

VOTRONIC

Installation and Operating Manual

Duo Storage Battery Tester S

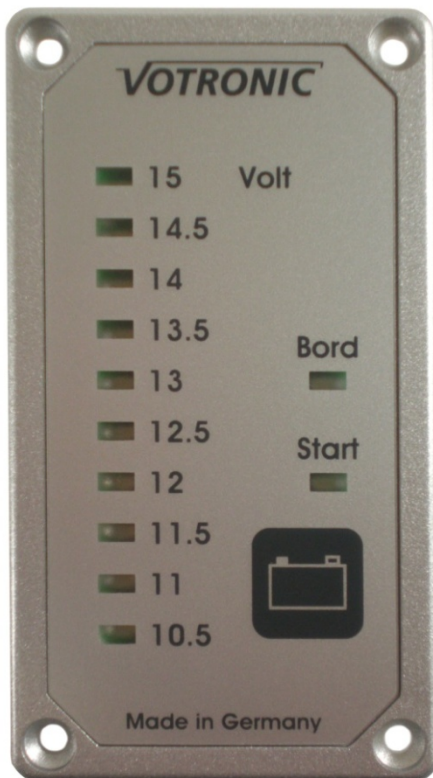
12 V

Order No. 1245

The VOTRONIC Duo Storage Battery Tester is designed for the voltage metering of vehicle and board battery in campers and fire-fighting and intervention vehicles.



Please read the mounting instructions and operating manual including the safety regulations completely prior to starting connection and start-up.



The compact and robust unit displays two voltage rates, either of the board battery or of the starter battery. It represents clearly the most interesting range of the battery voltage, from total discharge up to maximum charging voltage.

The luminous spot display supplies a quite precise display of the battery voltage rates, since also the intermediate values are clearly legible due to the different brightness of the adjacent luminous spots. At the push of a button, the voltage of board or starter battery can be selected, or the display can be switched-off. In case of low battery voltage rates, red pilot lamps indicate that battery recharging is required.

The Duo Storage Battery Tester S is executed as panel version matching to the VOTRONIC modular system (identical height 85 mm). The combination with units of the VOTRONIC modular system, such as the tank displays S, the LCD displays S, as well as the switch panels and fuse panels S, is a useful application. The units can be combined perfectly with regard to appearance, and their installation is easy (see example modular system).

Installation:

Choose a well visible and easily accessible location in the living area for installation of the unit. The installation place in the front panel of the furniture should be chosen in such a way, that the contrast of the display be not hindered (sun light).

The electronic system's small mounting depth of only 14 mm allows flush mounting into commercial furniture boards to ensure, that an optimum installation place can always be chosen without losing precious storage space.

The clear opening of the furniture cutout should be slightly larger than the assembly dimensions of 29 x 62 mm to ensure safe alignment of the unit's front panel.

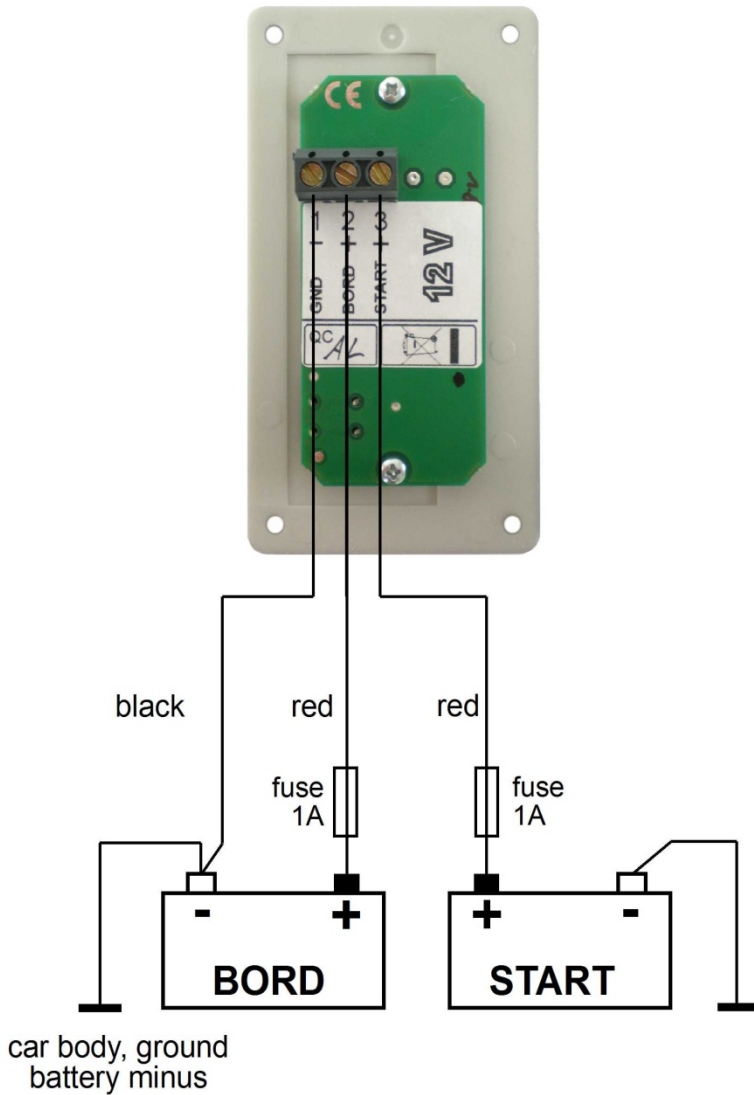


If several VOTRONIC units are applied, use the delivered jig for marking. The drilling jig facilitates positioning and reduces the expenditure of installation, since time-consuming measuring for alignment is not required.

The rear cutout opening should be covered with electrically nonconducting material (e. g. plastic plate, poplar plywood, or similar material) to ensure full utilization of the storage space, which might be located behind

Make all electric connections, place the Duo Storage Battery Tester S centrally in the cutout, and use the delivered screws for fastening.

Connection Plan:



Configuration of Connections:

- 1 = Board Battery “-” (Minus) or Body-Ground
- 2 = Board Battery “+” (Plus)
- 3 = Starter Battery “+” (Plus)

Recommended Minimum Cable Cross-Sections:

- Cable Length up to 2 m: 0.5 mm²
- Cable Length up to 5 m: 1.0 mm²
- Cable Length from 5 m: 1.5 mm²

Ensure that cable length is sufficient to facilitate the installation.

Carefully screw down stripped cables with all single wires to the terminal observing that no single wires jut out laterally.

The unit is protected from reverse battery (+ and - mixed up).

Lead the cable up to the battery connections! By this, incorrect measurements due to voltage losses at the power distributors, cables etc. are avoided.

Cable Protection: Arrange the fuses for protection against short-circuits close to the battery.

Note: Amongst others, the connections of the panel are marked with numbers. The numbering of all VOTRONIC display units has been assigned systematically to the corresponding connections. Thus, connection of several units is facilitated. The cables in different colours help to avoid malfunctions due to mixed up connections.

Operation:

When pressing the key, the display will increment shortly to "15 V", and "Board", as well as "Start" will be lighting for reasons of testing.

- After that, the voltage of the board battery will be displayed, and the LED "Board" will be lighting.
- If the key is actuated for a second time, it will be switched to the starter battery. The LED "Start" is lighting.
- Actuating the key for a third time will switch-off the Duo Storage Battery Tester S.
- If the starter battery is not connected, the lowermost LED "10.5" is lighting dimly at least brightness.
- 10 minutes after the last activity, the display will be switched-off automatically for reasons of power saving.

Display:

The voltage is indicated by a lighting LED on the scale.

Simultaneous lighting of 2 light-emitting diodes indicates a voltage between the corresponding values.

EXAMPLE: If the two LEDs "12.5 V" and "13 V" are lighting with identical brightness, the battery voltage is 12.75 V.
If the brightness of the light-emitting diodes is different, the battery voltage tends to the light-emitting diode being the brighter one.

The range of operation of the lead battery 12 V is indicated by the red and green light-emitting diodes, and it is valid for inferior to normal load (current consumption) of the battery. **Green means o. k.!**

If powerful consumers with high current consumption are used, such as inverters, the battery voltage might drop below 11 V.

However, if the display is in the red range without any battery load or in case of only inferior battery load, the corresponding battery should be recharged immediately.

If the voltage "10.5 V" is reached, switch-off all consumers in order to avoid total discharge of the battery. Now, recharging is highly recommended !



Several times of total discharge result in loss of capacity or in destruction of the battery!
Never leave lead storage batteries in discharged condition !



An efficient protection against totally discharged board batteries is ensured by installation of a VOTRONIC Battery Protector, which effects an automatic separation of battery and consumers.

- Battery Protector 40 (12 V, to 40 A load current), order No. 3075 or
- Battery Protector 100 (12 V, to 100 A load current), order No. 3078.

Technical Data:	Operating Voltage:	12 V DC (Battery Voltage, Lead / Acid, Gel, AGM Battery)
	Operating Voltage Range:	9 V - 16 V DC
	Current Consumption:	1 mA (OFF) - max. 15 mA (Display active)
	Weight:	28 g
	Dimensions:	85 x 47 x 17 mm
	Assembly Dimensions:	29 x 62 mm
	Mounting Depth:	14 mm



Recycling:

At the end of its useful life, you can send us this device for professional disposal:

You can find more information about this on our website at www.votronic.de/recycling



Safety Regulations and Appropriate Application:

The unit has been designed according to the valid safety regulations.

Appropriate application is restricted to:

1. **Fused battery direct voltage with nominal voltage 12 V.**
2. **Technically faultless condition.**
3. **Installation in a well-ventilated room, protected from rain, humidity, dust, aggressive battery gas, as well as in an environment being free from condensation water.**
4. **With a rear insulating cover of the display unit.**
 - Never use the unit at locations where the risk of gas or dust explosion exists!
 - Cables are always to be laid in such a way that damage is excluded. Observe to fasten them tightly.
 - Never lay 12 V (24 V) cables and 230 V mains supply cables into the same cable conduit (empty conduit).
 - Check live cables or leads periodically for insulation faults, points of break or loosened connections. Occurring defects must be remedied immediately.
 - **Always disconnect the power supply to the battery prior to working on the electric system.**
 - **The unit is to be disconnected from any connection prior to electrically welding.**
 - If the user is not able to draw from the manual, which characteristic values are valid for a unit or which regulations are to be observed, a specialist is to be consulted.
 - The user/buyer is obliged to observe any construction and safety regulations.
 - **The unit is not equipped with parts, which can be replaced by the user.**
 - **Never use solvents or aggressive household cleaners for cleaning of the display!**
 - The manufacturer's warranty is 60 months from delivery.
 - Improper use, operation outside the technical specifications, improper operation or third-party intervention will void the warranty or manufacturer's guarantee. No liability is accepted for any resulting damage. The exclusion of liability also extends to any services provided by third parties that were not commissioned by us in writing. Services exclusively provided by VOTRONIC Elektronik-Systeme GmbH, Lauterbach.



Declaration of Conformity:

In accordance with the provisions of the statutory requirements and the relevant directives, Electrical Equipment (Safety) Regulations 2016, Electromagnetic Compatibility Regulations 2016, The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 this product complies with the following standards or normative documents:

BS EN55014-1; BS EN61000-6-1; BS EN61000-4-2; BS EN61000-4-3; BS EN61000-4-4;
BS EN62368-1; BS EN50498, BS EN IEC 63000.



Declaration of Conformity:

In accordance with the provisions of Directives 2014/35/EU, 2014/30/EU, 2009/19/EC, this product complies with the following standards or normative documents:

EN55014-1; EN61000-6-1; EN61000-4-2; EN61000-4-3; EN61000-4-4;
EN62368-1; EN50498.



The product must not be disposed of in the household waste.



The product is RoHS compliant. It complies with the directive 2015/863/EU for Reduction of Hazardous Substances in electrical and electronic equipment.

Quality Management System
DIN EN ISO 9001

Delivery Scope: 1 Duo Storage Battery Tester S
4 Fastening Screws
1 Installation and Operating Manual
1 Drilling Jig

Subject to misprints, errors and technical modification without notice.

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