Installation & commissioning ESL TWEETER

Installation in a baffle

We recommend installing the ESL TWEETER in a baffle that is open at the rear. Installation in a closed or open-backed enclosure is possible. The enclosure should be loosely filled with a soft, open-pored insulating material. The position of the mounting holes on the baffle can be seen in the enclosed drawing. Alternatively, the drawing can be printed out on a scale of 1:1 and used as a drilling template. Please ensure that the cut-out in the speaker baffle is at least 1.5 mm from the chassis on all 4 sides. Flush mounting could result in a discharge of the cone charge (reduced performance).

Crossover

To relieve the ESL TWEETER of low frequencies (below 1000 Hz), a high-pass filter of at least 1st order is required. It should be a high-quality MKP capacitor (please try out the value). If the sound pressure level needs to be lowered, this can be achieved by reducing the capacitor value (capacitive voltage divider). The enclosed circuit diagram (dotted line) shows the values for frequency linearisation. Resistor 3R3 prevents premature iron core saturation of the audio transformer.

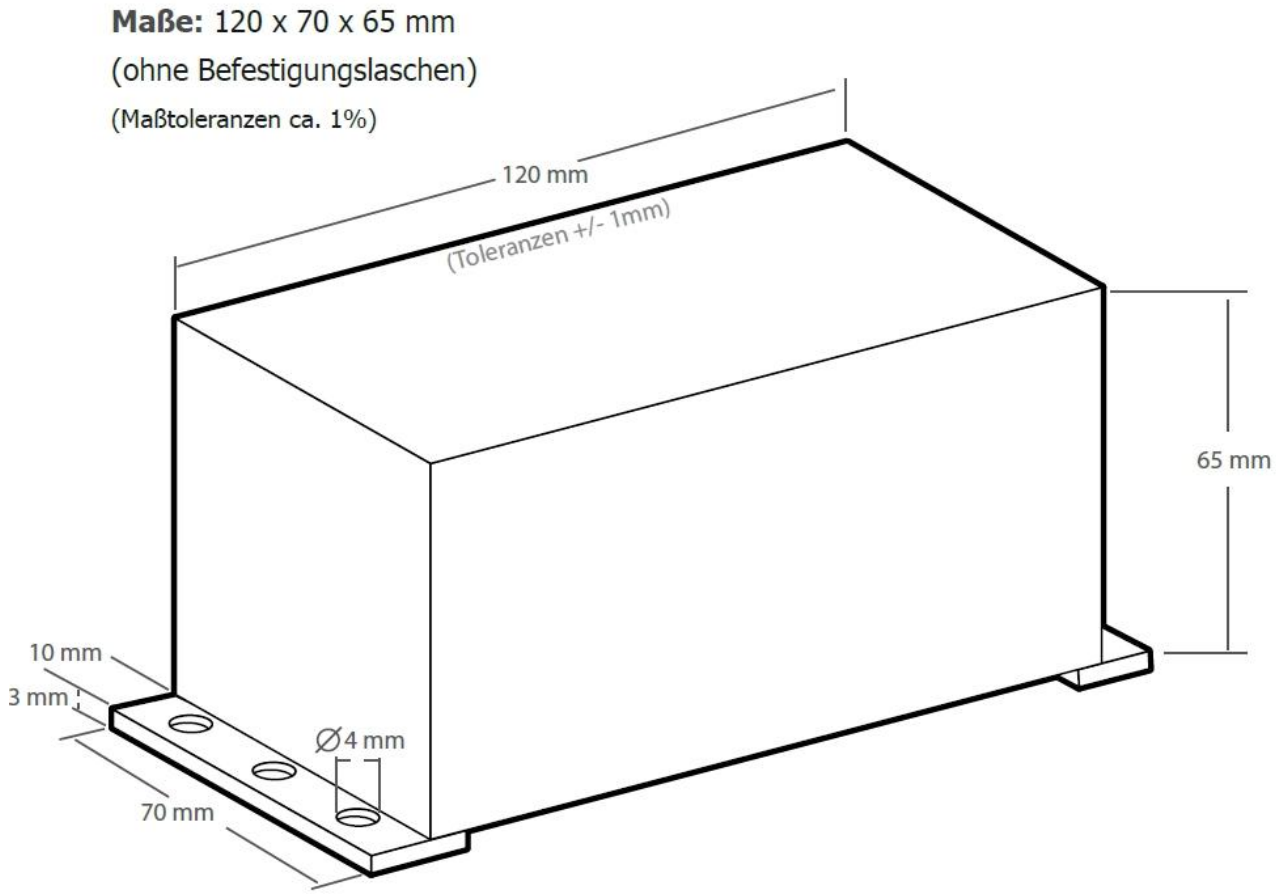
Power supply

An electrostatic loudspeaker only works with an electrically charged membrane. The required bias voltage for the ESL TWEETER is approximately 680VDC. It is generated from the 230V mains via a voltage doubler circuit in the power supply unit. The power requirement is significantly less than 0.5 watts. It is recommended that the power supply be maintained permanently, as the acoustic quality of the TWEETER will only be fully realised after several hours of charging. The permanently installed mains connection cable of the power supply unit can be connected directly to a 230VAC wall socket. If a connection socket is preferred on the speaker housing, the 2-pin Euro plug can be cut off and the cable end can be realised with a C8 built-in plug (not included in the scope of delivery). This should only be carried out by a qualified electrician.

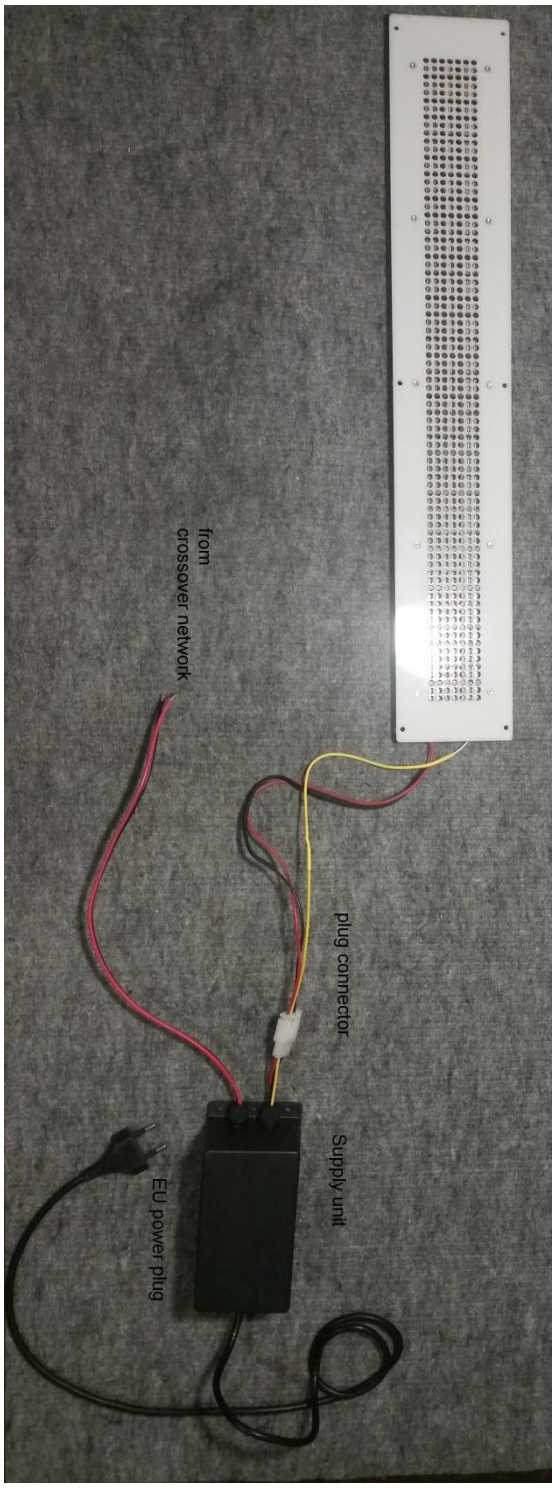
Connecting the ESL TWEETER to the power supply unit

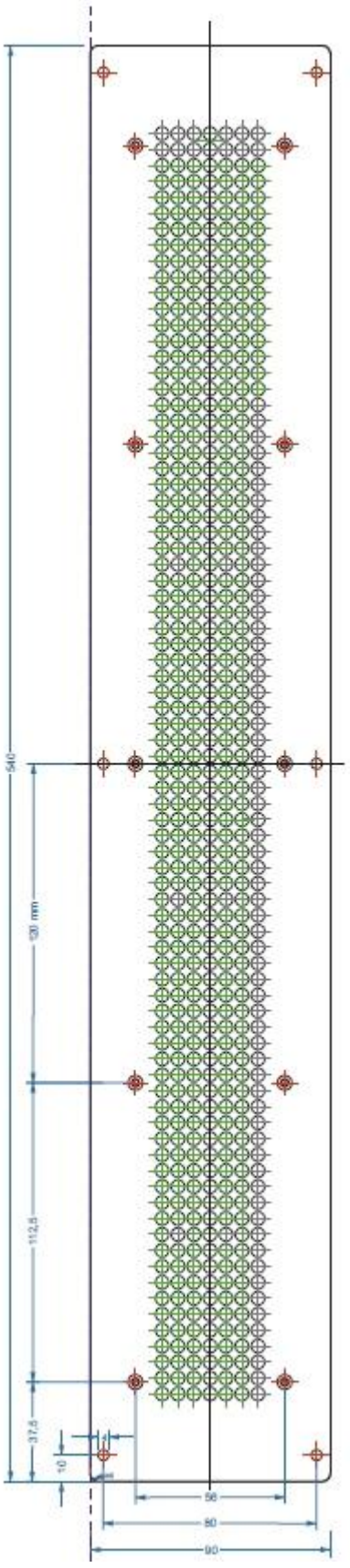
The connection is made using a 3-pin plug connector. After installing the ESL TWEETER in the baffle and attaching the power supply unit in the immediate vicinity of the ESL TWEETER, the plug connection can be made. Please do not extend the cable to place the power supply unit further away. This would possibly overload your amplifier and reduce the upper frequency limit of the transmission range (too high capacitive load).

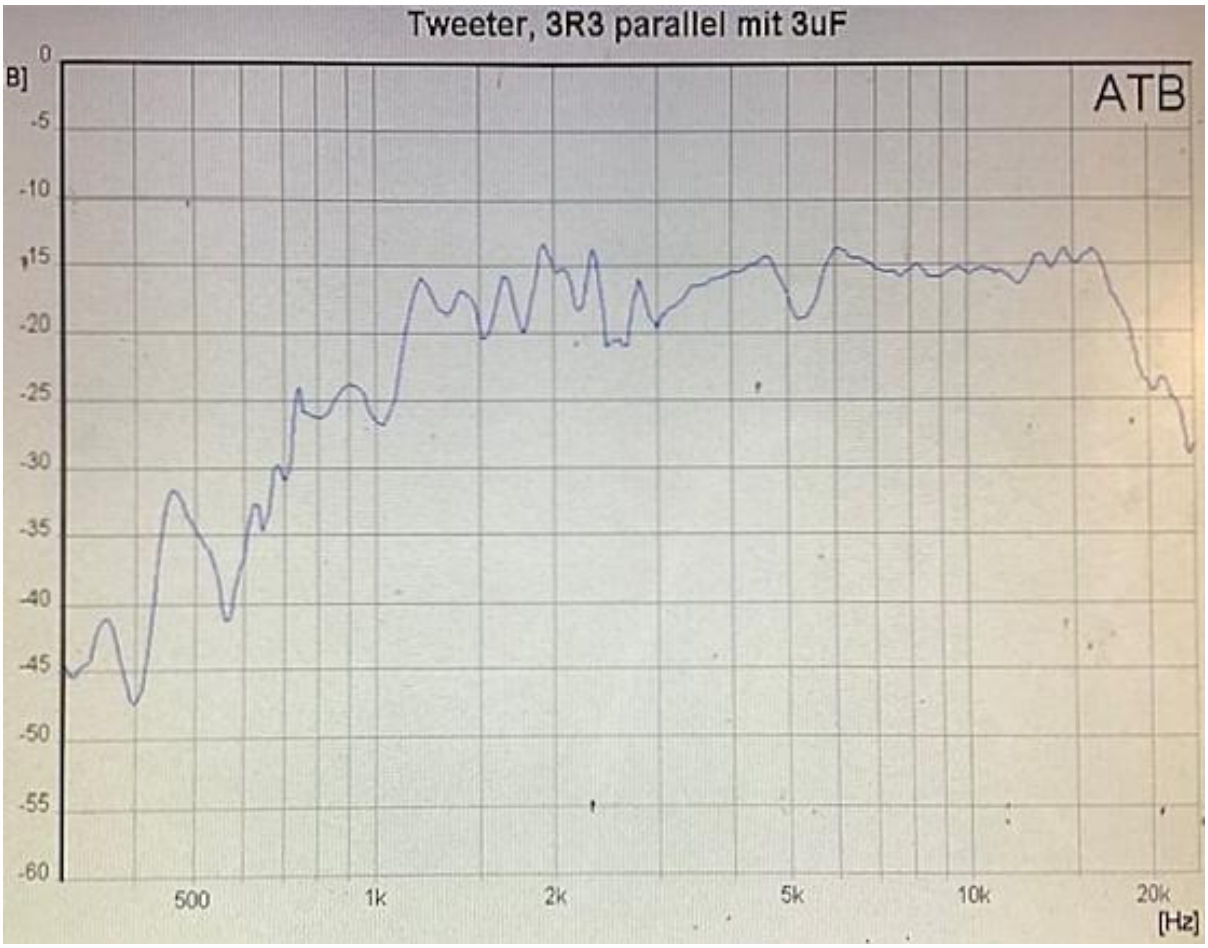
Power supply unit (contains audio transformer and bias voltage cascade)



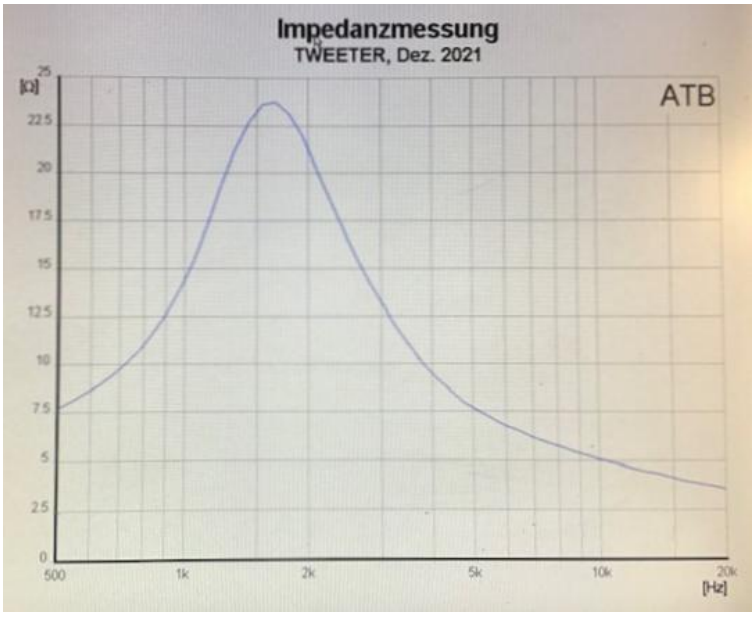
C8- Built-in plug

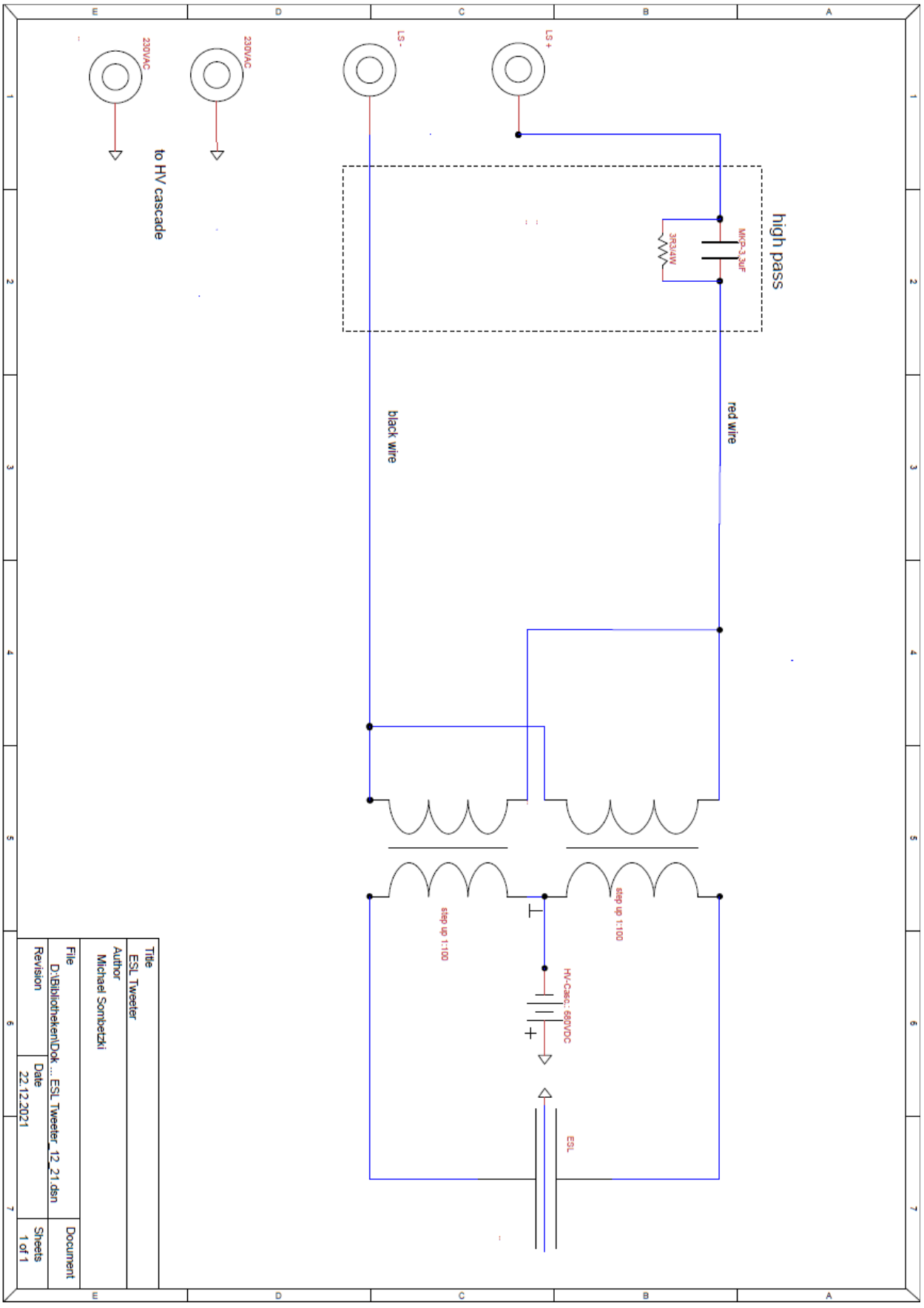

from
crossover network
plug connector
Supply unit
EU power plug


540
130 mm
112,5
37,5
10
56
80
90



Amplitude frequency response at 180 cm microphone distance in standard sound wall




230VAC
230VAC
LS -
LS +
to HV cascade
high pass
3R3/4W
MKP-3.3uF
black wire
red wire
step up 1:100
step up 1:100
HV-Casc.: 680VDC
ESL
Title
ESL Tweeter
Author
Michael Sombetzki
File
D:\Bibliothek\Dok ... ESL Tweeter_12_21.dsn
Document
Revision
Date
22.12.2021
Sheets
1 of 1

Properties:

- High bandwidth: 1200 Hz - 20 kHz (see graph)
- High efficiency: 88 dB / 2.83V / 1m
- Wide horizontal dispersion angle at high frequencies
- Insulated copper wire electrodes
- Chassis material: foamed PVC
- Dimensions: 540 x 90 x 18 mm (L x W x D), weight (panel): 420 g
- Installation dimensions: see drawing; cut-out baffle: 525 x 75 mm
- Diaphragm area: 480 x 40 mm, diaphragm stroke: 0.6 mm
- Membrane material: 2.5 µm polyester film
- Mounting plate made of high-gloss acrylic, colour: white or black
- Power supply: contains an audio-transformer plus high voltage cascade
- Operating voltage: 230 VAC; also available for 110/115 VAC
- Bias voltage: 2.5 kVDC; maximum music AC voltage: 2250 Vss
- ESL capacity: ~100 pF
- All high-voltage components are protected against accidental contact
- Operating instructions with tips for installation and value determination of the
- crossover components

Weitere Informationen und Aktualisierungen unter www.Sombetzki-Elektrostaten.de

Sombetzki-Elektrostaten
Lautsprecherentwicklung für Studio- und Heimanwendungen

Am Plättchen 29
D-35418 Buseck / Hessen

Tel. +49(0) 549 0 240

E-Mail: info@sombetzki-elektrostaten.de