

# ***VOLTCRAFT***®

Operation instruction

DC-DC voltage converter  
type 2239.1

Ⓔ<sub>1</sub> 10R - 023680



**Attention! Read absolutely!**

Read through this instruction exactly. The right to claim under guarantee dies at damages which are caused by nonobservance of the instruction. For resultant damages we don't assume any liability.

## 1. Introduction

The intended use of the voltage transformer is the doubling of DC voltage from a 12V battery and the connection and operation of 24V DC devices at the output. The 2239.1 is a switched mode DC / DC converter, wherein the applied voltage of 12 V battery (for example, a car starter battery) is converted into a DC voltage of 24V. This allows battery-powered devices with an operating voltage of 24V, to be used if the existing on-board power is 12V.

The unit is designed for wall mounting (mounting position see connection diagram). When operating at full load produces a power dissipation of about 30W which must be dissipated as heat. Therefore you must during installation, ensure that that sufficient cooling air can flow through the device. With unfavorable mounting position use a thermal switch for overheating protection, the output voltage then falls to the value of the input voltage. In an unfavorable installation position not stop please do not use to the full power.

Due to the high current in the battery supply and discharge cables should be as short as possible and with sufficient cross-section (at least 2.5 mm<sup>2</sup>). The connections are made via 6.3mm spade terminals.

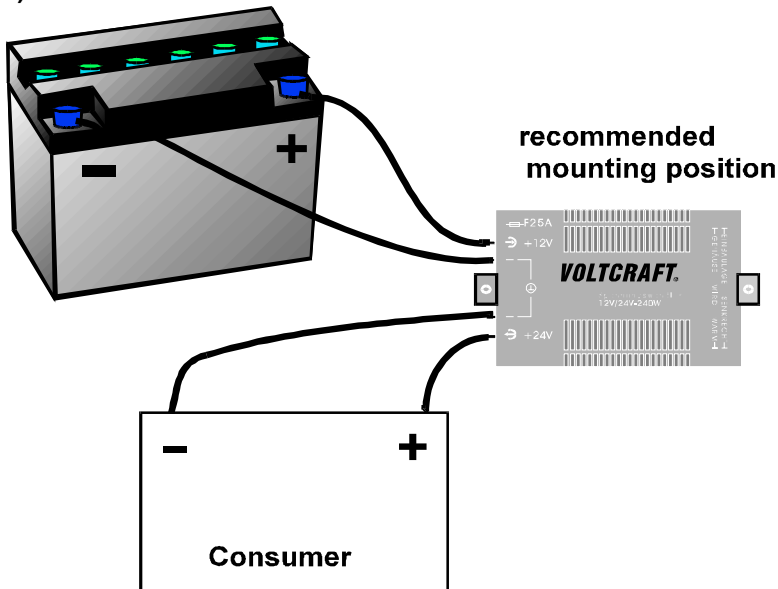
## 2. Safety notes general

- 2,1 the power supply unit is in safety class system I as well as in accordance with VDE 0411 and VDE 0805 (EN60950) structured. It is radio-screened in accordance with VDE 0875T11 curve B. Es is equipped with a VDE checked main with protective grounding and may therefore only to 230-V-main with protective grounding be operated or attached.
- 2,2 it is to be made certain that protective grounding (yellow/green) is interrupted neither in the main nor in the device or in the network, since with interrupted protective grounding mortal danger exists. It is to be made certain further that the isolation is damaged nor destroyed neither.
- 2,3 power supply units do not belong into child hands!
- 2,4 in commercial mechanisms is to be considered the rules for the prevention of accidents of the federation of the commercial Berufgenossen schaften for electrical system and resources.
- 2,5 in schools, training facilities, hobby and self-help workshops. is by hand possible for
- 2,6 when opening covers or removing from sections, except if this, can live sections be opened. Also interface can be live. Before an alignment, maintenance, a repair or an exchange of sections the device must be separate from all voltage supplies, if opening of the device is necessary. If thereafter an alignment, maintenance or a repair at the opened device under voltage are inevitable, may take place only by means of a specialist, who is familiar with the associated dangers or the relevant regulations for it.
- 2,7 condensers in the device can be still loaded, even if the device were separated from all voltage supplies.
- 2,8 it is to be guaranteed that only protections of the indicated type and the indicated call stromstraerke are used as back-up. The use of repaired protections or bridging the fuse holder is illegal. The device is overload-proof and short-circuit-protected. When burning the input protection through a serious error is therefore present, which must be eliminated by a specialist, before the new intact protection can be used by this specialist.
- 2,9 switching it your power supply unit never equivalent if it is brought by a cold into a warm space. The condensation developing thereby can destroy your device under unfavorable circumstances. Let the device unein switched to room temperature come. carrying of metallic or conductive decoration is forbidden to
- 2,10 with work with power supply units such as chains, bracelets, rings or the like.
- 2,11 power supply units are not certified for application at humans or animals.
- 2,12 during the series connection of the outputs one or several power supply units is produced lethal voltages (>35 VDC).
- 2,13 louvers of power supply units may not be taken off! The devices are on hard to place with difficulty inflammable documents so that air can occur the devices unhindered. The cooling of the devices takes place predominantly via convection.
- 2,14 power supply units and the attached consumers may not be operated unsupervised. Measures are to be taken to the protection and the protection of the attached consumers in relation to effects of the power supply units (e.g. overvoltages, failure of the power supply unit) and the effects and dangers outgoing from the consumers themselves (e.g. illegally high power input). Note! Sensitive consumers must be protected additionally by external measures against destruction!
- 2,15 in the event of an error can deliver power supply units voltages over 50 V DC voltage, from which dangers proceed, also then if the indicated output voltages of the devices lower is situated.
- 2,16 with work under voltage for it expressly certified tools may be only used.
- 2,17 the outputs of the power supply units (exit hub/clamps) and to it attached lines must be protected against direct contact. In addition the used lines must sufficient isolation or tension strain possess and the contact points be contact-voltage-proof (safety sockets).
- 2,18 shifting metallicly bright lines and contacts is to be avoided. All these places are by suitable to take and to protect thus against direct contact with difficulty inflammable insulants or other measures off. Also the electrically leading sections of the attached consumers are to be protected by appropriate measures against direct contact.

2,19 if to assume it is that a safe operation is no longer possible, then is the device out of operation to set and against unintentional operation protect. It is to be assumed that a safe operation is no longer possible, if - the device or the mains cable visible damages indicates, - the device any longer does not operate, - after longer storage under unfavorable conditions, - after heavy transport stresses.

### 3. getting started

#### a) Connection



Connect battery and consumer like in the figure. (you pay attention battery+at transducer receipt of+/ battery -- at transducer receipt/consumer+at transducer egress+/ consumer to the polarity of battery and consumer at this -- at transducer egress-). We don't assume any skid resistance arise from wrong connection this one for damages! Think highly of you also on a sufficient cross-cut of the supply (for mind. 2.5 mm <sup>2</sup>) The transducer doesn't have any one for-/ shutdown. The spacing current of the transducer without connected consumer is approx. 30 mA. Therefore we recommend the mounting of a switch at solid mounting.

#### B) safeguarding change

The wiring is interpreted so that a faulty construction element is generally the reason for this in the transducer that the safeguarding blows. You can check the state of the safeguarding at the inferred equipment. Look to this by the ventilation slits besides the safeguarding symbol on the Case. For changing the safeguarding you must open the case. Separate the equipment to this from the battery and from the consumer. Solve the screws of the Case. Remove the old safeguarding and replace these by a 25 ares FKS safeguarding (flat safeguarding use).

#### Caution! Burning danger!

The equipment waiter you pay attention therefore absolutely to a sufficient ventilation of the equipment and never conceal they the ventilation slots on -- or equipment underside, avoid around possible damages. Take care at the connection of a consumer absolutely that this is connected in the state not switched on.

#### Attention!

Follow the safety notes absolutely under section 2 of this instruction.

#### 4 Technical data

	<b>Spezifikation</b>	<b>Typ</b>	2239.1
	<b>E1 Zertifizierung</b>		10R - 023680
<b>DC</b>	<b>Input voltage</b>		11-14V
<b>DC</b>	<b>Output voltage</b>		24V
<b>DC</b>	<b>Output current</b>		10A
	Stability of Ua at change of Ue		Ua proportional Ue
	Cv stability burden 0-100 %		3 V
	Cv residual ripple Ueff		25mV
	Idle motion current consumption		<30mA
	Current consumption full load		22A
	Fuse		25A
	Settling time load 10-100%		1,5ms
	Mode temperature		0 - 35°C
	max. relative air damp		85% bei 35°C
	Measures of BxHxT mm		150x85x70
	weight		0,6kg
	Unusual features		parallel switching
	Colour		black RAL9005
	Protection degree/safety class		IP 30 / III
	electrical connections input		AMP 6,3mm
	electrical connections output		AMP 6,3mm
	Radio interference suppression		DIN VDE 0875 T 3 G