2V	Max 14,1V	1,5h	13,5V	0A	14,1V
Selector on position "B"	15,2V	Max 14,4V	8h	13,8V	0A	14,4V
Selector on position "C"	15,2V	Max 14,7V	3h	13,8V	0A	14,7V
Threshold	Max 2h			Max 15h	V < 13,0V	Max 1h

*The cycle of charging phases*

Phase 3 – **Absorption** – involves completing battery charging with a constant end-of-charge voltage for a set time and with a progressive current reduction.

Phase 4 – **Float** – is a maintenance charging at a constant voltage for a set maximum duration.

Phase 5 – **Stand-by** – involves a controlled switching off of the battery charger, which – once charging is completed – resumes operation only when the battery voltage drops below 13V. The reason is clear: limiting the “stress” on the battery increases its operating life and improves its efficiency. When the battery voltage drops below 13V, the battery charger switches over to phase 6.

Phase 6 – **Refresh** – sees the Bulk voltage for the time necessary to compensate for the self-discharge of the battery during possible prolonged periods of inactivity. The charging cycle then resumes from the Float phase.

The CB516/3 battery charger – as with all CBE switch-mode battery chargers – features overheating protection, plus the 12V outputs are protected against short circuits and polarity inversion. The dimensions,



CB516/3

weights and electrical connections of the CB516/3 are the same as the previous model (in order to facilitate product changeover for CBE's OEM customers willing to do so).

There is an attractive option for those who use recreational vehicles in extreme climates: a temperature sensor (to be placed near the battery) can be connected to the CB516/3 in order to increase or decrease the charging values according to the temperature detected, to further optimise the charging process. With this new battery charger, CBE offers the OEM market a product that is not only updated in terms of technological content but is also enhanced with some innovative functions to further improve both the efficiency and the life of batteries.

CBE has planned that the product changeover with OEM customers will take place by 2019.

## CB522/3

Starting from July 2018, CB522 (22 Amp version) will also be gradually replaced by the new CB522/3 model, which has the same technical characteristics as the CB516/3 model, but with 22 Amp charging current.



12V BATTERY CHARGER	CB516/3	CB522/3
<b>TECHNICAL DATA</b>		
Nominal input voltage	230Vac +/-10%	230Vac +/-10%
Frequency	50Hz	50Hz
Max power	250W	320W
Protection fuse	T 3.15A (glass 5 x 20)	T 3.15A (glass 5 x 20)
On/Off safety switch	230V	230V
<b>OUTPUT TECHNICAL DATA</b>		
Bulk voltage (V)	14.1Vdc (A) - 14.4Vdc (B) - 14.7Vdc (C)	14.1Vdc (A) - 14.4Vdc (B) - 14.7Vdc (C)
Float voltage (V)	13.5Vdc (A) - 13.8Vdc (B) - 13.8Vdc (C)	13.5Vdc (A) - 13.8Vdc (B) - 13.8Vdc (C)
Max current	16A	22A
Charging line	IUo U	IUo U
Short-circuit and polarity inversion protection	25A (blade)	30A (blade)
Thermal protection	YES	YES
Signal AC power supply (S)	12V; 50mA	12V; 50mA
<b>GENERAL TECHNICAL DATA</b>		
Efficiency	86%	86%
Room temperature	0-50°	0-40°
Ventilation	Gradual automatic regulation	Gradual automatic regulation
Protection degree	IP 30	IP 30
Mains connection	3-way "mate-n-lock" connector	3-way "mate-n-lock" connector
Battery connection	4-way "mate-n-lock" connector	M6 screw
Case	Nylon + fiber glass self-extinguishing	Nylon + fiber glass self-extinguishing
Dimensions (mm)	180 x 140 x 85H	180 x 190 x 85H
Weight	1Kg	1.2Kg
Temperature sensor	Optional	Optional

## Company Profile

With a history of more than 40 years, CBE is a leading company in Europe in the field of electrical and electronic systems for recreational vehicles and boats. Headquartered in Trento, Italy, CBE is a project partner of motorhome and caravan manufacturers around the world. CBE develops customised solutions for all aspects of on-board electrical systems, from control panels to distribution boards, from chargers to sensors, sockets, switches and even complete vehicle wirings. Quality, reliability and safety are constant features of CBE's operational dynamics. CBE has obtained UNI EN ISO 9001:2000 certification.

