

# Skylla-i Battery Charger 24V

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Li-Ion ready



**Skylla-i 24/100 (3)**



**Skylla-i 24/100**

### **Skylla-i (1+1): two outputs to charge 2 battery banks**

The Skylla-i (1+1) features 2 isolated outputs. The second output, limited to approximately 4 A and with a slightly lower output voltage, is intended to top up a starter battery.

### **Skylla-i (3): three full current outputs to charge 3 battery banks**

The Skylla-i (3) features 3 isolated outputs. All outputs can supply the full rated output current.

### **Rugged**

Aluminium epoxy powder coated cases with drip shield and stainless steel fixings withstand the rigors of an adverse environment: heat, humidity and salt air.

Circuit boards are protected with an acrylic coating for maximum corrosion resistance.

Temperature sensors ensure that power components will always operate within specified limits, if needed by automatic reduction of output current under extreme environmental conditions.

### **Flexible**

Next to a CAN bus (NMEA2000) interface, a rotary switch, DIP switches and potentiometers are available to adapt the charge algorithm to a particular battery and its conditions of use.

Please refer to the manual for a complete overview of the possibilities.

### **Important features:**

#### **Synchronised parallel operation**

Several chargers can be synchronised with the CAN bus interface. This is achieved by simply interconnecting the chargers with RJ45 UTP-cables. Please see the manual for details.

#### **The right amount of charge for a lead-acid battery: variable absorption time**

When only shallow discharges occur the absorption time is kept short in order to prevent overcharging of the battery. After a deep discharge the absorption time is automatically increased to make sure that the battery is completely recharged.

#### **Preventing damage due to excessive gassing: the BatterySafe mode**

If, in order to quickly charge a battery, a high charge current in combination with a high absorption voltage has been chosen, the Skylla-i will prevent damage due to excessive gassing by automatically limiting the rate of voltage increase once the gassing voltage has been reached.

#### **Less maintenance and aging when the battery is not in use: the Storage mode**

The storage mode kicks in whenever the battery has not been subjected to discharge during 24 hours. In the storage mode float voltage is reduced to 2,2 V/cell (26,4 V for 24 V battery) to minimise gassing and corrosion of the positive plates. Once a week the voltage is raised back to the absorption level to 'refresh' the battery. This feature prevents stratification of the electrolyte and sulphation, a major cause of early battery failure.

#### **To increase battery life: temperature compensation**

Every Skylla-i comes with a battery temperature sensor. When connected, charge voltage will automatically decrease with increasing battery temperature. This feature is especially recommended for sealed lead-acid batteries and/or when important fluctuations of battery temperature are expected.

#### **Battery voltage sense**

In order to compensate for voltage loss due to cable resistance, the Skylla-i is provided with a voltage sense facility so that the battery always receives the correct charge voltage.

#### **Suitable for AC and DC supply (AC-DC and DC-DC operation)**

The chargers also accept a DC supply.

#### **Use as a power supply**

As a result of the perfectly stabilized output voltage, the Skylla-i can be used as a power supply if batteries or large buffer capacitors are not available.

#### **Li-Ion (LiFePO4) ready**

Simple charger on-off control can be implemented by connecting a relay or open collector optocoupler output from a Li-Ion BMS to the remote control port of the charger. Alternatively complete control of voltage and current can be achieved by connecting to the galvanically isolated CAN bus port.

#### **Learn more about batteries and battery charging**

To learn more about batteries and charging batteries, please refer to our book 'Energy Unlimited' (available free of charge from Victron Energy and downloadable from [www.victronenergy.com](http://www.victronenergy.com)).

| Skylla-i  | 24/80 (1+1)   | 24/80 (3)                           | 24/100 (1+1)                              | 24/100 (3)                            |
|---|---|-------------------------------------|---|---------------------------------------|
| Input voltage (VAC)   | 230 V   |                                     |   |                                       |
| Input voltage range (VAC)   | 185-265 V   |                                     |   |                                       |
| Input voltage range (VDC)   | 180-350 V   |                                     |   |                                       |
| Maximum AC input current @ 180 VAC  | 16 A  |                                     | 20 A                                      |                                       |
| Frequency (Hz)  | 45-65 Hz  |                                     |   |                                       |
| Power factor  | 0,98  |                                     |   |                                       |
| Charge voltage 'absorption' (VDC) (1)   | 28,8 V  |                                     |   |                                       |
| Charge voltage 'float' (VDC)  | 27,6 V  |                                     |   |                                       |
| Charge voltage 'storage' (VDC)  | 26,4 V  |                                     |   |                                       |
| Charge current (A) (2)  | 80 A  | 3 x 80 A<br>(max total output: 80A) | 100 A                                     | 3 x 100 A<br>(max total output: 100A) |
| Charge current starter batt. (A)  | 4 A   | n. a.                               | 4   | n. a.                                 |
| Charge algorithm  | 7 stage adaptive  |                                     |   |                                       |
| Battery capacity (Ah)   | 400-800 Ah  |                                     | 500-1000 Ah                               |                                       |
| Charge algorithm, Li-Ion  | 3 stage, with on-off control or CAN bus control               |                                     |   |                                       |
| Temperature sensor  | Yes   |                                     |   |                                       |
| Can be used as power supply   | Yes   |                                     |   |                                       |
| Remote on-off port  | Yes (can be connected to a Li-Ion BMS)                        |                                     |   |                                       |
| CAN bus communication port (VE.Can)   | Two RJ45 connectors, NMEA2000 protocol, galvanically isolated |                                     |   |                                       |
| Synchronised parallel operation   | Yes, with VE.Can  |                                     |   |                                       |
| Alarm relay   | DPST  | AC rating: 240VAC/4A                | DC rating: 4A up to 35VDC, 1A up to 60VDC |                                       |
| Forced cooling  | Yes   |                                     |   |                                       |
| Protection  | Battery reverse polarity (fuse)                               |                                     | Output short circuit                      | Over temperature                      |
| Operating temp. range   | -20 to 60°C (Full output current up to 40°C)                  |                                     |   |                                       |
| Humidity (non-condensing)   | max 95%   |                                     |   |                                       |
| <b>ENCLOSURE</b>  |   |                                     |   |                                       |
| Material & Colour   | aluminium (blue RAL 5012)                                     |                                     |   |                                       |
| Battery-connection  | M8 bolts  |                                     |   |                                       |
| 230 VAC-connection  | screw-clamp 10mm <sup>2</sup> (AWG 7)                         |                                     |   |                                       |
| Protection category   | IP 21   |                                     |   |                                       |
| Weight kg (lbs)   | 7 kg (16 lbs)   |                                     |   |                                       |
| Dimensions hxxxd in mm<br>(hxxxd in inches)   | 405 x 250 x 150 mm<br>(16.0 x 9.9 x 5.9 inch)                 |                                     |   |                                       |
| <b>STANDARDS</b>  |   |                                     |   |                                       |
| Safety  | EN 60335-1, EN 60335-2-29                                     |                                     |   |                                       |
| Emission  | EN 55014-1, EN 61000-6-3, EN 61000-3-2                        |                                     |   |                                       |
| Immunity  | EN 55014-2, EN 61000-6-1, EN 61000-6-2, EN 61000-3-3          |                                     |   |                                       |
| 1) Output voltage range 20-36 V. Can be set with rotary switch or potentiometers. 2) Up to 40°C (100°F) ambient. Output will reduce to 80% at 50°C, and to 60% at 60°C. |   |                                     |   |                                       |



### BMV 700 Battery Monitor

The BMV 700 Battery Monitor features an advanced microprocessor control system combined with high resolution measuring systems for battery voltage and charge/discharge current.

The software includes complex calculation algorithms, like Peukert's formula, to exactly determine the state of charge of the battery. The BMV 700 selectively displays battery voltage, battery current, consumed Ah or time to go.



### Skylla-i Control

The Skylla-i Control panel provides remote control and monitoring of the charge process with LED status indication. In addition, the remote panel also offers input current adjustment that can be used to limit the input current and thus the power drawn from the AC supply. This is particularly useful when operating the charger from limited shore power or small gensets. The panel can also be used to change several battery charging parameters. Several control panels can be connected to one charger or to a set of synchronised and parallel connected chargers.