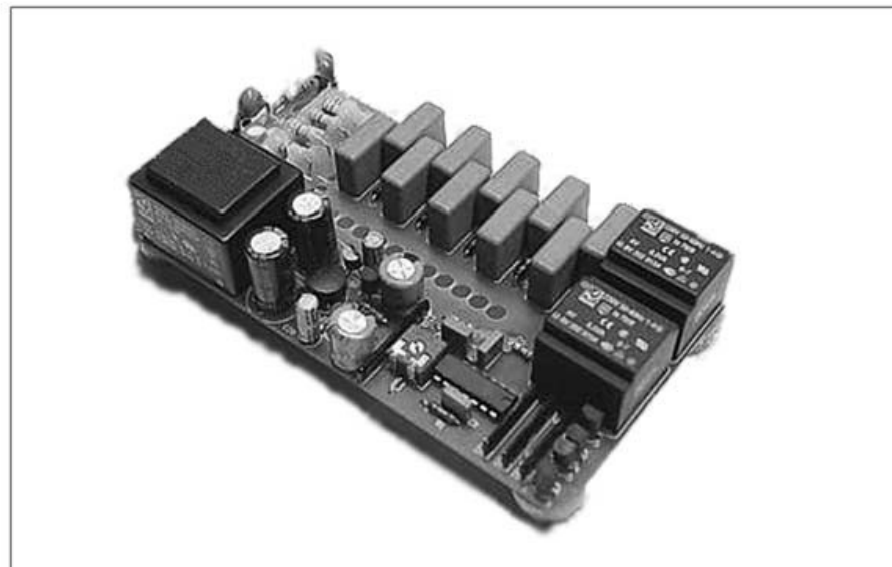






# High voltage supply HV-S 01R




**ATTENTION!**
  

**HIGH VOLTAGE!**


Danger of life! Before power-up that unit is it indispensable to read and follow the safety instructions of this manual. During the operation appear life-endangering voltages. Each contact of the components during the operation can lead to death by electrocution!

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## 1. Abstract

### 1.1 Safty informations and precautions

The high voltage supply HV-S 01R was conceived, in order to produce the necessary polarisation voltage for electrostatic loudspeakers.

During the operation voltages of 5000V can occur. After switching the voltage supply off this high voltage reduces itself after 60s. Therefore it is necessary that the handling during and after the operation of the high-voltage supply takes place with the necessary care and caution. Special components, how capacitors are due to their high capacity able to deliver deadly current surges! Therefore each contact of the pcb during and after the operation (min. 60s) is to be avoided.

#### **Short-circuits of any kind are to be avoided!**

Short-circuits between the high voltage output and ground and/or between the capacitor connections on the pcb can lead to a complete destruction of the high-voltage-supply. Modifications of the high-voltage-supply are not permitted. The manufacturer does not responsible for damages, which result from inappropriate installation, connection, operation or modification of the unit.

### 1.2 Starting up

A condition for a safe operation of the unit is a proper assembly, a correct connection and a competent handling. If it is to be assumed that a safe operation is no longer possible, then don't operate the unit and secure it against unintentional operation. It is to be accepted that a safe operation is not possible, if the unit

- visible damages exhibits
- does not work at start-up
- longer stored under unfavorable conditions

It must be guaranteed by the user that the supply voltage of the unit can be separated from the power with a device (e.g. fuse).

### 1.3 Maintenance and servicing

The high voltage supply HV-S 01R is maintenance-free.

## 2. Assembly and installing instructions

### 2.1 Connections

The high-voltage-supply is operated directly with 240V~ or with an external wall wart (version HV-S 01RX), depending upon type.

In fig.1 the high voltage pcb with the marked connections is shown.

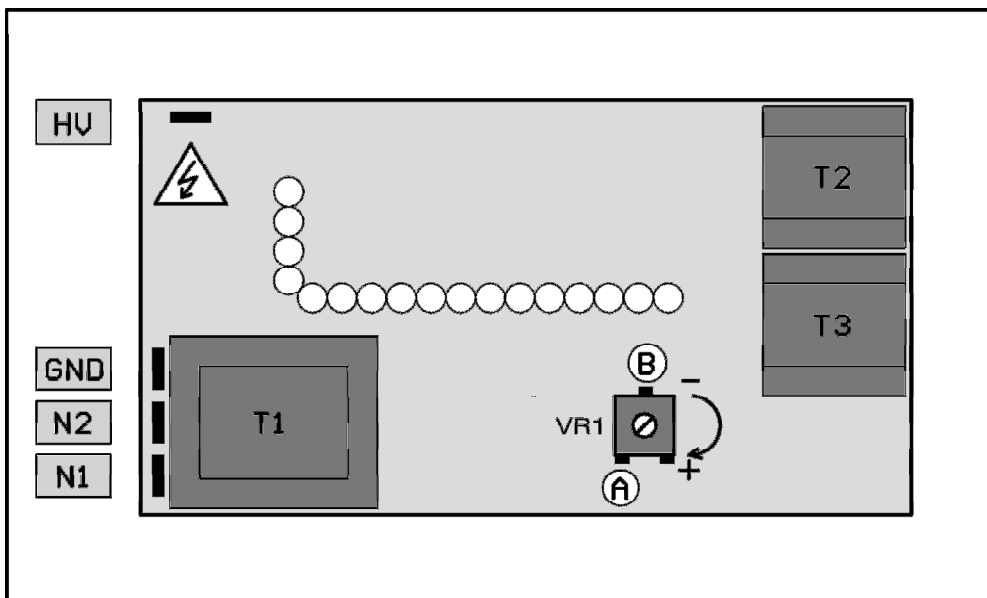


fig.1

#### ►Version HV-S 01R

At the blade terminals N1 and N2 the 240V~ supply line is connected. The supply line is to fuse with an external fuse T 0.1A. The adjusted output voltage is available at the blade terminal GND (Ground) and HV (high voltage).

#### ►Version HV-S 01RX

The voltage supply of the version HV-S 01RX uses an outsourced wall wart. Voltage supply takes place over the TAE plug of the wall wart and the TAE socket, which is connected with the pcb. The adjusted output voltage is available at the blade terminal GND (Ground) and HV (high voltage).

The connections can be directly soldered on at the blade terminals, if pays attention to sufficient isolation and contact protection.

In fig.2 the use of the high-voltage-supply connected with an electrostatic loudspeaker is shown

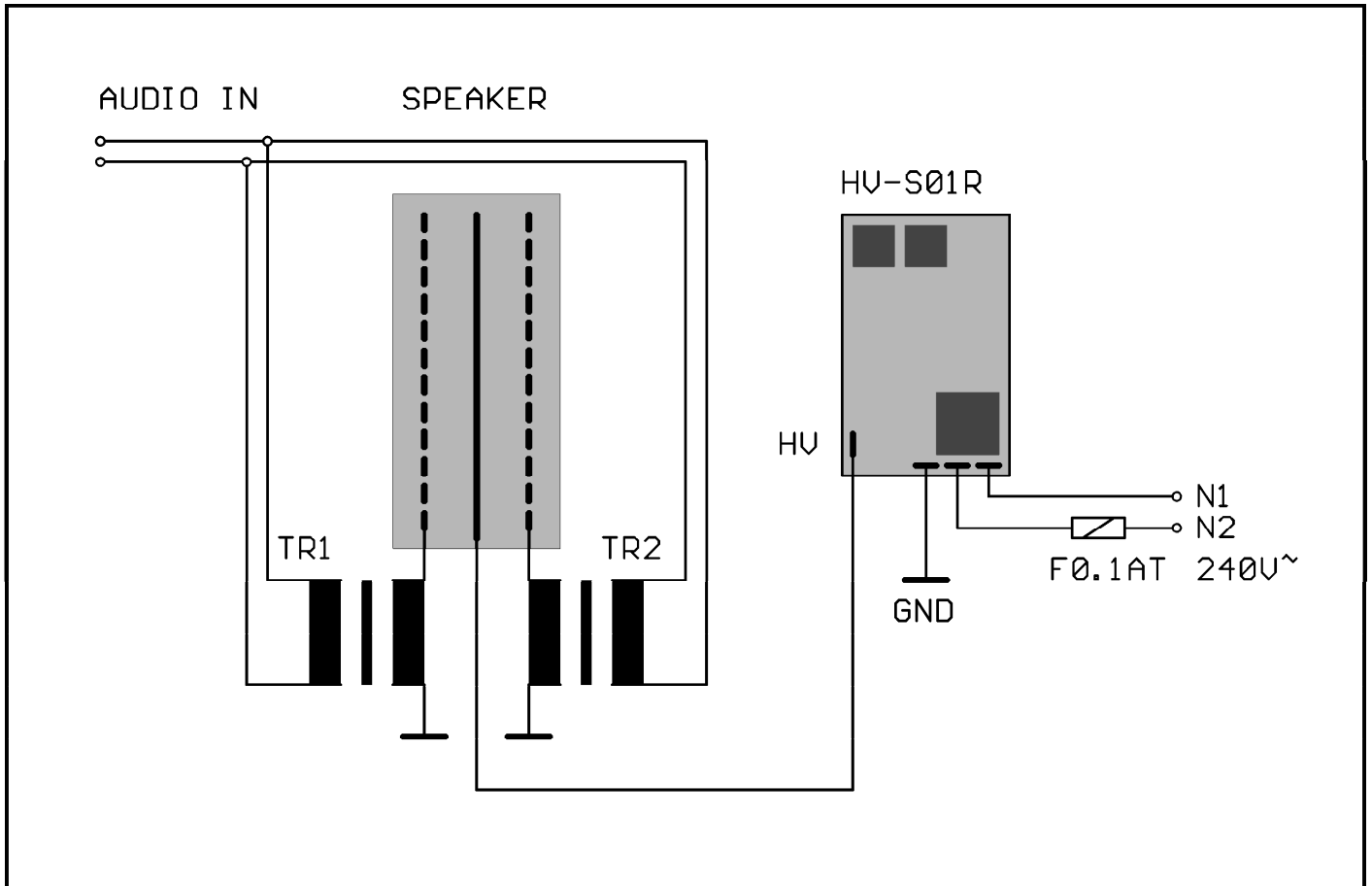


fig.2

## 2.2 Assembly

For the assembly is a minimum distance of 10mm between the housing walls as well as the pcb, the connections and components of the high-voltage-supply necessary, in order to avoid voltage flashovers and non-operate currents. The attachment of the pcb should take place by a not leading holder or adhesive (hot adhesive/silicone adhesive). It must be paid attention that no damages at the pcb are caused.

## 3. Operation

### 3.1 Function control

Before start-up it is to be checked that the output voltage trimmer VR1 (fig.1) shows into left position.

If the unit supplied with preset output voltage (red safety lacquer on the trimmer) is no further adjustment necessary!

After the correct connection and assembly voltage supply can be switched on. If it is operating error free, a quiet buzzing signal (200Hz) is to be heard.

### 3.2 Adjustment of output voltage

By the trimmer VR1 (Abb.1) the output voltage can be adjusted. The adjustment of the output voltage takes place via the connection of a high voltage measuring head at the connectors GND and HV (fig.1). Another possibility is the measuring of voltage on the points A and B of the trimmer VR1 (fig.1). The dependence between the measured voltage and the output voltage is represented in the diagram 1.

## 4. Description of function

The high-voltage-supply consists of the following 5 main components (fig.3):

- ▶ pulse generation and regulation circuit
- ▶ driver stages
- ▶ bipolar regulated voltage supply of the driver stages
- ▶ fixed frequency DC-DC converter
- ▶ voltage multiplier

The fixed frequency impulses of the pulse generator are amplified by the following drivers and transformed highly. The voltage multiplier produces the adjusted high voltage from the high-transformed secondary voltage.

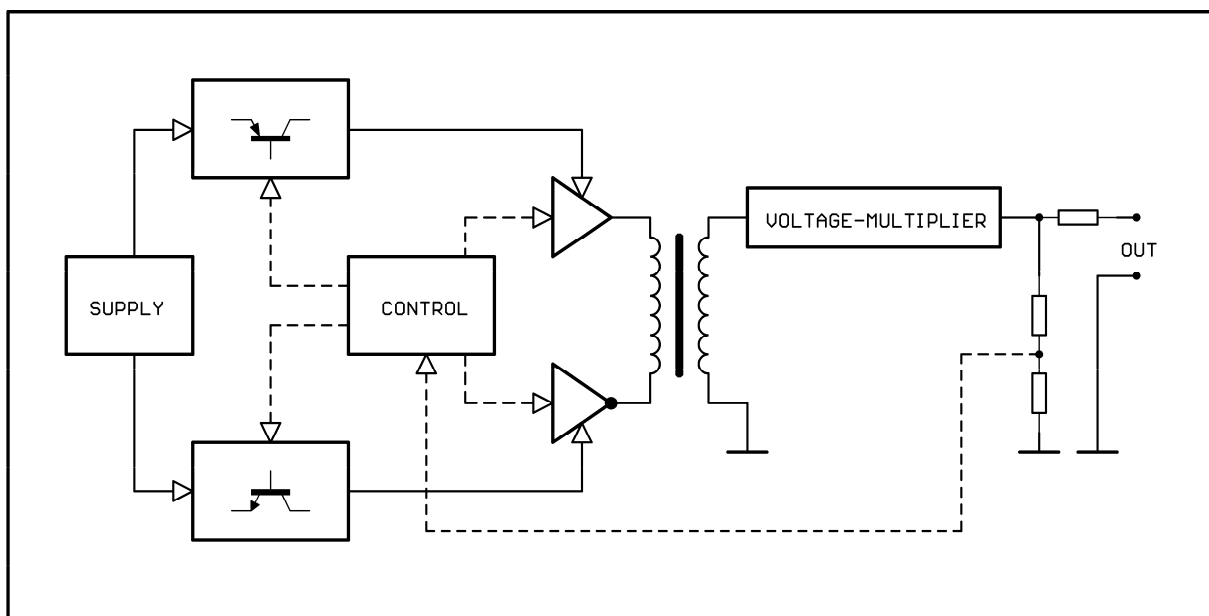


fig.3

The value of the high voltage is compared by a regulation circuit with the reference value. In the case of a change of the output voltage, the voltage supply of the drivers is readjusted and thus a constant output voltage is produced. Loads of the high-voltage-supply can be compensated and thus a stable output voltage be achieved by this circuit principle.

For the construction of the high-voltage-supply only common components are used, in order to be able to repair possible damages at small material costs.

## 5. Specifications

PARAMETER	SYMBOL	MIN	MAX
supply voltage (Version HV-S 01RX)	$U_B$	220V~ 2x 12V~	240V~ 2x 15V~
supply current	$I_{IN}$	40 mA	60 mA
power consumption	$P_{IN}$	1.5W	2.5W
output voltage	$U_{OUT}$	-500V	-5000V
output current	$I_{OUT}$	-	-0.4mA
output power	$P_{OUT}$	-	2W
accuracy	$U/\Delta U$	+/- 0.1%	+/- 0.05%

diagramm1

output voltage HV vs. voltage A-B

