

# Manual

## The Speech Extractor LINGUA

### **Please read before use of the set !!!**

We congratulate for buying our Speech Extractor **LINGUA**. Please read this manual and the security advices before powering up **LINGUA**.

### **Security Advices for the use of LINGUA:**

This manual is an integrated content of the product **LINGUA**. Please read it attentively **before powering up** the set. Please store this manual carefully in order to refer to it at any time. In case of passing on the set to other people this manual must be added to **LINGUA**.

**LINGUA** must be powered by a fused, short-circuit-protected power-supply in order to automatically switch the operating voltage off in case of a malfunction of **LINGUA**.

Never use this set unattended. Switch the power-supply off while the set is unattended.

Do not expose this set to rain, do not use it near water or in damp or wet conditions, or place containers on it containing liquids which might spill into any openings. If there is a sudden loss of function during the use of **LINGUA**, or if any unusual smells or smoke should appear to be caused by it, immediately turn off the power-supply and disconnect **LINGUA** from the power-supply.

### **Cleaning:**

When cleaning **LINGUA** please use a soft, dry cloth. Do not use paint thinners, solvents, cleaning fluids, or chemical-impregnated wiping cloths.

**Disposal:** please observe all local, state, and federal regulations that relate to the disposal of products that contain electronic circuits and plastic.

### **Operating Instructions:**

Due to the very different kinds of jackets at the receivers, we deliver the **LINGUA** without plugs and cables. – The following connections must be done before powering-up:

#### **Audio in:**

**LINGUA** has two **Audio-Input-jackets**, Audio-in 1 and Audio-in 2. You can connect two different audio-sources (e.g. RX-shortwave and RX-VHF) at the same time to **LINGUA** and then select the respective input with the switch "SOURCE". The input-sensitivity (level) of audio-input 2 is variable and can be tuned on the back-side of **LINGUA** (the hole near the audio-1 jacket). Audio-in 1 is not tunable. For audio-in 1 and audio-in 2 3,5 mm stereo-audio jackets are needed. The hot audio signal must

be connected to tip and the shield to the ground connector of the jacket. The ring connector keeps free (no connection).

### **The Connection Receiver ↔ LINGUA:**

You have three different methods to connect your RX with **LINGUA**. But first please turn the RX-volume to zero (mostly fully counterclockwise) and switch the **receiver OFF** before doing the following activities.

These are the alternative three connection methods:

- 1.) **RX-line-output** to Audio-in 1 or Audio-in 2: ideal method, because there is a constant audio-level, independent of the RX-volume knob position.
- 2.) Headphone-output of the RX to Audio-in 1 or 2.
- 3.) Speaker-output to Audio-in 1 or 2.

For any kind of method, please refer to your TRX-/RX-manual, too!

### **Audio out:**

Please connect your station-speaker or a headphone to the Audio-out jacket of **LINGUA**. The plug must be a 3,5 mm stereo- or mono-type. The tip-connection of the plug must carry the hot audio-signal, the ring connector at stereo type-plugs is not connected. By the way, most station speakers are already equipped with those kinds of plugs.

### **DC in:**

The operating voltage must be in the range of DC 10 V ... 15,6 V (max.). For safety reasons the power supply must be **short circuit protected** in order to switch off the voltage automatically in case of a **LINGUA**-malfunction. The operating current of **LINGUA** is in the range of 90 mA ... 400 mA max., depending on the selected volume. The power-plug at the DC-in jacket must be wire connected as following: center-pin to pluspole, outside cylinder to minus. Please use a cable with red and black outer colors (red for plus, black for minus). The DC-cable from the power-supply to **LINGUA** must have an additional fuse for safety reasons. Please use a professional expert to make this cable. - After powering-up the green LED should shine. **LINGUA** is now active!

Please switch ON your RX/TRX now and tune the volume-knob of **LINGUA** about to the center-position.

**In case** of feeding **LINGUA** from the **RX-headphone- or RX-speaker-jacket** you should now slowly tune the RX-volume (at the RX) more to to right position (give more volume) until you can hear the received signal in the speaker or headphone.

Do not give too much volume from the RX-side, a little volume is enough for most cases. Please keep the optimal volume knob position in mind for future tunings.

**Please do not override LINGUA by selecting too high RX-volume!** Strong overriding may destroy **LINGUA**. In case of feeding **LINGUA** from the RX-line-output you may keep the RX-volume in the zero-position.

### **Filter level:**

Using this knob, you can select the filter-strength of **LINGUA**. Please tune your RX to an interfered speech-station (e.g. on SW) while the **Filter-switch** is in **OFF** position. Now switch to "**Filter ON**". The more you turn the Filter-Level knob clockwise the

more the reception will be noise-suppressed, by means the speech will be “extracted” out of the noise. In the optimal position the reception should be distinctly suppressed. Please note: **LINGUA** only works for speech and not for music. For music reception the filter switch should be in OFF-position. Filter-Level knob fully counterclockwise has the same effect as Filter Switch in OFF position. Using the switch has the advantage not to change the Filter-Level from the best position.

### **The second Audio-Input:**

If everthing worked as planned up to now, you may now think about connecting a second RX/TRX to **LINGUA**. Therefore you can use the still unconnected Audio-jacket. **LINGUA** provides the possibility to tune the Audio-input 2 signal to the same audio-level as the Audio-input 1 has (see above). The result is that you do not have a difference in volume by selecting from Source 1 to Source 2 or vice versa.

### **Once again: important notes:**

- Do not override the Audio-Inputs!
- Tip: Filter-Level only as high as needed. Using too high Filter-Level the speech sounds a bit robotic (artificial) videlicet in those cases, when the speech-signal is very weak and covered by noise (low S/N) in the original reception.
- In position Filter OFF the set will use the same operating current as in ON position. While not using **LINGUA**, please disconnect it from the power-supply or switch the power-supply OFF.
- Do never use the set unattended!
- Watch the security advices (see above)!
- At the design of **LINGUA** significant measures concerning RF-protection are realized. Both Audio-in and -out and the DC-Input as well are protected with pi-filters against RF-interferences caused by transmitters.

### **LINGUA-Spezifikation:**

<b>Operating Voltage:</b>	<b>10 V ... 15,6 V DC (plus at the centre-pole)</b>
<b>Operating current:</b>	<b>400 mA @ max. volume</b>
<b>Noise-Reduction:</b>	<b>20 dB max</b>
<b>Audio-Input voltage 1:</b>	<b>100 mV eff (fix)</b>
<b>Audio-Input voltage 2:</b>	<b>30 mV ... 2500 mV eff. (adjustable)</b>
<b>Input-Impedance @ 1 KHz:</b>	<b>&gt;30 KOhm</b>
<b>Audio-output-power:</b>	<b>approx. 1,5 Watt @ 4 Ohm</b>
<b>Output Impedance:</b>	<b>4 Ohm min.</b>
<b>Frequency response V4/V6/V12:</b>	<b>200 Hz ... 3400 Hz/6000 Hz/12000 Hz</b>

Please do not try to open the shell of **LINGUA**. You would risk the functionality and would loose your warranty.

**Period of warranty:** 6 months from date of invoice. In case of malfunction please send the set to us including the original invoice, your phone number and a discription of malfunction. Please contact us by phone or email first (before sending). Maybe we can help you at once without sending the set to us.

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# Manual for Plug-Set “ST4”

The plug set should support you to quickly connect your receiver (transceiver) to the noise suppression system **LINGUA**.

**LINGUA** has to be connected with max. 4 pieces of cables. Those are:

1. Power supply cable
2. Audio-Output-cable to the speaker
3. Audio Input 1 – cable to your Audio source 1 (RX/TRX)
4. Audio Input 2 – cable to your Audio source 2 (RX/TRX)

And this is the way how to build up those cables:

## 1. Power Supply Cable:

Please use the black 5,5/2,1 mm power-supply-plug. Mount it to a cable for feeding the 12 V (13,8 V) from the power supply. **Important: the center-contact must lead the plus-pole.** Please use cables of at least 0,75 mm<sup>2</sup> Ø. **Pay attention: wrong polarity will damage LINGUA at once!** Note that you do not cause any short break within the plug. Use additional insulation material between the center contact and the outer cylinder of the plug.

## 2. Audio-output cable:

In case that your station-speaker is already equipped with a 3,5 mm plug (mono or stereo) you will not use the golden colored plug any more. In that case keep the speaker connection as it is. Otherwise you have to cut-off the speaker plug and mount the golden-colored plug instead. **Important:** by mounting that plug only use the Ground connection and the **tip**-connection. The **ring**-connection must get **no connection!**

## 3. Audio-Input 1- and Audio-Input 2 – cable:

In case that you will use two different audio-input-sources for **LINGUA** (e.g. RX HF/VHF), please make two cables out of one. That means just cut the black cable in the middle or anywhere else (depending on the lengths that you will need. Not longer than actually needed) so that you get two wire tails. Now mount plugs to the open cable-ends. Those plugs are **NOT in the ST4-set**, because they are very different and are depending on the RX/TRX that you are using. Please refer to the **LINGUA** manual for the information which audio-output to be used best. Use the shield of the cable for the Ground connection to that plug and the white wire **coming from the tip** of the 3,5 mm-plug please connect to the “hot” audio-connector of your specific plug.

By doing all these works please refer to the manual of your receiver/transceiver, too. Due to safety reasons we strongly recommend to order a professional specialist for cable-mounting. We will not take over any kind of liability which might be caused by using the ST4-plug-set.