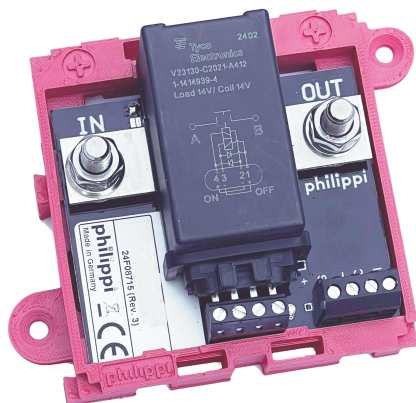


INSTRUCTION MANUAL



USE

The VHR 200 is a voltage-dependent switching isolating relay. It is used for automatic Inter-connection of two battery groups (e.g. starter / consumer battery or starter / bug battery) battery) in charging mode.

The VHR 200 measures the voltage of both battery groups at the connection bolts and switches them together as soon as the voltage at one of the two battery groups is above the switch-on threshold. If the charging equipment (alternator, chargers, wind / solar) stops supplying energy, the voltage drops and the relay automatically disconnects the two battery groups as soon as the voltage falls below the switch-off threshold. In addition, the battery banks can be disconnected during the starting process.

The VHR 200 is designed for continuous currents up to 200 A and has a very low self-current consumption. The voltage-dependent switching isolating relay VHR 200 can only be operated on DC low voltage 9 - 32V.

It is designed for use on yachts or in mobile homes and may only be used in closed rooms that are protected from rain, humidity, dust and condensation water. Never use the voltage-dependent switching isolating relay VHR 200 in places where there is a risk of explosion due to gas or dust. It is not suitable for outdoor installation.

WARRANTY

philippi elektrische systeme gmbh grants a two year limited and non-transferable warranty for the first buyer of this equipment, commencing on the date of purchase and covers defects in manufacturing, parts and materials.

Production or material defects will be corrected without costs if:

- the equipment is sent to us at the expense of the sender
- an Invoice or proof of purchase (copy) is included
- the equipment was used for its intended purpose
- no unauthorized parts were added, and the equipment was not exposed to extreme conditions

Not included in the warranty are damages from:

- overvoltage on the inputs or reverse polarity
- ingress of liquids, vapors, condensation, etc.
- lightning

Follow-up costs and normal wear and tear are not covered under warranty.

In case of warranty the defect must be clearly specified. A detailed description of the defect will help to speed up the repair.

Please note that we cannot accept carriage forward deliveries.

EXCLUSION OF LIABILITY

Both adherence to the operating instructions, and the conditions and methods used during installation, use and maintenance of the VHR, cannot be supervised by philippi electrical systems gmbh.

Therefore we do not take any responsibility for loss, damage or costs, which develop due to incorrect installation and/or inappropriate use..

SAFETY REFERENCES



- unauthorized changes to the equipment will invalidate the CE sign
- the installation of the VHR may be made only by electrical specialists.
- Important! Pay attention to the correct polarity of the batteries!

The assembly and operating instruction is a component of the VHR package. It must be kept (for reference). Importantly: - for later maintenance work - and for the use of subsequent owners of the equipment.

DISPOSAL NOTE



Please take care of your local directives on waste electrical and electronic equipment. Please use collection points for waste electrical and electronic equipment.

SCOPE OF DELIVERY

- VHR200
- Cover for bolts BA 2 RT(2 pcs.)

Best.-Nr.: 7 0001 0120

Best.-Nr.: 7 0010 4012

ACCESSORIES (NOT INCLUDED IN DELIVERY)

- Button 0-1 for Emergency ON z.B. 21 x 14 mm
(or any other push button from our assortment)
- x LED without series resistor 5 mm green

Best.-Nr.: 5 1801 1202

Best.-Nr.: 6 0005 0621



INSTALLATION

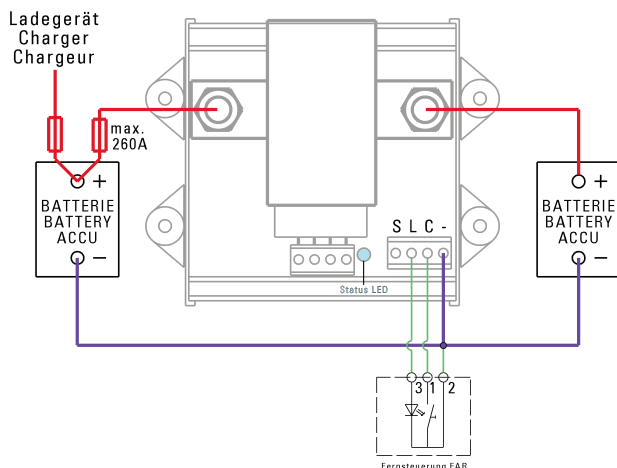
- Mount the device close to the battery / battery bank in an easily accessible location, so that a manual emergency operation is possible.
- The installation location should be cool and dry if possible.
- Provide strain relief for the cables (at a maximum distance of 30 cm)

CONNECTION

- The batteries must be disconnected before installation!- The wire cross section of the connecting lines to the batteries or battery banks must be at least 25 mm². The dissipation of the heat loss in the relay takes place via the connected lines. Dimension the cable cross section sufficiently (page 4)!



Please remember to fuse the cable correctly near the battery!- The wire cross section of the control lines must be at least 1 mm².



Control lines:

- 1 button
- 3 External LED + (no pre resistor)
- 2 Minus (GND)

- Terminal Minus: must be connected to the minus of the on-board power supply.
- Terminal C: Connection for an (optional) button for "Battery - parallel connection" (against minus).
- Terminal L: Connection for an (optional) external control LED (against minus)
- Terminal S: Connection for "Battery disconnection" (optional) to disconnect the batteries during the start process or during charging with a charger with several outputs or to disconnect the batteries during bow thruster operation. This avoids high cross currents during starting as well as possible interference with sensitive loads connected to the service battery bank.

A voltage of > 8V (via a fused line, e.g. from the ignition lock, or control line around the starter motor and carrying voltage only during the starting procedure) separates the two battery banks.

OPERATION

The internal LED shows by a simple flash the readiness for operation in 12V mode. The double flashing indicates the 24V mode. When the relay is switched on, the internal LED and the optional external LED light up.

Signal at terminal C:

As long as the optional external button is pressed, the relay switches to EMERGENCY PARALLEL, thus connecting both batteries. Attention: If the signal S is already present, the relay is not switched on!

Signal at terminal S:

As long as a voltage (>8V) is applied, the relay switches OFF, thus disconnecting both batteries. If the signal C is already present, the relay will not be switched off!

TECHNICAL DATA

Rated voltage	12 V + 24 V
Operation voltage	9 - 32 V
Rated current continuous	200 A / Cross section 95 mm ²
Overload 5s	400 A
Peak current 0,2 s	1500 A

Switch ON- Voltage thresholds:

120 Sec	13,4 V / 26,8 V
30 Sec:	13,8 V / 27,6 V

Switch OFF- Voltage thresholds:

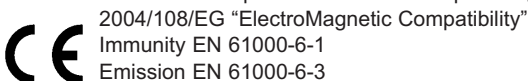
30 Sec:	13,0 V / 26,0 V
10 Sec :	12,5 V / 25,0 V
	16,0 V / 32,0 V (at Over Voltage, when C not set)

Power consumption	Relais OFF: 1,5 mA @ 13 V, 3 mA @ 26 V Relais ON: 2,5 mA @ 13 V, 5,5 mA @ 26 V
terminals	M 8
Protection	IP 20
Dimensions:	L 111 x B 90 x H 60 mm

Recommended cable cross sections:	80 A / 25 mm ²	150 A / 70 mm ²
	100 A / 35 mm ²	200 A / 95 mm ²
	120 A / 50 mm ²	

DECLARATION OF CONFORMITY

This device fulfills the requirements of the European regulations:



The conformity to this regulation is certified by the CE - sign.