

Simultaneous charging batteries and supplying consumers

During connection to electrical mains, all consumers supplied by battery will further receive current through charger, even while batteries are being charged. The charger is thereby used as a main power supply.

Shore power operation

The device can also be used as a pure power supply without connected battery.



Easy mounting

Integrated mounting lips on each side, for quick mounting on walls or floor.

AUTOMATIKLADER 12/24V WITH



Charging of up to three battery systems simultaneously

All automatic chargers come with three separate output characteristics. These allow the charging of two starter batteries and one consumer battery -or- one starter battery and two consumer battery systems. The charging curve can be fitted to each or any charging battery. The charging current divides, to give each battery it's required charge



Outside connections ...

... Facilitate the safe connection of all lines even in adverse conditions or limited space. They are mostly plugged. The bigger cables can be connected to the high-quality terminals of 25 mm².



Temperature controlled cooling fan

A built-in temperature monitor protects the charger from overload and overheating. The cooling fan only turns on when needed and can be switched to "sleep modus" with the digital remote controll panel type LCM. (Charger works at off peak power, so no fan is needed, max. 8 hours)

Extending charging power

To extend the the charging power it is possible to connect in parallel a second battery charger



Operational conditions indicator

Three LEDs at the front side of the charger indicates the different operating or error conditions of the devices.

The automatic charger series targets today's requirements of electrical systems at yachts.

They are just designed for operations in vehicles and similar ranges of application.

Up to tree separately supervised outputs is possible so simultaneous charging of the starter, consumer and bow thruster/windlass batteries. The IUoU charging characteristic ensures the charge of open-lead batteries, GEL batteries and also AGM batteries by DIP-switch selection.

By means of external temperature sensors for each battery system the charging voltage is adapted accurately to the battery temperature and always provides optimal load results.



Accessories: Digital charging monitor LCM

The digital remote control panel shows all important charge parameters, like that of all the battery systems connected, the charging current, and charge status. Different comfort features are programmable, as reducing the charging current and sleep modus.

8, 10, 15, 30, 48 AND 65A

Large input range voltage section and operation at alternating voltage generators

The modern switch power pack technology makes possible the use of the equipment with full rated output also with reduced mains voltages. Thus it is possible the unrestricted use at shore power connection with long cables (voltage drop) or with on-board generators. The inserted power factor correction provides an optimal utilization of the incoming energy. Thus a low power input from the 230 V/50 Hz shore power and a high load achievement result. The integrated soft starting circuit prevents the high inrush current, which leads to releasing the shore side circuit breaker. Over the digital charging monitor LCM extra energy needs can be reduced in case of low shore power voltage.



Adjustment on different battery systems.

The charging characteristics can be switched to the charge of Gel / AGM or open lead batteries. A shore power supply unit use is likewise possible. These can be made over DIP switches at the unit or over the digital charging monitor LCM.

Temperature compensated charging curve

To prevent harmful battery gasing, the maximum charge current is reduced with every rise in temperature. Up to three temperature sensors can be set in to monitor a three way battery system.

➤ **AUTOMATIC CHARGER 15A CAPACITY**

The compact models of automatic charger AL Series 12/10, 12/15 AL and AL 24/8 are designed specifically for small plants up to 2 battery groups (service-starter and battery) and capacities of up to 150 Ah. The compact dimensions and plug connectors

facilitate the rapid installation. An optional temperature sensor can be connected to all models as well (except AL 12/10) the control panel FAL and the digital charging monitor LCM. Noise free convection cooling.



The charger AL 12/15 FI was designed especially for small installations. It is based on the technique of automatic charger AL and combined with shore power connector. This reduces the installation procedure, as only the

unit and a shore power connector is needed. The RCB/MCB device and the socket are in the front side. Another connection in the back output enables the safe connection of further consumers 230 V/50 Hz.





Why a high-quality charger technology?

When a battery will be discharged it produces a sulphating on the plates. If the battery wouldn't correctly charged the sulphating becomes sulphate crystals what reduce capacity and the life time of the battery.

In the case of very strong sulphating great portion of the electrodes can be permanently damaged. This bad side effect can be reduced at an optimum state by a well controlled charging process.



CHARGE CONDITION INDICATOR

For each output (group of batteries) the charging voltage and error condition are symbolically indicated. Likewise it indicates whether the respective output at starter or service battery is adjusted.



SETUP

In the setup menu can be changed the load parameters and display operations:

- Charging/Consumer operation
- Output 2, 3 (Service-/Start-batteries characteristics),
- Battery types (open lead/Gel/AGM)
- Display contrast
- Number of battery outputs (1/2/3)
- V/°C change over of the monitoring of voltage, temperature of the correspondent charger outlets.

Display LCM



The charging monitor indicates the voltages of the attached groups of batteries also without shore power connection. During the charging operation it indicates additionally all relevant charging parameters, like charging current, temperatures of the batteries and the device status. Also the charging current can be reduced, the configuration changed, and the SLEEP mode activated.

Technical data

Input voltage range	9 - 30 V	
Operation current	12 V: 3 mA	24 V: 5 mA
Operation current, lightning	12 V: 50 mA	24 V: 38 mA
Dimensions	W 105 x H 105 x D 40 mm	
Cut-out dimensions	90 x 90 mm	



SLEEP

The sleep mode is activated by pressing the sleep key. This means that the fan stops working and the unit reduces the charging current. The deactivation takes place automatically after 8 hours or by renewed pressing of the sleep key. After that the battery charger begins a new load cycle.



CURRENT

The charging current can be reduced in 8 stages manually, in order to make possible connection with weak shore power supply..

▶ AUTOMATIC CHARGER

The **automatic charger with integrated shore power protection for small battery up to 2 groups** (service- and starter battery) and capacities of up to 150 Ah. Noise-free convection cooling.



AL 12/15FI

The **automatic charger for small installations up to 2 battery groups** (service- and starter battery) and capacities of up to 150 Ah. The compact dimensions and plug connectors facilitate the rapid assembly. Noise-free convection cooling.



AL 12/10

AL 12/15

AL 24/8

Type	AL 12/15 FI	AL 12/10	AL12/15	AL 24/08
Order-No.:	0 4213 1512	0 4212 1000	0 4212 1512	0 4224 0822
Charge current	15 A	10 A	15 A	8 A
Rated voltage	12 V	12 V	12 V	24 V
Charge characteristics	IUoU, 2 adjustable outlets	IUoU, 1 outlet	IUoU, 2 adjustable outputs	IUoU, 2adjustable outlets
Outputs	2	1	2	2
Recom. battery capacity	50 - 150 Ah	30 - 100 Ah	50 - 150 Ah	20 - 80 Ah
Input voltage range	180 - 264 V	180 - 264 V	180 - 264 V	180 - 264 V
Frequency	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz
Load consumption on 230V	1 A	0,7 A	1 A	1 A
Weight	3 kg	1,2 kg	1,2 kg	1,2 kg
Dimensions	W 250 x H 174 x D 170 mm	W 250 x D 142 x H 84 mm	W 250 x D 142 x H 84 mm	W 250 x D 142 x H 84 mm
Cut-out	W 227 x H 150 mm			
Cooling	Convection without fan			
Sink current	< 2 mA			
Operational temperature	- 15°C - 60 °C, by 40 °C power is reduced			
Protective system	IP 20			
Output voltage	IUoU-Characteristic, Gel: 14,4V/13,8V, Open lead 14,2V/13,2V, 1 temperature sensor connectable			
Short circuit protection	all models			

▶ ACCESSORIES FOR AUTOMATIC CHARGER



■ FAL Order-No.: 0 4900 2002

Remote control panel for monitoring the operational conditions of the charger
Connecting cable length 5m

Dimensions W 105 x H 52,5 x D 25 mm



■ KS 2-15 Order-No.: 0 4922 0015
 ■ KS 2-30 Order-No.: 0 4922 0030
 ■ KS 2-48 Order-No.: 0 4922 0045
 ■ KS 2-65 Order-No.: 0 4922 0060

Cables matched for automatic charger, length 2 m.

AUTOMATIC CHARGER

Automatic charger for middle and large arrangements up to 3 groups of batteries (starter, service and bow battery) and capacities up to 650 Ah. The cooling of the devices is made by a automatic controlled fan. One temperature sensor is delivered with the charger.



AL 12/30

AL 24/20

AL 12/48

AL 12/65

AL 24/35

Type	AL 12/30	AL 12/48	AL 12/65	AL24/20	AL 24/35
Orderl-No.:	0 4212 3013	0 4212 4813	0 4212 6513	0 4224 2023	0 4224 3523
Charge current	30 A	48 A	65 A	20 A	35 A
Rated voltage	12 V	12 V	12 V	24 V	24 V
Charge characteristics	IUoU (Service), IU (Start)	IUoU (Service), IU (Start)	IUoU (Service), IU (Start)	IUoU (Service), IU (Start)	IUoU (Service), IU (Start)
Number of outlets	3	3	3	3	3
Recom. battery capacity	100 - 300 Ah	160 - 480 Ah	200 - 650 Ah	70 - 200 Ah	120 - 350 Ah
Input voltage range	180-264 V	90 - 264 V*	90 - 264 V*	180 - 264 V	90 - 264 V*
Frequency	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz	50-60 Hz
Full load consumption 230V	2,3 A	3,7 A	5,1 A	2,9 A	5,2 A
Weight	3,0 kg	3,9 kg	3,9 kg	3,0 kg	3,9 kg
Dimensions (L x W x H)	190 x 265 x 95 mm	268 x 300 x 100 mm	268 x 300 x 100 mm	190 x 265 x 95 mm	268 x 300 x 100 mm
Cooling	Cooling temperature controlled.				
DC consumption	< 2 mA				
Temperature range	- 15°C - 60 °C, ab 40 °C power reduced				
Protective system	IP 20				
Charging voltage	IUoU- Characteristic Gel/AGM: 14,4V/13,8V, Open lead 14,2V/13,2V, up to 3 connectable temperature sensors				
Short circuit protection	all models				

Charging power reduction to 50% at 120 V

ACCESSORIES FOR AUTOMATIC CHARGER



LCM

Order-No.: 0 8000 4001

Digital remote control panel. All parameters as voltage of all connected battery systems, charging current, charging state can be monitored. Control of the charging current, sleep and stand-by modus. Cable length 5m.

Dimensions W 105 x H 105 x D 40 mm



Temp-AL

Order-No.: 0 5900 3001

Temperature sensor to measure the battery's voltage. Cable length 2,8m. Cable can be longered to any length you like.

Cable length 2,8 m