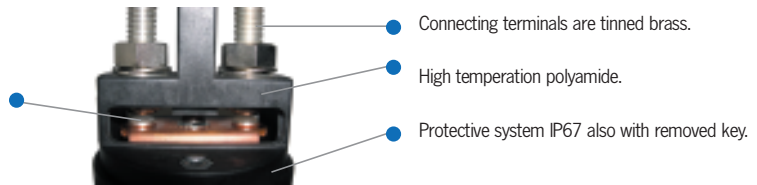


BATTERY MAIN SWITCH

Main battery switch for high strain and high current range. High professional design based on the experience from the relay technique in waterproof execution.

The key of all models is removable when switched off. Built-in or flange mounting. Hole - ϕ 22 mm.

The use of solid silver contacts guarantee the lower resistance avoiding oxidation and the lack of contacts by switching lightning, and thus a higher load and longer life.



Type	BH 200 F	BH 400 F	BH 500 F	BH 220 F (2-pole)
Order-No.:	6 0003 5200	6 0003 5400	6 0003 5500	6 0003 5220
Continues current	200 A	400 A	500 A	2 x 200 A
Peak current	500 A / 3 min 1000 A / 30 s	1200 A / 4 min 2000 A / 10 s	1500 A / 4 min 2500 A / 10 s	2x 500 A / 4 min 2x 1000 A / 30 s
Connection	M10	M10	M10	M8
Protection	IP 67	IP 67	IP 67	IP 67
Dimensions	ϕ 55 x 105 mm	120 x 70 x 120 mm	120 x 70 x 126 mm	120 x 70 x 120 mm

Universal battery main switch series BHM for all purposes. The double pole model BHM 230 connects the positive poles of the start

and service batteries at the same time. In the combine position, the batteries are linked to the emergency starting.



Type	BHM 300	BHM 220 (2-pole)	BHM 230 (2-pole)	BWS 350
Order-No.:	7 0010 6006	7 0010 6010	7 0010 6011	7 0010 9001
Continues current	300 A	2 x 220 A (+ and - pole)	2 x 220 A (for 2 + poles)	350 A
Peak current	700 A / 9 s	2 x 500 A / 9 s	2 x 500 A / 9 s	1600 A / 100 ms
Protection	IP67	IP67	IP67	IP67
Montage	Build-in/Build-on	Build-in/Build-on	Build-in/Build-on	Build-on
Connection	M10	M10	M10	M10
Dimensions	72 x 72 mm Build-in hole- ϕ 61 mm	72 x 72 mm Build-in hole- ϕ 61 mm	72 x 72 mm Build-in hole- ϕ 61 mm	98 x 98 x 80 mm Build-in hole- ϕ 92 mm
Application	Main switch ON/OFF	Main switch ON/OFF 2poles for metal hull	One main switch ON/OFF for two battery groups Parallel switch I-II	Selector switch for two- battery groups



Dangerous deep discharging of a battery

When a battery is discharged, sulphating occurs in the electrodes and with so called deep discharging, an irreversible loss of capacity will take place. This is due the crystallization of materials around the electrodes. It also increase the risk of micro-short-circuits that self discharges the battery.

Deep discharging must be prevented in any case in order to avoid the premature failure of the batteries. The deep discharging protector saves the batteries before a dangerous situation by disabling the consumer upon reaching the lower voltage limit. The reconnection is done automatically when the batteries are charged again.

The deep discharge protection TSA gives an acoustic warning when the battery voltage reaches the limit and 50 seconds later it turns-off the consumers to avoid the dangerous deep discharge of a the battery. The reconnection takes place automatically at 12.5V/25V. The extremely

low power consumption is not an additional load on the battery. It is made to be used in conjunction with the control panel FB-TSA for remote control. The control LED on the panel shows the operation mode of the main switch and is flashing as a warning before the TSA switches off.

Type	TSA 12/15	TSA 24/15
Order-No.:	0 8000 1215	0 8000 2415
Rated voltage	12 V DC	24 V DC
Switch off voltage	10,8 V DC	21,6 V DC
Switch on voltage	12,5 V DC	25 V DC
Current capacity	15 A	15 A
Power consumption	1,3 mA	2 mA
Connection	Terminals, max. 4 mm ²	
Dimensions	L 130 x W 80 x H 42 mm	

■ **FB-TSA** Order-No.: **0 8000 9126**

Control panel for deep discharge protection, Dimensions W 105 x H 52,5 x D 40 mm



15A



FB-TSA

The deep discharge protection TSA 260 is able to take the load of the complete onboard system. The minimal own consumption isn't an additional load on the battery. In connection with the remote control panel FAR the

TSA 260 can be switched and controlled from anywhere on the boat. The FBC 260 has a PBUS (CAN bus) connection to integrate in a digital switched system. In case of an emergency you can switch both relays manually.



■ **TSA 260 -12V** Order-No.: **0 8301 2605**
 ■ **TSA 260 -24V** Order-No.: **0 8302 2605**

Remote battery switch plus deep discharge and over-voltage protection. Saves the battery by deep discharge of connected consumers. External control via switch 0-1 and LED state indicator or by remote control panel FAR.

Undervoltage open 300 s	DC 11,2 V / 22,4 V
Reconnect combine 10 s	DC 12,5 V / 25,0 V
Overvoltage open 60 s	DC 15,6 V / 31,2 V
Consumption	1 mA
Dimensions, terminals	L 120 x W 110 x H 50 mm, M8



■ **FBC 260** Order-No.: **0 8302 2700**

Remote battery switch plus deep discharge and over-voltage protection. Operation via control push button or PBUS (CAN bus) All settings are adjustable via CAN bus. Manual operation directly at the relay possible.

Open 300 s	DC 11,2 V / 22,4 V
Combine 10 s	DC 12,5 V / 25,0 V
Open Overvoltage 60 s	DC 15,6 V / 31,2 V
CAN bus Connector	M12
Consumption stand-by/active	1 mA / 7 mA
Dimensions, terminals	L 120 x W 110 x H 50 mm, M8



The installation of a remote control main switch has several advantages: the safe and comfortable switching from a well accessible place which is easy to reach also in case of an emergency. The wiring system benefits from an

installation of the main switch near the battery. Thus the voltage drop by longer wires will be avoided and the system works optimal.



FBR 260 Order-No.: **0 8302 2600**

Microprocessor controlled remote battery switch. External control via switch 0-1 and LED state indicator, or remote control panel FAR.

Important: in case of an emergency you can switch the relay manually!

Rated Voltage	DC 12 V + 24 V
Live Current Rating	DC 260 A @ 20°C, 50 mm²
Intermittent / Cranking Rating	DC 400A/5s, 1500A/0,2s
Operating Current	1 mA
Dimensions, Terminal	L 120 x W 110 x H 50 mm, M8
Protection	IP 54



FBR 500 -12 Order-No.: **7 0010 7700**
FBR 500 -24 Order-No.: **7 0010 7702**

Bi-stable remote battery switch with manual override knob. Protection IP 66. Remote control switch incl. in delivery.

Matching panel for remote switch: panel 711 (please order separately).

Rated voltage	12 V bzw. 24 V
Live Current Rating	500 A @ 20°C, 95 mm²
Intermittent / Cranking Rating	2500 A / 5 s
Consumption	0 mA
Terminal stud size	3/8"-16 (M10)
Dimensions	W 139 x H 95 x D 53 mm



CG 4 A 200 Order-No.: **6 4004 2001**

Key operated switch (0-1) for remote control of FBR 260. The key can be withdrawn in zero position. Rated current 10A, Mounting hole \varnothing 22 mm



RCS 0-1 Order-No.: **7 0010 2155**

Remote control switch (0-1) with LED state indicator for remote control main switch FBR 260 and TSA 260. Matching mounting panel: Panel 711 Order-No.: 0 2990 7110 (please order separately)



RDS 0-(1) Order-No.: **6 0002 0010**

Remote control push button 0-(1) with LED state indicator for the remote battery switches FBC 260 and VCR 190. Rated current 100 mA, green LED without resistor.

If you want to operate such consumers as inverters only while the alternator or other charging source is on, you can install the intelligent

load relay VCR 190. It switches depending on the available power.



VCR 190 Order-No.: **0 8312 1900**

Automatic load relay for 12/24 V. Automatic input voltage supervision Switches only if enough power is available. Output for external LED as state indicator. Very high live current rating (190 A at 85°C).

Rated voltage	12 / 24 V
Live Current Rating	190 A @ 85°C / 50qmm
Combine voltage 10 s	DC 13,2 V / 26,4 V
Cut-off voltage 300 s	DC 12,5 V / 25,0 V
Consumption	1 mA
Terminal	M 8
Dimensions	L 120 x W 110 x H 50 mm