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More and more power in the CBE Solar System line, the 165-watt module and the 330-watt MPPT solar charge regulator are here

Energy requirements of recreational vehicles are on the rise despite the technology constantly evolving towards energy-efficiency by using LED lighting and better performing electronic equipment. RV users are becoming more and more demanding wanting all the comforts of home even on holiday and manufacturers are increasing the number of lighting points and on-board electrical and electronic systems exponentially. Televisions, aerials, compressor refrigerators, 12-volt heating and cooling systems, inverters for charging laptops, electric height-adjustable beds and complex lighting systems all demand a lot from the on-board



batteries. Fortunately, solar energy is a cost-effective, eco-sustainable solution to supplying the necessary power. CBE, a company based in Trento (Northern Italy) that joined the AL-KO Group last year, has a long tradition in the photovoltaic modules market for RVs to provide energy autonomy for those travelling in motorhomes and may choose not to stop in equipped camp sites. The current range which includes three versions, 100-watt, 135-watt and 90-watt (the latter in "booster" version) is now being complemented by the new 165-watt module. Just slightly longer than the 135-watt one, this new module is also equipped with high-transmittance, shock-resistant tempered glass which is weather-proof and with a special anti-reflection treatment to guarantee maximum performance. CBE photovoltaic modules are manufactured with state-of-the-art technologies. They comply with the requirements of European standards and are covered by a 25-year warranty on the declared power. The declared tolerance value of +/- 3% is evidence of uncompromising quality.

The new 165-watt photovoltaic module helps to meet the energy requirements of medium-to-large size recreational vehicles. The advantages can be increased even further by pairing it with a second module. CBE is also designing a new PRM 330 solar charge regulator suitable for a power of up to 330 watts. The new regulator also features a MPPT (Maximum Power Point Tracker) system, which continuously measures voltage and current values, drawing the maximum power available from the photovoltaic module in every situation. With this technology, system efficiency can be increased by up to 20% compared to traditional systems.

MF165 TECHNICAL SPECIFICATIONS

TYPE	POLYCRYSTALLINE
NUMBER OF CELLS	36
RATED VOLTAGE	12V
MAXIMUM POWER	165W
TOLERANCE	+ -3 %
OPEN CIRCUIT VOLTAGE	23.45V
SHORT CIRCUIT CURRENT	8.8A
MAX. POWER VOLTAGE	19.4V
MAX. POWER CURRENT	8.51A
DIMENSIONS mm	1480 x 670 x 35x
WEIGHT (kg)	12

CBE introduces the new CB522-LT battery charger for lithium batteries

The new CB522-LT switching battery charger expressly dedicated to lithium batteries will be added to the CBE catalogue in September 2019. The product will already be available for OEMs starting from June and for aftermarket customers later on. The CB522-LT is an evolution of the CB500 series and designed for RV users seeking a high-performance system expressly dedicated to this innovative type of batteries. It has a single charging line specifically for lithium batteries with charging times and values optimised for this technology. In order to obtain an algorithm that maintains charging performance across different types of lithium batteries on the market, CBE has conducted extensive research and studied the systems made by major European manufacturers.



“The use of lithium batteries is still limited, but the new CB522-LT battery charger fills a niche so far not covered and actually more and more on demand by motorhome manufacturers”, said Dorian Sosi, the other CEO of CBE. *“However, although our new battery charger offers an ideal recharging line for this type of product, I must emphasise that traditional CBE battery chargers are also suited for use with lithium batteries”.*

The new system complements the range which includes the recent CB516/3 and CB522/3 presented at the past Caravan Salon in Düsseldorf. The latter two are newly designed devices that respectively offer 16A and 22A of maximum deliverable current, as well as more efficient charging of lead-acid, lead-gel batteries, AGM and also lithium batteries.

“The CB522/3 is also suitable for lithium batteries using the charging line that is closest to the voltage values indicated by the battery manufacturer from the available three”, added Dorian Sosi. *“If a user invests a non-negligible sum of money for a battery which, among other advantages, has very fast recharging times, it is right to develop a dedicated product for them. Capitalising on many decades of experience with our customers and the most recent studies of our Research & Development Department, we have identified a new charging line. Then we have optimised CB522-LT studying specifications along with the manufacturers of lithium batteries and taking advantage also of the collaboration of an outside partner specialised in technical tests”.*

The CB522-LT features overheating protection, plus the 12V outputs are protected against short circuits and polarity inversion.

Automatic charging system takes place in four phases.

- Phase 1: Bulk - The battery is charged with maximum current until the end-of-charge voltage is reached.
- Phase 2: Absorption - Battery charging is completed with constant end-of-charge voltage for a maximum time of 1h (or 30 minutes with I<5A).

- Phase 3: Float - Maintenance charging at a constant voltage of 13.5V for a maximum time of 240 hours. The cycle is resumed from the bulk phase if battery voltage drops below 12.7V after a high load has been switched on.
- Phase 4: Refresh - The battery is charged to the voltage of 14.5V for a maximum time of 30 minutes (or up to I<5A). Afterwards, the charge restarts from the float phase.

SPECIFICATIONS

INPUT TECHNICAL DATA	
Rated voltage	230V ~ ±10%
Frequency	50÷60 Hz
Max. power	320 W
Protection fuse	T 3.15A (glass 5x20)
Safety switch	230V ~ luminous

OUTPUT TECHNICAL DATA	
Bulk voltage	14,5V
Float voltage	13,5V
Maximum output current	22A
Charging line	IUoU
Short circuit and polarity inversion protection	30A (car type)
Thermal protection	Yes
Signal AC power supply (S)	12V; 50 mA

GENERAL TECHNICAL DATA	
Efficiency	86%
Room temperature	0 - +40 °C
Ventilation	Gradual automatic regulation
Low voltage directive	2014/35/UE
EMC directive	2014/30/UE
Connection to network	3-pole "Mate-N-Lock" connector / Schuko plug
Connection to battery	Screw M6
Network signal connection	Faston type 6,3
Temperature sensor	Yes, included
Dimensions	180 x 190 x 85 (mm)
Weight	1,2kg

CL-BUS: a new CBE product generation

For over 40 years, the core business of CBE has been 12- and 230-Volt electrical systems for recreational vehicles. Motorhome manufacturers in Europe and worldwide know that CBE is a worthy technical partner for reliable, functional electrical systems with a modern design able to satisfy all needs related to the installed electrical devices. The range spans from entry-level to more sophisticated systems. Therefore, it is not surprising to learn that CBE has launched a new range of products with a LIN BUS communication system designed to interact with CBE devices and with those made by other manufacturers.



"We have decided to add a range of next-generation products. Each one is different and not interchangeable with the elements of the current ranges", said Paolo Moiola, co-CEO of CBE. "It is a clean cut with our current production. The first decision was to choose the transmission protocol. Technically, the CAN BUS preferred by the automotive industry could be better in some cases, but since part of our industry was already oriented towards LIN BUS, we chose to adopt it creating a specific protocol for CBE dedicated to all our devices that we called CL-BUS (CBE LIN BUS)".

But fear not. CBE confirmed that production of the current product ranges would be maintained and that a complete replacement would take time. This time is necessary for customers and also for CBE to gradually reach the level of cost optimisation previously achieved on products that have been on the market for a decade. For the time being, this technology is mainly intended for medium and medium-high range vehicles that fit a high number of electronic devices which can potentially interface. For low-end vehicles, the prices for new products are still not as competitive as comparable entry level products.



"The key matter for our OEM customers is that our new systems are similar to the traditional range of 12-Volt modules, control panels, battery chargers, sensors and light dimmer nodes but with the extra potential of being able to connect to outside world", added Paolo Moiola. "In other words, the management of non-CBE devices can be incorporated either partially or totally in the CBE system. We created an open system because we think that there is no clear consensus in our sector,

neither on European nor on world level, as to what the protocol of the future will be. So, we decided to create a product which was also technologically ready for other standards, thus preparing us for potential further developments.

In this way, we have developed a system with an innovative design, which leaves freedom of action in connectivity-related activities to us as suppliers and to our customers. And in the future, the manufacturers will decide which direction to take and we will be a valuable technical partner for them. Not by chance, CL-BUS was developed to be able to be interfaced with other existing protocols, also not LIN BUS".

Of course, end users will be able to interface with the system through different devices, such as smartphones or tablets. The control panel will not be retired and will remain a necessary element for use as secondary control unit should the smartphone not work or should the battery be flat. A simplified version is also available, with LED instead of display. This is still a very common solution since 75% of motorhomes made in Europe have LEDs, not displays. The system can be Bluetooth-ready although this is not a necessary feature for operation.

"We have redesigned and re-engineered the entire product range", concluded co-CEO Dorian Sosi. "It is nothing short of a generational leap. We have already started installations with select customers and are ready on supply chain level to kick off production. Our R&D department has been working on this for a long time because such a change cannot be taken lightly. It is a genuine revolution for us and we wanted it to be as smooth as possible for our customers as well. For this reason, the new system is designed to be expandable with protocols which may be introduced in the future, without the customer having to change the product codes. Of course, the new range can also be integrated with selected AL-KO products which are becoming increasingly popular and technological. The fact that CBE is part of the AL-KO group can only expand the possible connectivity scenarios with devices made by other companies within the Group".

HISTORY

- 1976 - CBE is founded by the present co-owner and general director Bruno Conci, who started out in the caravanning industry manufacturing electrical systems and electronic devices for local manufacturers Laverda and VS Caravan. Just 2 years later the company launches the first LED control panel for motorhomes.
- 1982 - First attendance at the Turin show (now in Parma)
- 1985 - First attendance at the Essen show (now in Düsseldorf)
- 1987 - First attendance at the Paris show
- 1990 - CBE moves to a new 1000 m² factory (Lamar/TRENTO)
- 1994 - First LCD control panel for motorhomes
- 2003 - CBE obtains UNI EN ISO 9001 certification. Constantly increasing turnover leads CBE to purchase a 4500 m² field where the current Spini/TRENTO premises – at that time 2800 m² – are located.
- 2008 - First touchscreen control panel for motorhomes.
- 2009 - CBE decides to invest strategically on the direct manufacture of wiring harnesses and takes over LCE, a consolidated company in that industry located in Arco/TRENTO.
- 2011 - A new production facility (still in Arco/TRENTO), spanning more than 1500m², is made available to LCE. CBE strengthens and expands its production capacity in the wiring harnesses industry with the start-up SCT, based in Soliman/TUNISIA,
- 2014 - Expansion of the factory in Spini/TRENTO (with the work completed mid-2015), creates a further 1000 m² dedicated mainly to additional test laboratories and storage areas.
- 2016 - CBE creates the simulation testing lab, a laboratory that allows the functional simulation of all CBE systems in combination with appliances and electrical utilities typically installed on recreational vehicles.
- 2018 - CBE is acquired by DexKo Global, a global leader in highly engineered trailer running gear, chassis assemblies and related components.

Today

CBE has consolidated its position as market niche leader, equipping more than 30,000 recreational vehicles per year with its electrical systems and electronic devices. Over 80% of its turnover is generated by Export.