

# Instruction manual

## PV-DSP-1D.9.2 (Power Voice)

Analogue Automatic mixing amplifier (NOISE GATE system) with a power amplifier 200 Watt, free programmable PRESETS 1 and 2 and USB/SD player.

Optional cable remote control for remote shift of the presets.  
Remote LIVE control by MASTER USB interface.  
A complete equipment in the audio processing with DSP-1D system.

The programming is possible by the software MWL-Control 1.1.1 or with SETTINGS/ENTER button.



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## SAFETY INSTRUCTIONS

Before startup of the amplifier we ask you to read the safety instructions carefully. Installation according to the following guidelines:

- 1 - Always put the amplifier onto a smooth and stable lower surface.
- 2 - Choose a dry surrounding and do not put any liquids onto the amplifier.
- 3 - Avoid the closeness to heat sources.
- 4 - Never open the housing of the amplifier without pulling the mains plug out of the socket before.
- 5 - Only connect the device to 230 VAC/50Hz mains voltage.



Do not block the venting slots! Let above, behind and under the device a sufficient space for air circulation.

**ATTENTION! Be especially careful when dealing with** dangerous mains voltage. With this voltage you can suffer a perilous electric shock.

This device has left the factory in safety-related perfect condition. To maintain this condition and to ensure a riskless operation, the user has absolutely to consider the safety instructions and the warning indications which are contained in this instruction manual.

For damages caused by non-compliance of this instruction manual, the warranty will lapse. For ensuing consequential damages the manufacturer assumes no liability.

Before the first startup please check if there is no obvious **transport damage**. If you discover damages to the mains line or the housing, please do not take the device into operation and contact your local dealer.

The construction corresponds to the protective class I. The mains plug may only be connected to an isolated ground receptacle, which voltage and frequency exactly matches with the type label of the device. Inappropriate voltages and sockets can lead to the destruction of the device and to mortal electric shocks.

Always insert the mains plug at last. Thereby the mains plug has to be inserted without force. Pay attention to a firm seat of the mains plug.

Do not let the mains line come into contact with other cables. Be careful when dealing with mains lines and connections. Never touch these parts with clammy hands. Clammy hands can result in mortal electric shocks.

Do not change, kink, mechanically load, pull or heat mains lines and do not bring them close to heat- or cold sources. Failure to do so can lead to damages of the mains line, fire or mortal electric shocks.

The cable grommet or coupling of the device may not be tensioned. Always a sufficient cable length to the device has to be present. Otherwise the cable can be damaged which can lead to mortal electric shocks.

Pay attention that the mains line cannot be squeezed or damaged by sharp edges. Regularly check the device and the mains line for damages.

## SAFETY INSTRUCTIONS

When lines are used, it has to be ensured that the core cross-section is approved for the needed power supply of the device. All warning indications for the mains line are also valid for possible extension lines.

Disconnect the device when it is not used and before each cleaning. To do so, touch the mains plug on the gripping surface and never pull the mains line, otherwise the cable and the plug can be damaged which can lead to mortal electric shocks. If the plugs of device's switch are not available f.i. by installation, mains-side an all-pole shutoff has to be carried out.

When the mains plug or the device is dusty, it has to be taken out of operation, the circuit has to be interrupted all-pole and the device has to be cleaned with a dry cloth.

Dust can reduce the isolation, which can lead to mortal electric shocks. Stronger dirt in and at the device may only be removed by a specialist.

Under no circumstances liquids of any kind may enter sockets, plug connections or any device openings or device slots.

If it is suspected, that - even minimal - liquids could have entered the device, the device has immediately to be unplugged all-pole.

This is also valid when the device has been exposed to high air humidity. Even if the device still seems to work, it has to be checked by a specialist, if possibly isolations have been damaged by the liquid entry. Reduced isolations can cause mortal electric shocks.

No foreign objects may get into the device.

This is especially valid for metal parts. Should even smallest metal parts like staples and paper clips or rougher metal swarfs get into the device, the device has immediately to be taken out of operation and unplugged all-pole.

Malfunctions and short circuits caused by metal parts can result in fatal injuries.

The device and its supply lines have to be protected from lightning strikes.

Only connect the device when it is switched off.

Before the device is switched on, all faders and volume controls have to be set to zero or to minimum.

## SAFETY INSTRUCTIONS

1. Carefully read this manual.
2. Keep this manual well.
3. Consider all warnings.
4. Follow all instructions.
5. **ATTENTION:** to avoid fires and electric shocks, this system may not be exposed to rain or humidity. Do not use this device close to any waters.
6. Only clean it with a dry cloth.
7. Do not cover any air vents.
8. Do not place the device close to heat sources like radiators, hot air dampers, ovens or other devices (including amplifiers), which emit warmth.
9. Do not override the safety function of the inverse polarity protection or the safety plug. A plug with inverse polarity has two pins, and one of them is wider than the other (only for USA/Canada). A safety plug has two pins and one ground pole. If the included plug does not fit into your socket, the socket is obsolete and has to be replaced by an electrician.
10. Pass the power cable in a way, that nobody can step onto it and that it cannot be jammed. This is especially valid for plugs, sockets and the place where the cable comes out of the device.
11. Only use products and accessories specified by Phoenix Professional Audio GmbH.
12. Let maintenance operations only be carried out by qualified maintenance staff. The device has always to be maintained when it has been damaged in any way, f.i. when the mains cable or the mains plug is damaged, if liquids have been spilled onto the device or objects have been fallen into it, if the device has been exposed to rain or humidity, if it does not work normally or if it has been fallen down.

## EXPLANATION OF THE GRAPHIC SYMBOLS



AVIS: RISQUE DE CHOC ELECTRIQUE !  
NE PAS OUVRIR !



The exclamation mark in a triangle shall advise the user of the existence of important operation- and maintenance instructions in this manual.



The symbol consisting of a flash with an arrowhead in a triangle shall advise the user of the existence of non-isolated, dangerous voltages within the housing, which can be strong enough to give an electric shock.



**ATTENTION:** TO REDUCE THE RISK OF AN ELECTRIC SHOCK, DO NOT REMOVE THE COVER. USE QUALIFIED STAFF FOR ALL MAINTENANCE OPERATIONS.

## GENERAL

**POWER-VOICE PV-DSP-1D.9.2** Automatic power mixer with power amplifier **200 Watt**, especially developed for uses in difficult acoustic buildings (architectural acoustics).

The 8 universal inputs are shiftable by **DIP** switches between *MIC.- and LINE sensitivity*. Each of the 8 universal inputs has shiftable *phantom power* and a *HPF filter* (100 Hz).

Besides this, the **POWER VOICE DSP-1D.9.2** has the following inputs and functions:

- USB MP3 player
- 8 inputs to XLR (MIC.-LINE by DIP switch)
- LINE input (LINE-9 IN) to Cinch
- 8 x input GAIN control
- 15 input **parametric EQ** (input range)
- 2 PRESETS
- Analogue automatic NOISE GATE system
- RS-45 REMOTE interface for cable remote control, manual shift between the presets, ON/OFF function
- 2 100V/speaker line outputs (1 controllable zone)
- PRE-MASTER output before PEQ and MASTER (balanced to XLR)
- POST MASTER output DSP (balanced to XLR)
- MIX OUT output (separate output for inputs 8 [MIC.-/LINE] and 9 [LINE])
- PRE-MASTER input (balanced to 3-poled jack) before MASTER and DSP SECTION
- Connection for cable remote control INPUT PANEL PRESET (RJ 45)
- INFO OUT PRESET 2 (control with 2 x make contact) for f.i. connection of additional speaker lines in PRESET 2
- Output RECORD for recording devices
- System software MWL-CONTROL 1.1.1

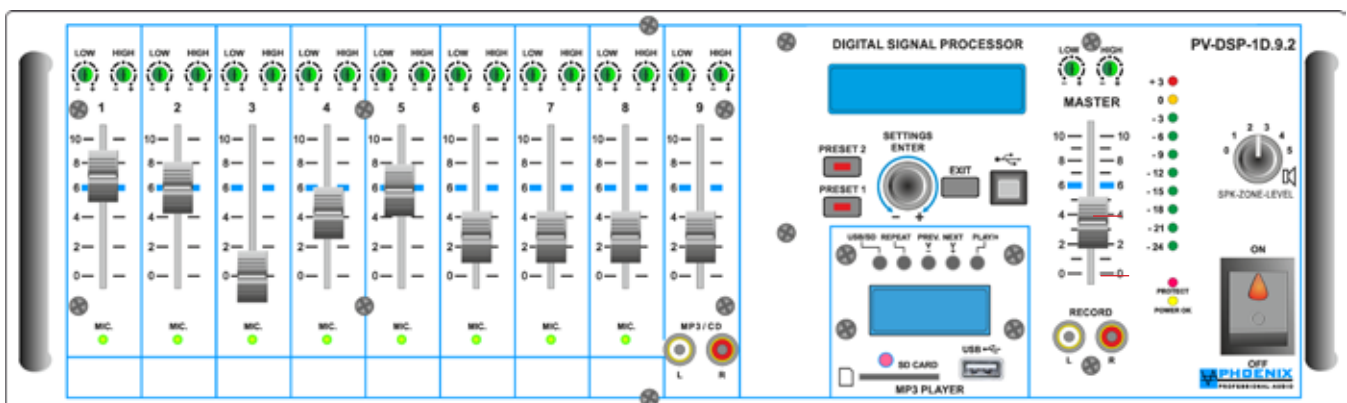
All these setting possibilities provide an even more precise room equalization and best adaption to the room acoustics. Besides this, the mixing amplifiers have an additional speaker line with separate volume control and SOFT START (standard setting 5 sec.) adjustable in the system for better speaker protection.

***The devices are suitable as desktop version as well as for 19" installation.***

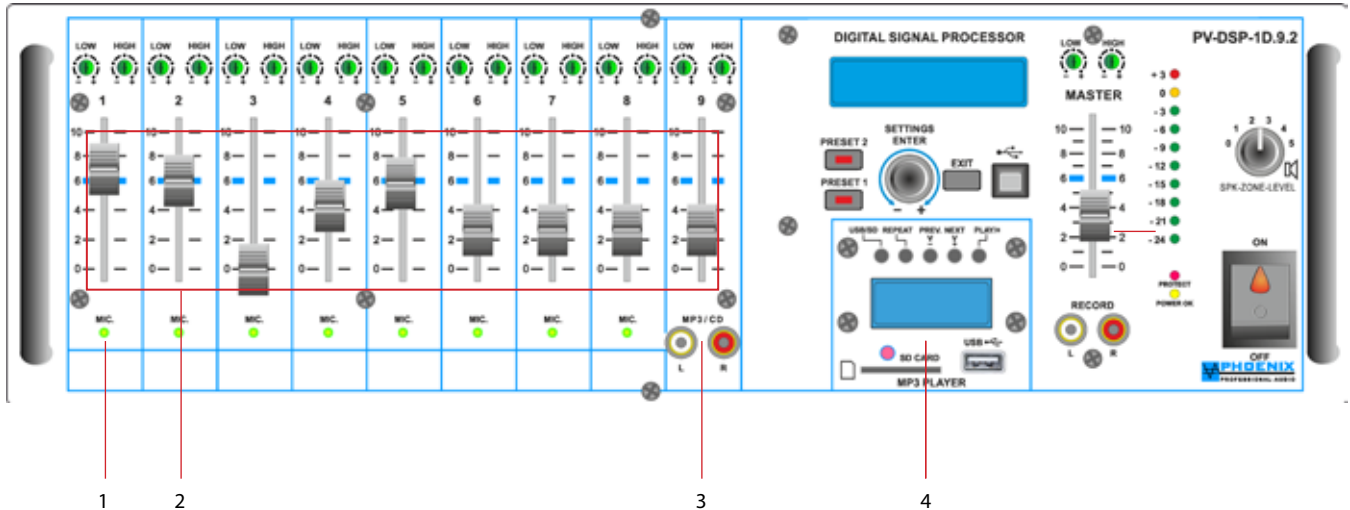
## MAIN FEATURES

- Short circuit protection - overheat control - open circuit protection - overload protection
- Power amplifier **200 Watt power**
- RELAY CONTROL PANEL (activation with preset 2)
- 100V, 70V, 50V, 8 Ohm and 4 Ohm speaker outputs
- SOFT START to suppress power-on noises
- Balanced microphone inputs
- USB MP3 player
- Balanced LINE IN / LINE OUT in-/outputs
- PRESETS selector switch
- Output RECORD for recording devices
- Phönix connections for speaker lines
- Separate volume control for microphone, line inputs with 2-fold EQ
- Countersunk 2-element graphic EQ at the front side per input
- Feedback limiter „phase shifter“ or „adaptability automatic“
- Input automatic (NOISE GATE) system
- Audio signal limiter and NOISE GATE (MASTER)
- 15 x input parametric EQ with 20 Hz to 20.480 kHz @ -12dB/+12dB @ 0.05 oct - 3.00 oct
- PEQ: PEAK, LoSh6, LoSh12, HiSh6, HiSh12
- LIMITER: -40dB - +6dB
- NOISE: -90dB - -24dB
- Delay: [m], [cm], [ms], \*to 85 meter
- Separate speaker line with volume control. Zone 1 [complete amplifier power]
- Control software MWL-CONTROL 1.1.1 via USB interface.

## FRONT SIDE OF THE AMPLIFIER



## FRONT SIDE OF THE AMPLIFIER



### 1. CONTROL LEDs AUTOMATIC SYSTEM

Green LED indications light, when the automatic mic. system allows an input signal. If the input is not addressed, the green control LED remains dark and the input remains closed. Possibly please consider the DIP switch position.

### 2. CHANNEL VOLUME CONTROLS 1 to 7 (level shifter No. 7 also for USB/SD player)

These controls (level slide controls) determine the volume of the inputs 1 to 7. Please consider the volume control (limiter) in the display (settings **GAIN** in the DSP system) and the **MASTER control or GAIN-LEVEL** potentiometer at the rear side.

### 3. LINE INPUT

Line input (0 dB) with level slide control, **LF and HF-EQ** control for f.i. *CD player feed etc.* (front input).

## MP3 player No. 4 (SECTION)

### 1. USB/SD

This button is used for shifting between USB operation or SD card operation. A single medium, that means an USB stick (**USB flash drive pen**) or SD card is recognized „individually“ automatically by the system.

### IMPORTANT: ⚠

the function is only given when simultaneously two storage mediums are located in the USB player.

### 2. REPEAT

By short pressing the button REPEAT on the display appears „ONE“ and the current song is repeated. By pressing again „ALL“ appears on the display and all present songs on the USB stick are repeated. The function is switched off by holding the REPEAT button for approx. 3 seconds, then the device changes to normal **PLAY MODE**.



## MP3 player No. 4 (SECTION)

### 3. PREV & (-V) FUNCTIONS

The button „PREV & (-V)“ has two separate functions:

- 1.- By short pressing the „PREV“ button it is switched to the previous song and automatically played.
- 2.- By pressing the button „PREV & (-V)“ for approx. 3 seconds the volume of the MP3 player is lowered (-volume), on the display appears the current volume number (between 0 and 30).

### 4. NEXT & (+V) FUNCTIONS

The button „NEXT & (+V)“ has two separate functions:

- 1.- By short pressing the „NEXT“ button it is switched to the next song and automatically played.
- 2.- By pressing the button „NEXT & (+V)“ for approx. 3 seconds the volume of the MP3 player is increased (+volume), on the display appears the current volume number (between 0 and 30).

### 5. PLAY & II (Pause) FUNCTIONS

By pressing the PLAY button a song is started. Press the button while a song is played, then the reproduction is stopped. „PAUSE function“: press the button again and the reproduction is started again.

### 6. IR REMOTE CONTROL INPUT

Remote control infrared signal input. To guarantee a perfect remote control function, the so-called „SIGHT CONTACT“ between the amplifier and the remote control shall be given.

### 7. SD-CARD SLOT

SD card slot



### 8. LC DISPLAY

On the display information for the user for the operation of the MP3 player is indicated.

### 9. USB SLOT

USB slot for an USB stick (**USB flash drive pen**)



### IMPORTANT:

The MP3 player has no FILE management function; it is recommended to play compositions on the USB stick without FILE.



## REMOTE CONTROL OF THE MP3 PLAYER

### 1. MODE

SLOT selection switch, is used for shifting between USB operation or SD card operation.

### 2. ON- and OFF SWITCH (ON/OFF)

After activating this switch the MP3 player can be switched ON and OFF.

### 3. PLAY & II (Pause) FUNCTIONS

By pressing the PLAY button a song is started. Press the button while a song is played, then the reproduction is stopped. „**PAUSE**“ function: press the button again and the reproduction is started again.

### 4. EQ

The integrated MP3 player has 6 fix **audio DSP, EQ presets**. By repeated activation of the **EQ button it is shifted between the six presets**. The current audio DSP preset is indicated on the display. Display indication of the MP3 player: **E1 to E6**.

### 5. KEYBOARD 0-9

Block keyboard for fast selection of the compositions.

### 6. RPT - REPEAT

By short pressing the button REPEAT, „ONE“ appears on the display and the current song is repeated. By pressing again, „ALL“ appears on the display and all songs present on the USB stick are repeated. The function is switched off by holding the REPEAT button for approx. 3 seconds, then the device changes to normal PLAY MODE.

### 7. VOL-

By pressing the button „VOL-“ **the volume of the MP3 player is decreased (-volume)**, on the display appears the current volume number (between 0 and 30).

#### 7.1. VOL+

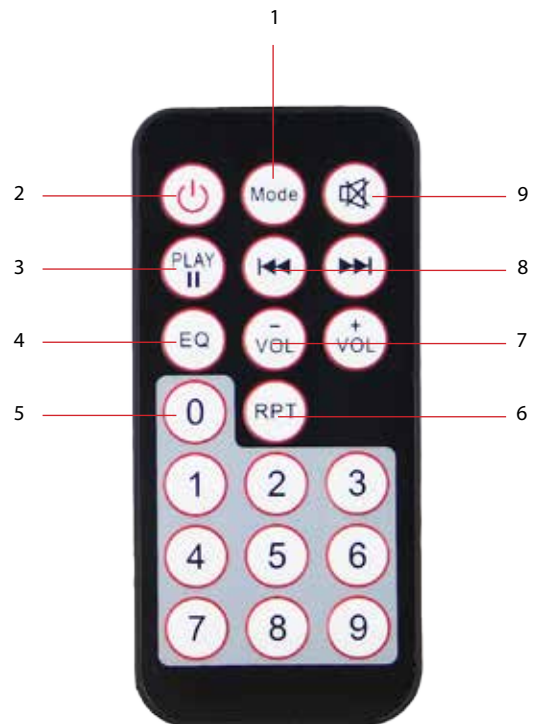
By pressing the button „VOL+“ the volume of the MP3 player is increased (+volume), on the display appears the current volume number (between 0 and 30).

### 8. I◀◀ ▶▶I

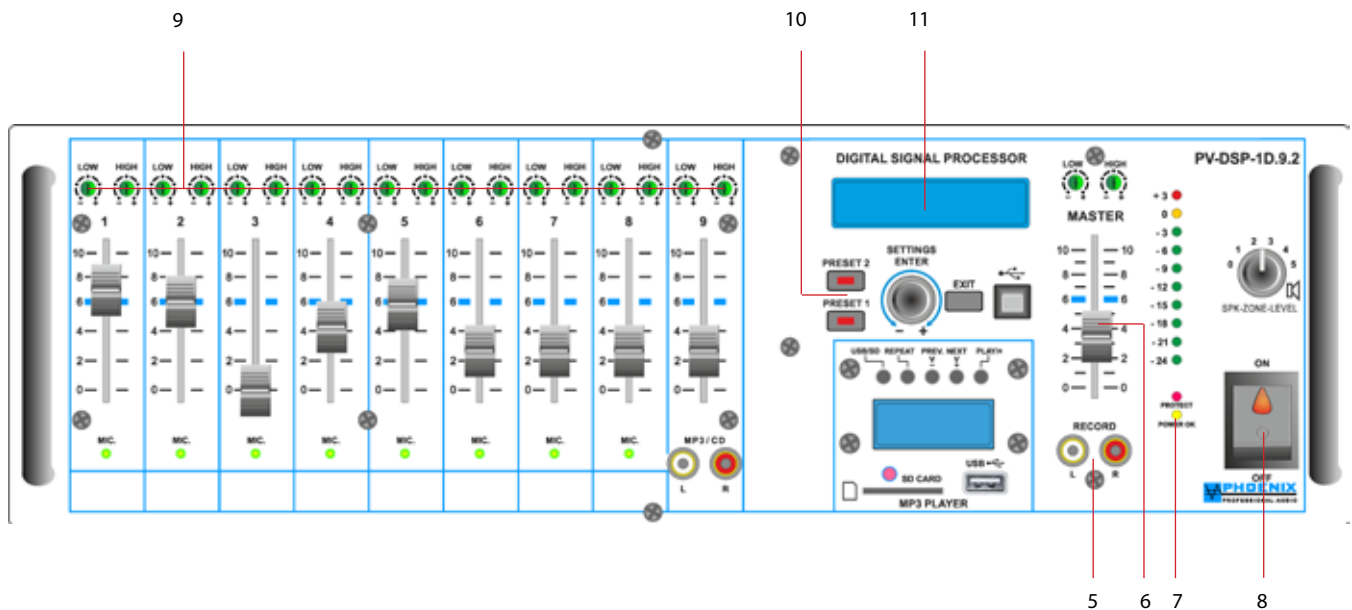
By short pressing the „▶▶I“ **button it is switched to the next song**, by short pressing the „I◀◀“ button it is switched to the previous song and automatically played.

### 9. MUTE

By pressing the **MUTE button the reproduction is interrupted**, but the program or the current song is not stopped by the system, it continues in the system. By pressing the button again, the reproduction of the song is activated.



## FRONT SIDE OF THE AMPLIFIER



### 5. RECORD OUTPUT

Unbalanced interconnected (0 dB), is used for connection of recording devices. The signal available for recording is the signal sum of the microphone- and sound carrier inputs before the sound- (EQ)- and MASTER volume control.

### 6. MASTER SECTION

With this control the master volume can be adjusted, raised and driven. Please consider the digital volume control in the DSP audio (limiter) in the system display (*settings VOL for PRESETS 1 and 2*).

### 7. CONTROL LED`s, PROT and PWR OPERATION DISPLAY

When the PROTECT control indication lights up without input signal, possibly there are system oscillations or other disturbances. Separate the load and reduce the amplification to zero. When the LED continues to light, possibly the amplifier has to be maintained.

### 8. MAINS ON-/OFF SWITCH WITH OPERATION DISPLAY

After activating this switch the device is ready for use. Operating voltage 230 VAC/50-60 Hz.

### 9. 2-BAND EQ

Separate LF- and HF control (+/-12dB) of the individual microphone or LINE inputs. Please select the DIP switches between MIC.- and LINE sensitivity at the rear side.

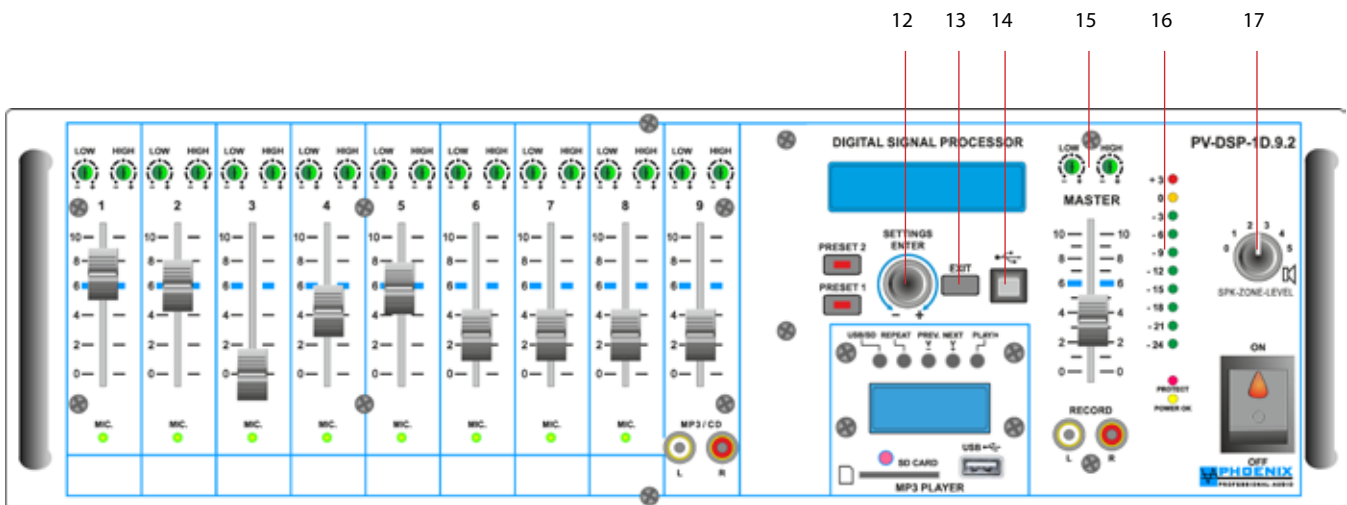
### 10. PRESET 1 and PRESET 2 switch with LED indication

Manual shift of the presets 1 and 2, if a manual shift of the PRESETS shall be carried out, the current condition is indicated by the control LED PRESET 1 or PRESET 2 or in the display the „**CLEAR TEXT**“ PRESET name.

### 11. DISPLAY

Multifunctional display, with menu navigation and indication for all settings in the system managed by the SETTING/ENTER button (manual local programming).

## FRONT SIDE OF THE AMPLIFIER



### 12. SETTINGS/PUSH/ENTER BUTTON

To change into the programming mode, shortly press the button ENTER, the display changes over. By turning the PUSH/ENTER button you change between the programs. All settings are permanently saved and also remain in case of an interruption of the power supply. After the carried out programming and by pressing the button EXIT, in the display a standard indication with feedback limiter status indication and the clear text name of the presets is shown.

### 13. EXIT BUTTON

By pressing this button you get from the main program to the subprogram or back to the standard display indication.

### 14. USB INTERFACE

Is used for connection to a PC and programming by the control software MWL-CONTROL.

### 15. 2-BAND EQ

Separate LF- and HF control (+/-12dB) of the MASTER SECTION

### 16. LEVEL INDICATION

The level indication lights up when the input signal exceeds -24 dB. If there is no indication, check the amplification settings and increase the amplification if necessary. Check the input connections and the audio source for signals. When the PROT-LED lights or the level indication shows +3 dB, even no signal is indicated, check the input- and output wiring.

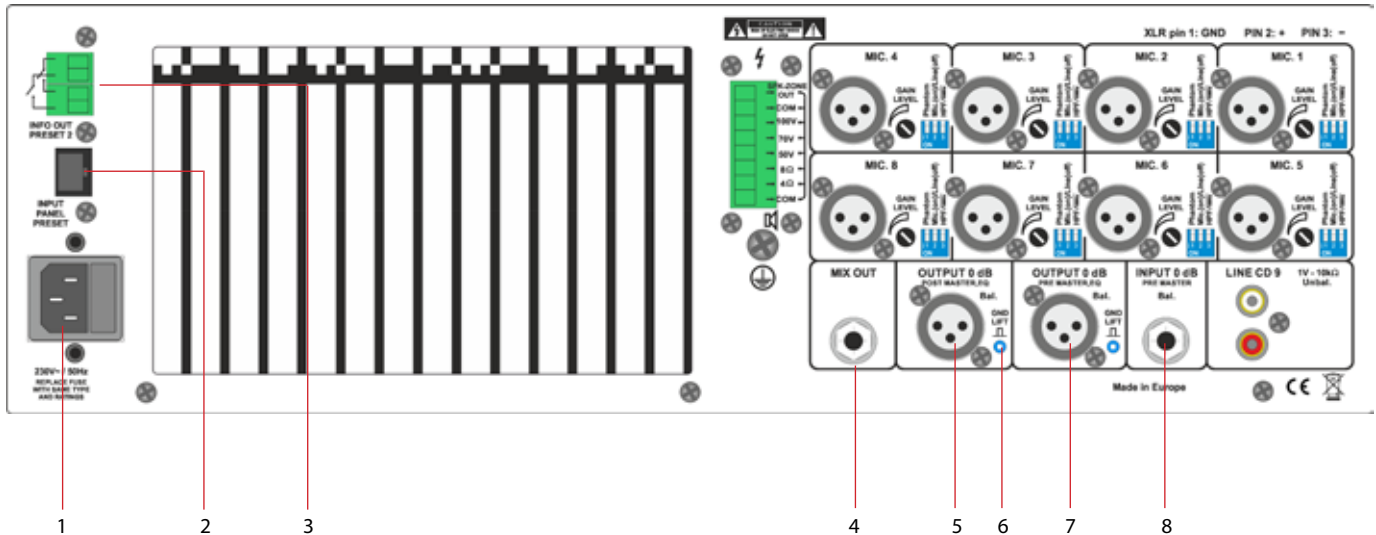
### 17. SPEAKER ZONE 1 (SEPARATE SPEAKER LINE)

Individual speaker lines for f.i. control speakers with 100V output and separate volume controls (step switch, maximum load is equal to the maximum amplifier power).

### IMPORTANT: ⚠

The first speaker zone „SPEAKER ZONE 1“ is connected with the internal amplifier power final stage. When connecting the speaker lines please pay attention to the complete load of the connected speakers.

## CONNECTIONS OF THE AMPLIFIER



### 1. 230VAC INPUT BUSH

IEC socket for connection to the 230VAC mains supply with glass fuse.

### 2. RJ-45 REMOTE CONTROL INPUT

Remote control input (control panel), optional device. Is used for manual remote selection of the presets 1 and 2.

### 3. RELAY CONTROL PANEL (INFO OUT PRESET-2)

Floating contacts with automatic shift by the preset-2 position. Is used for override of an additional speaker line for preset-2 selection, like f.i. when programming the amplifier for the Sunday mass, Christmas, „church is full“ in PRESET-2 program sequence.

### 4. MIX OUT ⚠

The **MIX-OUT** output is constructed balanced with signal routing function for input channels 6 (MIC.-LINE) and 7 (LINE, CD).

### 5. LINE OUT (POST MASTER OUT)

Transformer-balanced linear (after EQ and Master) output LINE (0 dB).

### 6. GROUND LIFT (SEPARATE PER OUTPUT)

Typical uses in mass-hum loops, multiple grounded audio connections, especially when two so-called LINE-LINE devices are coupled together with audio line.

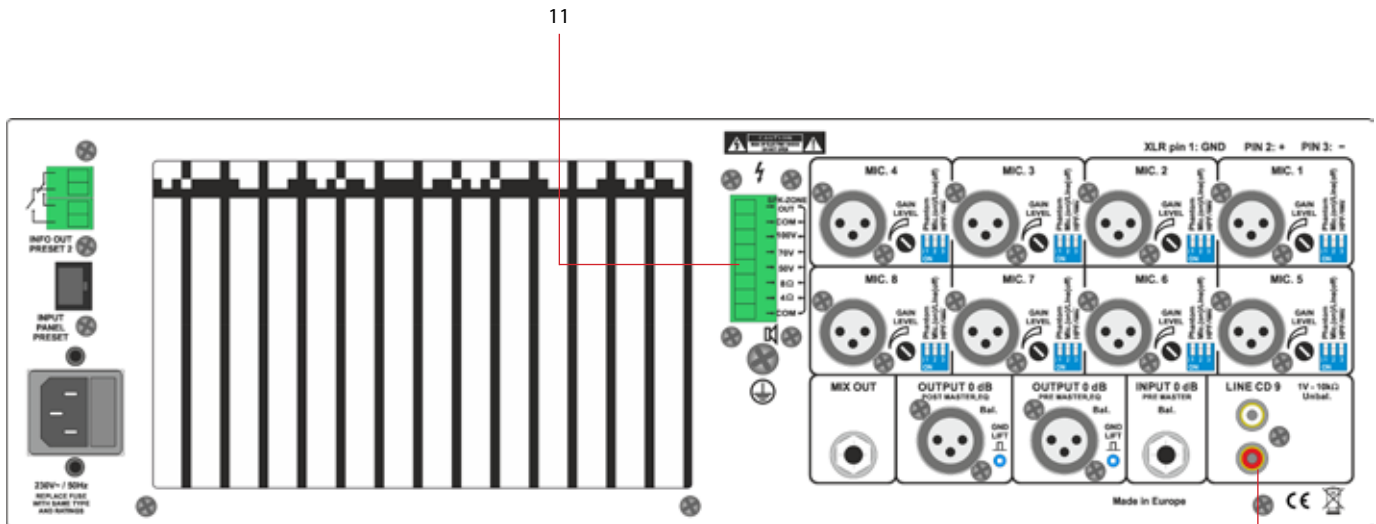
### 7. LINE OUT (PRE MASTER OUT)

Transformer-balanced linear (before EQ and Master) output LINE (0 dB).

### 8. LINE IN (PRE MASTER)

Linear (before EQ and Master) balanced input to Jack bush (LINE level, 0 dB).

## CONNECTIONS OF THE AMPLIFIER



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### 9. LINE CD IN-9

Unbalanced RCA connection (LINE level, +0 dB). The connections are unbalanced connected and are suitable for stereo sound carriers, L+R are internally interconnected via an OP 1/1.

The volume- and LF/HF control is done at the front side with front slide control or LF/HF with spindle trimmers countersunk in the front plate. Additional signal output to **MIX-OUT** f.i. woofer output.

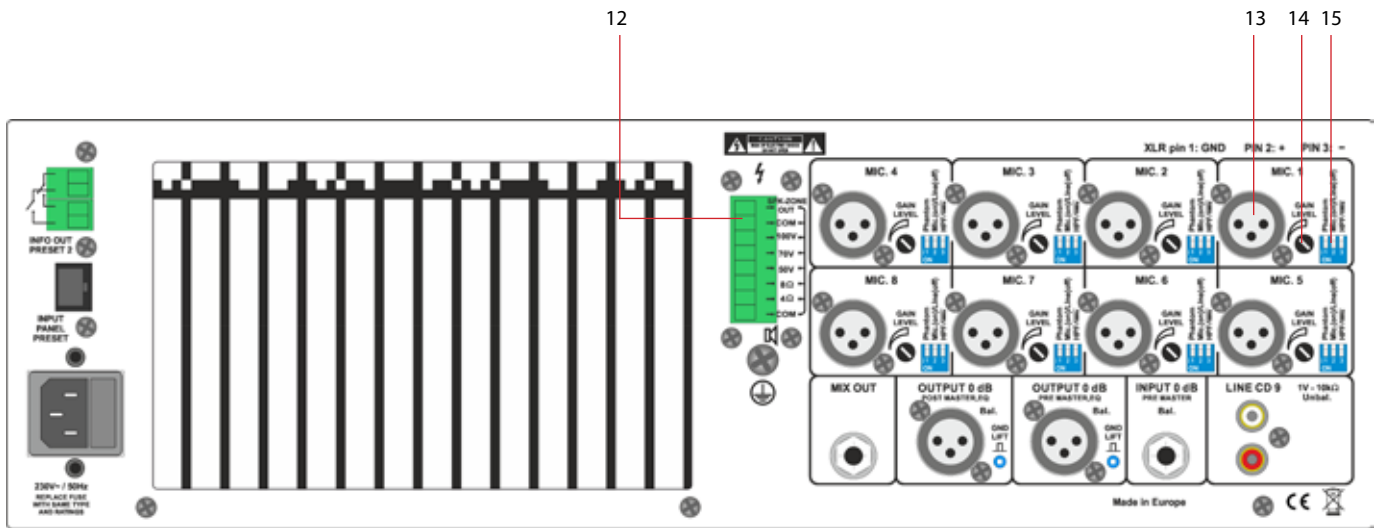
### 10. SPEAKER OUTPUTS

The 100V speakers are connected at the clamp 100V and COM pin. Low-ohmed speakers with an impedance of 8 or 4 Ohm are connected to the clamps 8 Ohm or 4 Ohm and COM.

#### Attention:

**Only either 100V speakers OR low-ohmed speakers can be connected - simultaneous use is not possible.**

## CONNECTIONS OF THE AMPLIFIER



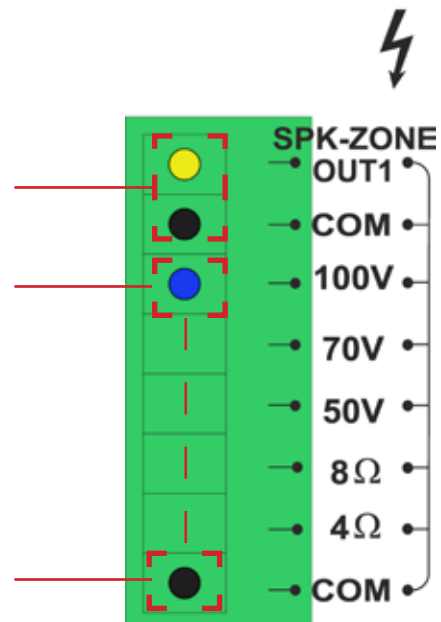
### 12. SPEAKER OUTPUT [ZONE-1]

The illustration No. 1 shows the speaker output clamp with zone-OUT-1.

Speaker output ZONE 1 is supplied from the internal power final stage. The output is 100V with the maximum power of 200 Watt. Drawing: **YELLOW=100V, BLACK=COM.**

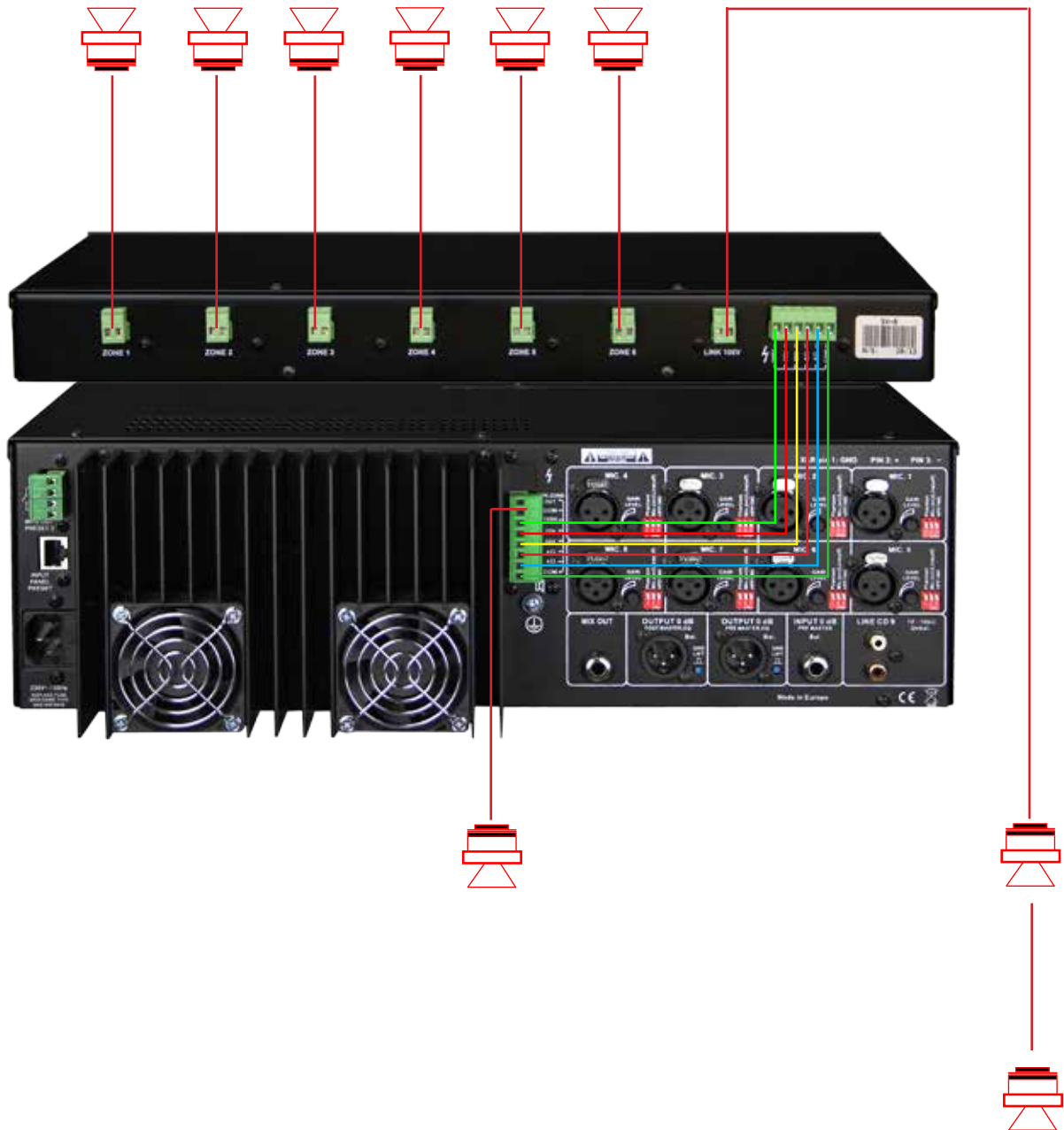
A direct speaker output is supplied from the first, internal power final stage. The output is 100V with the maximum power of 200 Watt. Drawing: **BLUE=100V, BLACK=COM.**

Please consider that the ZONE-1 output and the direct speaker output are supplied from the same power final stage. The connected LOAD in ZONE 1 and to the direct output shall totally not exceed more than 200 Watt.



**Attention:** To the direct speaker output only either 100V speakers OR low-ohmed speakers can be connected - the simultaneous use is not possible and leads to system switch off or can lead to the destruction of the power final stage.

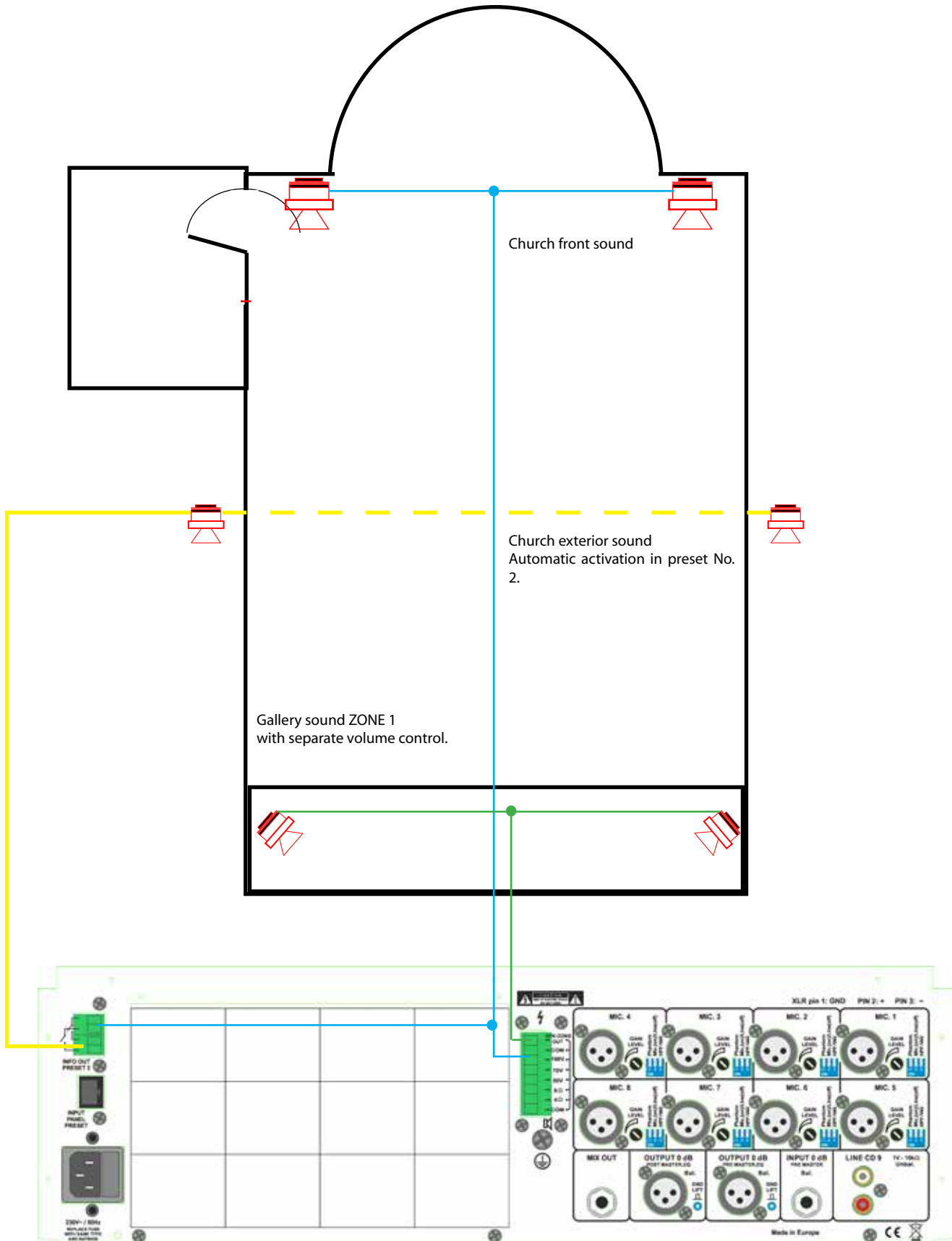
## ZONE EXTENSION WITH SW-6



### Useful information

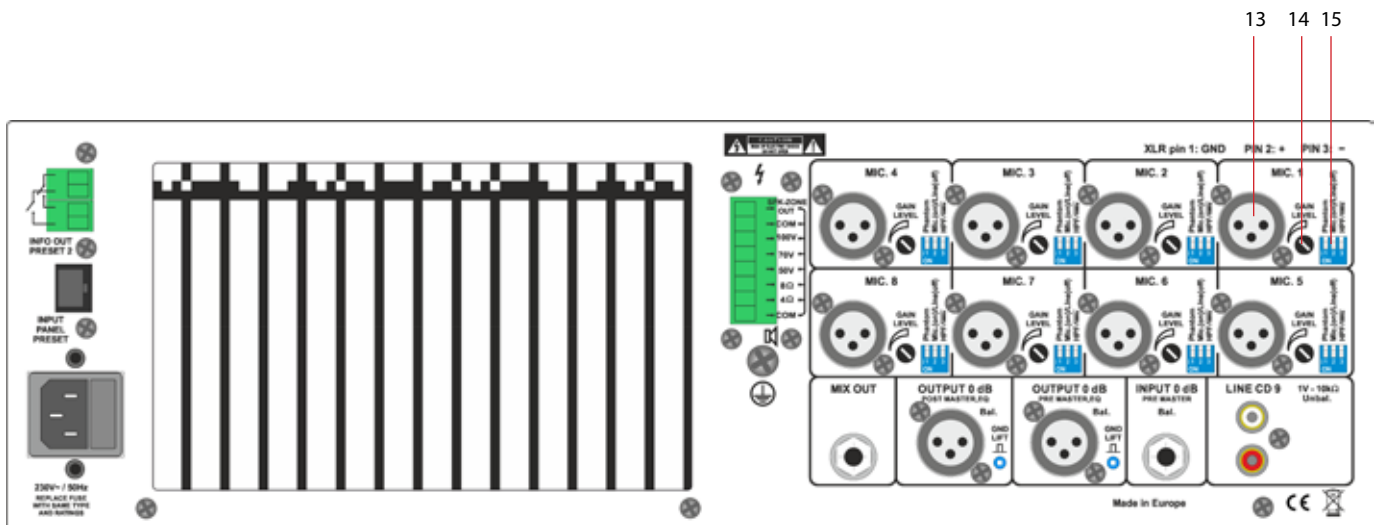
For the speaker zone extension a speaker zone control panel, type: SW-6 is available for you. By the outputs „coupling“ of the amplifier PV-DSP-1D.XX (COM, 4/8 Ohm, 50V, 70V and 100V) with inputs of the SW-6, the construction of additional 6 speaker zones with **ON/OFF switch** and separate volume control is possible.

## SPEAKER OUTPUTS





## CONNECTIONS OF THE AMPLIFIER



### 13. AUDIO INPUTS 1 to 8

At the device's rear side there are 8 x XLR audio input bushes (No. 15). The inputs are constructed balanced +2, -3, 1- shielding (see drawing). For each input the input sensitivity (GAIN) can be adjusted at the rear side. The input volume is adjusted at the device's front side with separate slide control and 2-element EQ.

#### ATTENTION: ⚠

All microphone inputs have a shiftable phantom power (phantom) +24VDC (DIN/IEC norm). If unbalanced, dynamic microphones shall be connected to the audio inputs, a coupling condenser has to be added or the phantom power has to be switched off.

Balanced inputs: isolate the wire lines for 6 mm and connect them as shown with the clamps. Tighten the screws firmly.

- 1 GND
- 2 +IN
- 3 -IN



Unbalanced inputs: isolate the wire lines for 6 mm and connect them as shown with the clamps. The middle pin has to be connected with the shielding pin as shown. Tighten the screws firmly.



### 14. GAIN CONTROL

Each input channel has an independent gain control.

DIP switch (position: MIC) ON-position: -40 dB/-15 dB, DIP-switch (position: LINE) OFF-position: -15 dB/+5 dB.

### 15. DIP SWITCH (MIC. LINE / PHANTOM POWER / FILTER HPF-100 Hz)

Each input channel has a DIP switch, thus the following conditions can be selected:

**DIP-1** (ON): input is supplied with 24VDC phantom voltage for condenser microphones.

**DIP-1** (OFF): phantom voltage is deactivated.

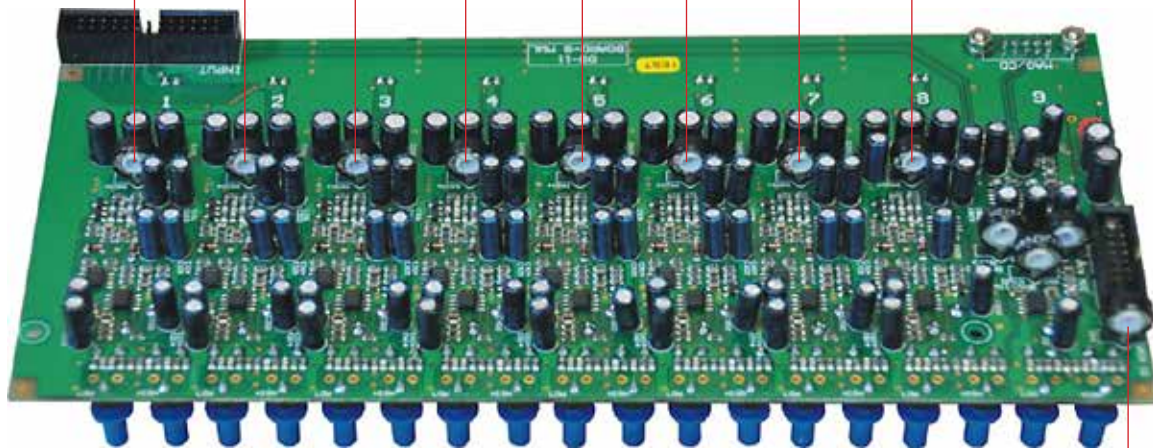
**DIP-2** (ON): input is set to the microphone input sensitivity.

**DIP-2** (OFF): input is set to the LINE input sensitivity.

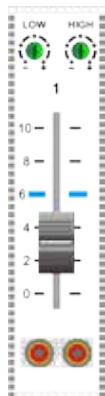
**DIP-3** (ON): input low cut filter (100 Hz) to remove low frequencies, interferences and phase shift is activated. **DIP-3** (OFF): the high pass filter (low cut filter, 100 Hz) is deactivated.

## NOISE GATE JUSTIFICATION & CD GAIN

Trimmer for the justification of the individual input channels (NOISE GATE)



Sensitivity control (GAIN) of the input No.9 [CD/LINE]



By the internal trimmer the sensitivity of the input No.9 **LINE-IN** can be adapted to the favoured level.  
The justification affects the **RCA input** No.9 at the front and rear side.

### AUTOMATIC ATTACK JUSTIFICATION

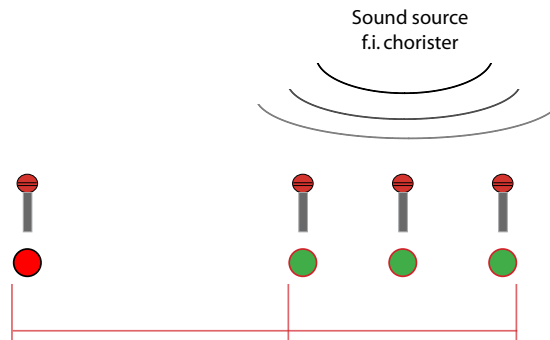
By turning the corresponding trimmers per input channel the reaction speed or [**BARRIER-GATE-GATE-OPEN**] of the internal automatic NOISE GATE shift to the signal or the sensitivity can be adapted.

### Useful information

By turning the corresponding channel trimmers clockwise the reaction lowering of the NOISE GATE system is reached.

## NOISE GATE JUSTIFICATION & CD GAIN

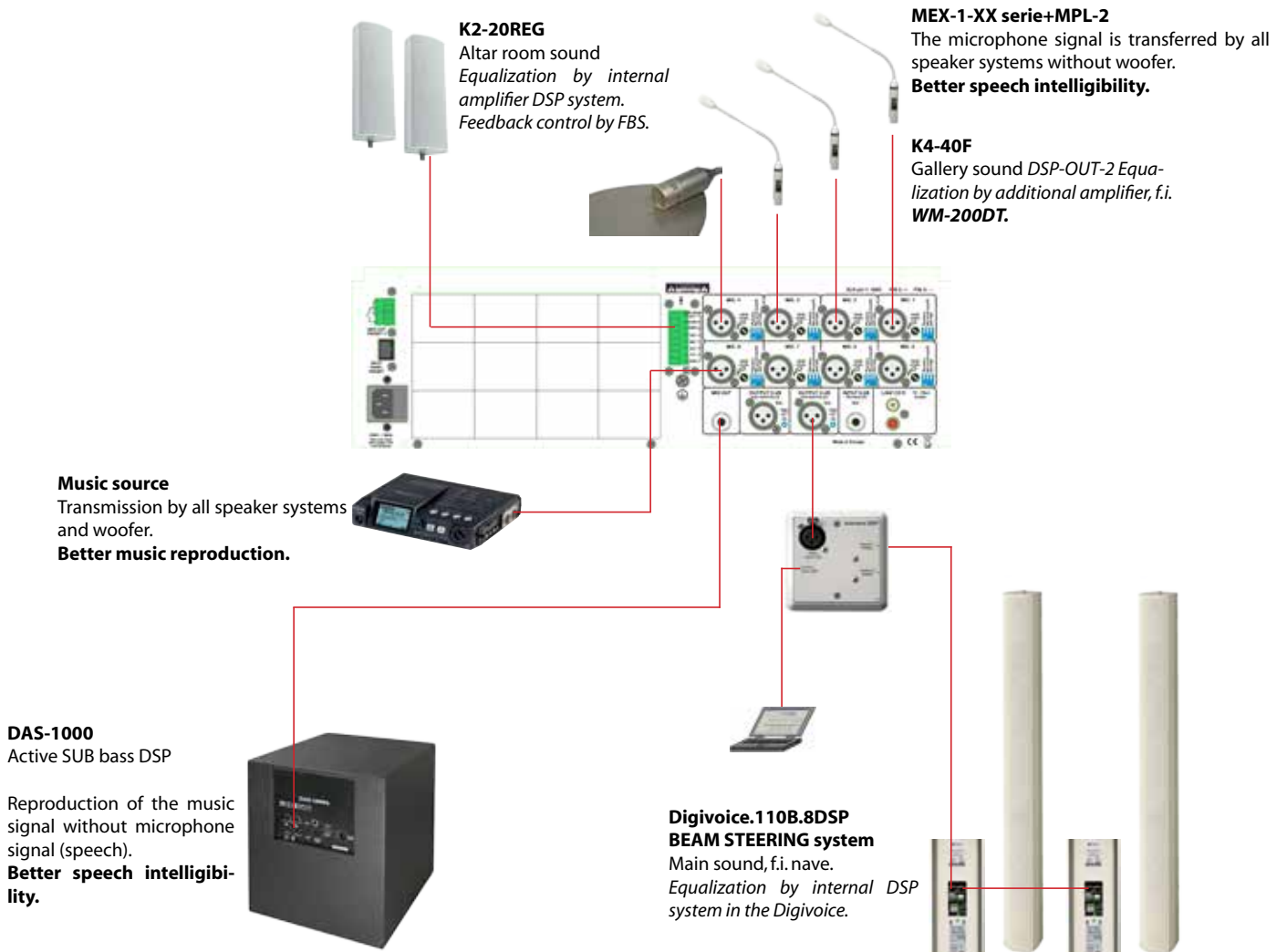
- Active inputs (high sensitivity) turn the trimmer left
- Not active inputs (low sensitivity) turn the trimmer right



## SYSTEM CONFIGURATION FOR SPEECH AND MUSIC REPRODUCTION

### Useful information

System configuration for speech and music reproduction (system with active woofer and Digivoice system, BEAM-STEERING systems).



## PROGRAMMING WITH FIRM SOFTWARE MWL-CONTROL

All DSP functions and settings which can be carried out by the button **SETTING/ENTER**, can also be carried out by system software **MWL-Control**. The **advantage of the software programming** is the produced „PMWL FILE“, this contains all **DSP settings (project data)**, which later is a big advantage for possible service purposes.

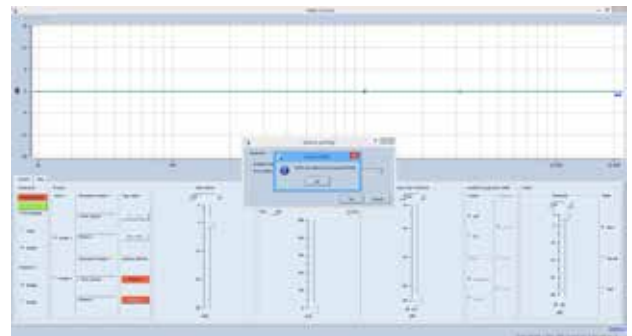
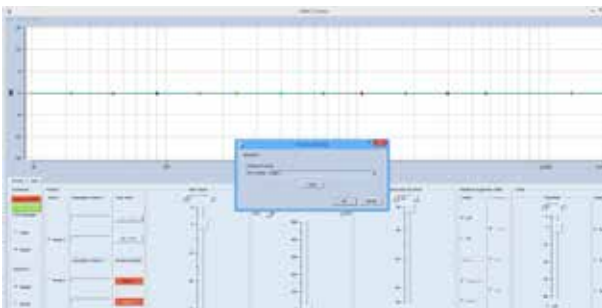
### **Installation- and operating instructions:**

The software you get after delivery by sending your contact data via mail.

After that the program MWL-Control or the file **MWL-1.1.1** can be installed on the PC. After the installation the program is started automatically.

After the USB connection between PV-DSP-1D.XX system and the PC the computer indicates a new device in the system. To allow the data transfer, the correct **COM interface (is indicated in the device manager)** has to be adjusted in the program.

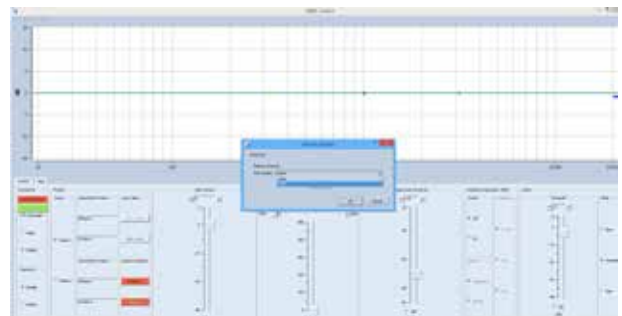
To be able to establish a connection with the amplifier, in the panel „**SETTINGS**“ the option „**CONNECTION**“ has to be selected. The program scans the existing **COM ports** and indicates the connected devices. **Port COM** number is shown.



In the software appears a WINDOW with the message: FOUND MWL„ MWL has been found at port COM (XX). Please confirm by pressing the „OK“ button. The connection between PC and amplifier system is finished.

### **IMPORTANT:**

If during connection setup the following message appears: „**COULDN'T CONNECT TO MWL DEVICE ON PORT COM (XX)**“, manually select a new COM PORT No. from the shown COM PORT connections from the WINDOWS DEVICE MANAGER and try it again.



## PROGRAMMING WITH FIRM SOFTWARE MWL-CONTROL

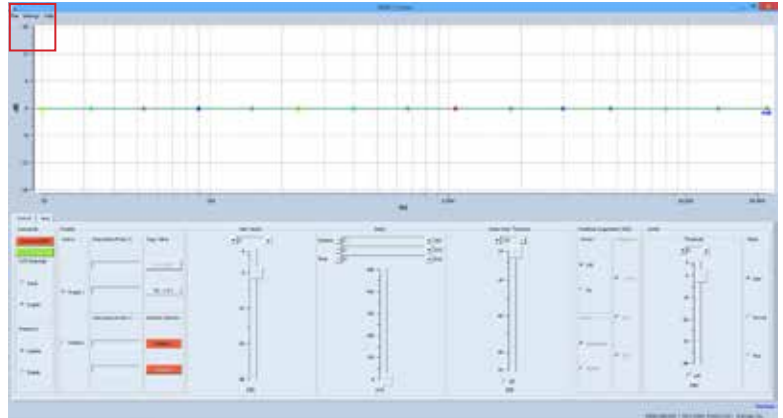
### SOFTWARE RANGE „FILE“

**OPEN:** A project saved on the hard disk is opened

**SAVE:** A project is saved on the hard disk

**SAVE AS:** Save a project under a new file name

**EXIT:** Finish project and leave software.



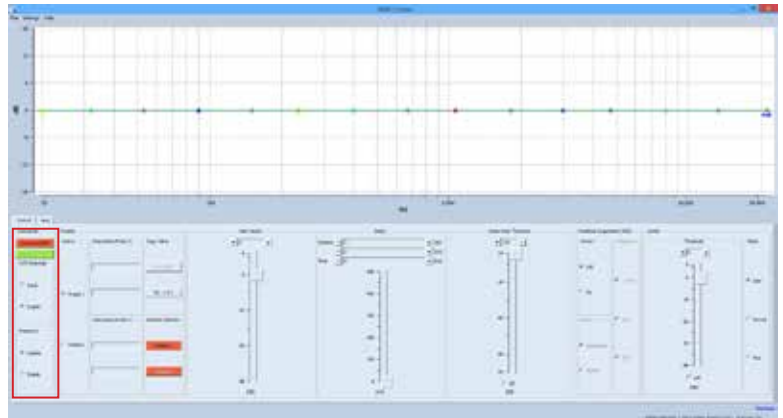
### **CONNECT COM**

After the connection between PC and system amplifier has been created, in the software main window the button **CONNECT COM XX** shall light green.

### **SAVED TO MWL**

To transfer the changed settings to the PV-DSP1D.XX, please press the button „**SAVE TO MWL**“.

The files are now saved in the PV-DSP-1D.XX, DSP processor.



### **PASSWORD**

You can select between **DISABLE** (without password protection) and **ENABLE** (all settings are saved by password).

### **PRESETS**

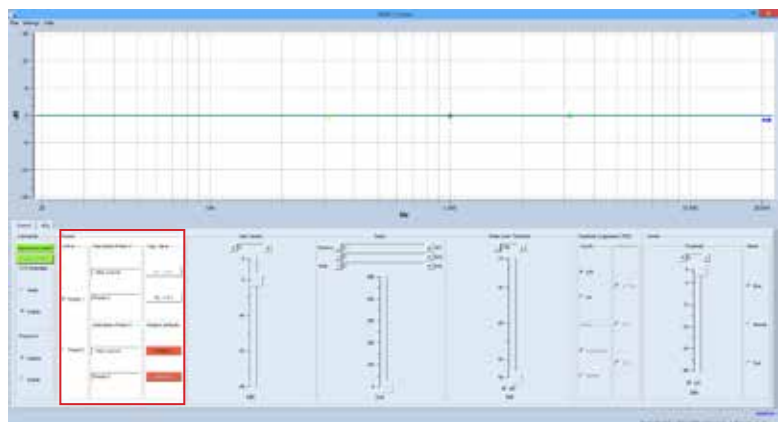
#### **DESCRIPTION PRESET 1 and 2**

In the menu „PRESETS“ the two PRESETS configurations can be carried out, saved and released.

**Button P1-->P2:** here all settings **PRESETS-1 can be copied to the PRESETS-2.**

**Button P2-->P1:** here all settings **PRESETS-2 can be copied to the PRESETS-1.**

In the small, left window the PRESETS 1 and PRESETS 2 can be renamed.



### **RESTORE DEFAULTS /DEFAULT SETTINGS**

Reset PRESETS to factory settings.

**All settings and information are hereby deleted!** 

## PROGRAMMING WITH FIRM SOFTWARE MWL-CONTROL

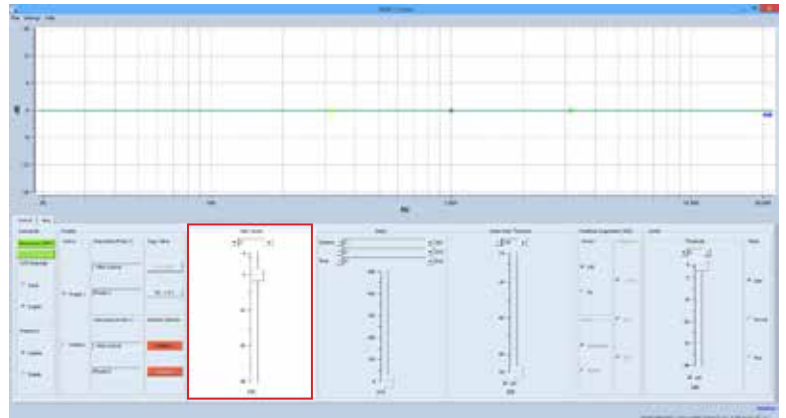
### SOFTWARE PROGRAMMING

#### „VOLUME“

In the range „**MAIN VOLUME**“ the maximum volume is adjusted digitally.

By shifting the analogue input sensitivity slide controls (at the device's front side) the mixer outputs are only affected to the maximum volume of the values set by the DSP volume controls.

For the input sensitivity at the rear side per input analogue **GAIN LEVELS** are available.



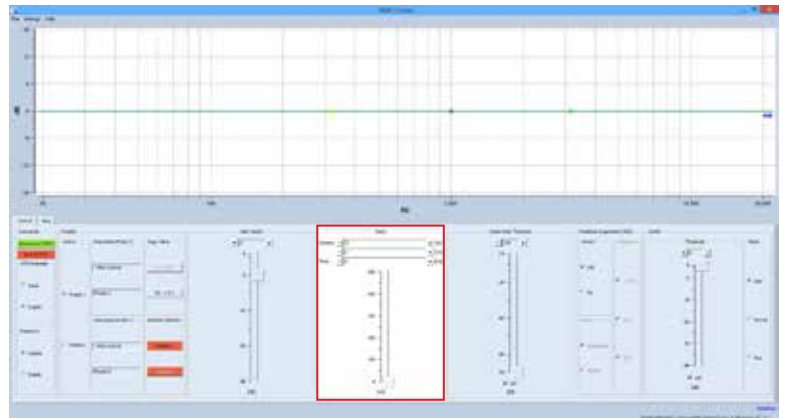
### SOFTWARE PROGRAMMING

#### „DELAY“ signal delay

Range „**DELAY**“ can be configured, indications in „**m**“/„**cm**“ (distance) or in „**ms**“ (time delay) can be adjusted.

**TIP:** a minimum signal delay has a positive effect to feedback suppression.

A signal delay allows a correct sound by delaying the acoustic signals in a way, that also with speakers or amplification systems located far from each other no echo formation happens.



#### Useful information:

Please select the favoured „**PRESET**“.  
Two **PRESET** configurations can be carried out for all programming processes.

## PROGRAMMING WITH FIRM SOFTWARE MWL-CONTROL

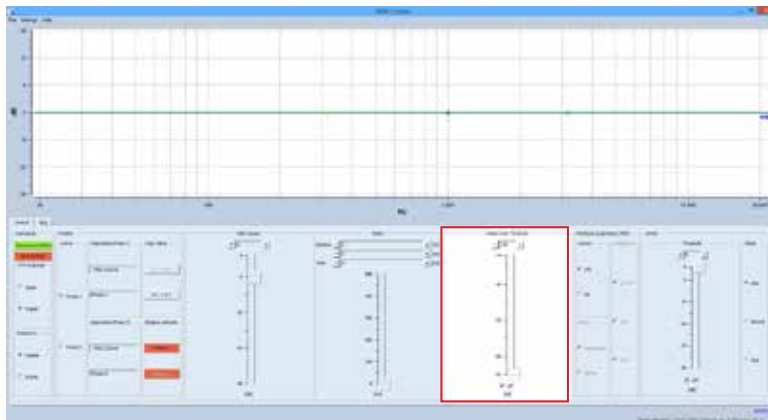
### SOFTWARE RANGE „NOISE GATE“

#### „Threshold“

The Noise Gate cuts signals under a determined, definable (-90 dB to -24 dB) level. Signals above this level, however, are passed through unprocessed.

A typical use is the suppression of noise with low level. Thus the controllable threshold (threshold setting) is adjusted directly above the noise level. Possibly existing noise is hereby suppressed as soon as the master volume of the input signal falls below the threshold setting.

If the master volume is above the TH-setting, indeed also the interferences are passed through, but covered by stronger wanted signals.



### SOFTWARE PROGRAMMING

#### „FEEDBACK SUPPRESSOR“ feedback limiter

In the menu „**FEEDBACK SUPPRESSOR**“ (feedback limiter) an automatic feedback suppressor (adaptability) or a digital phase shift can be allocated to an output.

#### MODES: (adaptability)

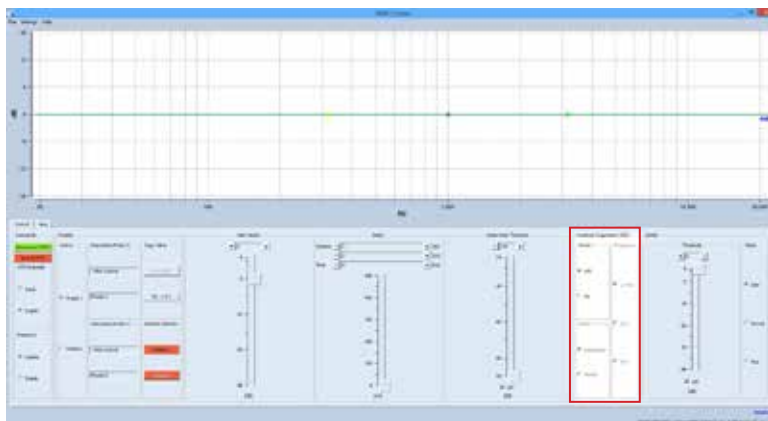
Feedback reduction: for an ultrafast automatic feedback suppression ten precise notch filters are available, which automatically find and reduce feedbacks.

#### MODES: (phase shift)

The frequency for the phase shift of the shifter can be determined using „frequency“.

**FREQUENCY**, setting of the shifter frequency:

- 1.7 Hz
- 2.0 Hz
- 3.0 Hz



#### Useful information: ⚠

Please select the favoured „PRESET“. Two PRESET configurations can be carried out for all programming processes.

#### Useful information: ⚠

At first you should reduce the parasitic feedback frequencies with the parametric EQ for a favoured value (dB) narrowband (**OCT.**). Produce a feedback by raising the microphone sensitivity. Measure the occurring frequency and correct it again with the parametric EQ.

After the signal „correction“ the automatic feedback limiter (adaptability) or the digital **SHIFTER** can be activated.

## PROGRAMMING WITH FIRM SOFTWARE MWL-CONTROL

### SOFTWARE PROGRAMMING

#### „Threshold“- „ATTACK TIME“

In the menu **LIMITER** you **determine by** threshold setting (-30 dB to +6 dB) the transition level, above which the effect of the limiter 1 starts.

By level increase you let the limiter start later.

In the menu **LIMITER 1** you determine by **ATTACK TIME** the reaction speed of the internal shift to the input signal.

**SLOW** - longer ATTACK time

**MIDDLE** - middle ATTACK time

**FAST** - fast ATTACK time.

The longer the ATTACK time (SLOW position) is selected, the later the limiter effect starts.

With longer ATTACK times the limiter more affects the average signal level and no more to fast and high peak levels.

This causes a softer limiter effect and keeps the dynamic of the signal widely, however, cannot avoid temporary overrides due to fast signal peaks.

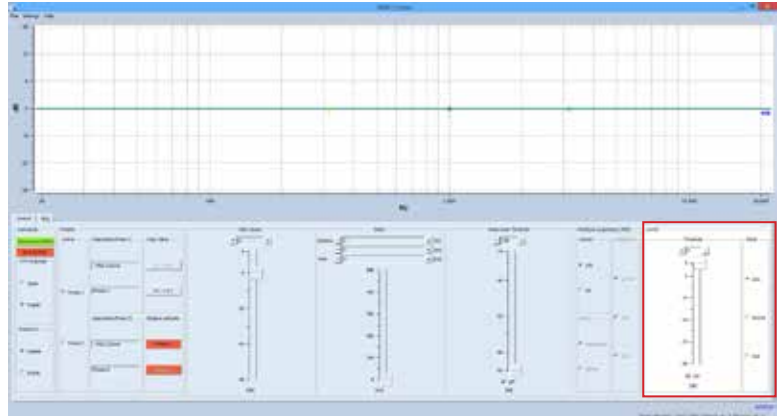
#### Useful information:

Longer attack times with percussive signals let the dynamic tone inset „PICK“ pass, without regulating the level down.

A „KICK DRUM“ also keeps its „PUNCH“ with longer attack times.

Also for RECORDING or final mixing a little bit longer attack times will be preferred.

To protect speakers from too high peak levels in PA applications, however, short attack times are recommendable (FAST-setting).





## PROGRAMMING WITH FIRM SOFTWARE MWL-CONTROL

### SOFTWARE PROGRAMMING

#### „EQUALIZER“

Via mouse click onto the **EQUALIZER window** you get into the submenu „**PEQ**“. There all audio settings for the parametric EQ of the input range can be carried out. All changes are graphically shown in the monitor window as trajectory curve.

#### Setting of the amplification

(-12 dB to +12 dB)

#### PEAKING EQ, filter or EQ selection.

The following filters are available:

1. PEAKING EQ
2. LoSh6
3. LoSh12
4. HiSh6
5. HiSh12

Setting of the octave (edge inclination)  
(0,05 to 3,0 oct.)

Setting of the frequencies  
(20 Hz to 21,2 kHz)

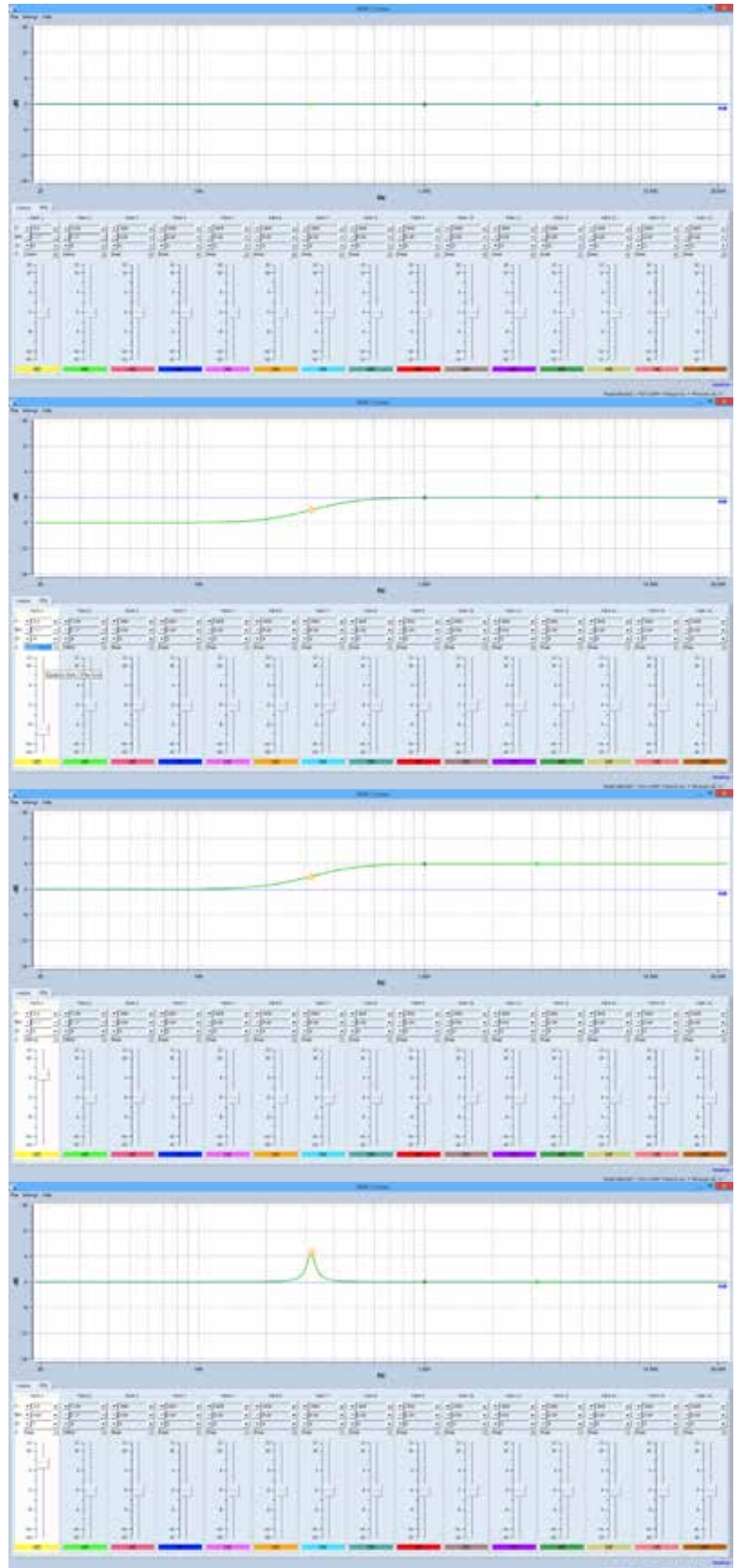
#### Useful information:

A parametric equalizer **PEAKING EQ** allows the raising or driving of free selectable frequencies with the possibility to determine the width of effect (**Q-factor**) of the **EQ** by yourself.

Thus it differs from **LoSh6/12** and **HiSh6/12** filters, which (with **fix Q-factor**) can control a determined frequency range. Please consider the display indication.

#### Useful information:

Please select the favoured „PRESET“.  
Two PRESET configurations can be carried out for all programming processes.



## PROGRAMMING WITH FIRM SOFTWARE MWL-CONTROL

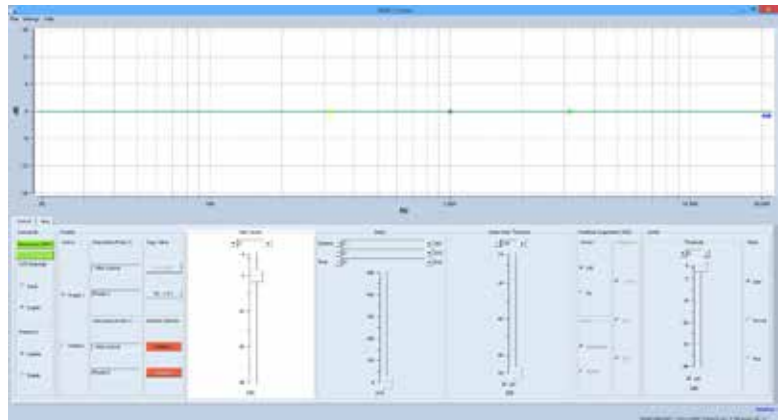
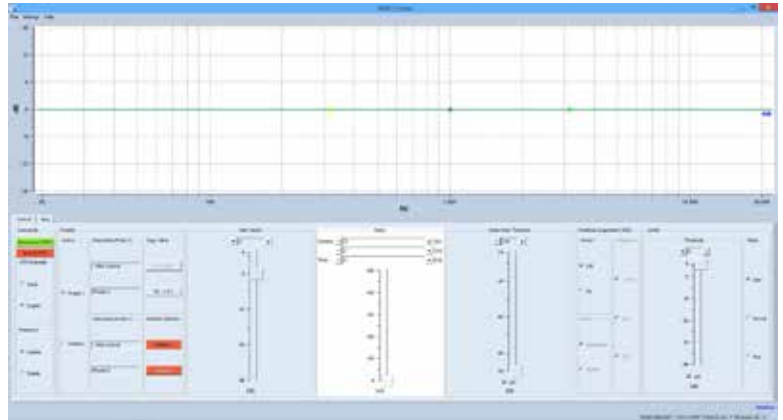
### SAVING DEVICE SETTINGS IN THE SYSTEM AMPLIFIER

After each parameter change in the AUDIO DSP the **BUTTON „SAVE TO MWL“** lights up **RED**.

### **SAVED TO MWL**

To transfer the changed settings to the PV-DSP1D.XX, please press the button „**SAVE TO MWL**“. The files are now saved in the PV-DSP-1D.XX, DSP processor and the **BUTTON** changes the basic colour to **GREEN**.

The changes are now saved in the amplifier system.



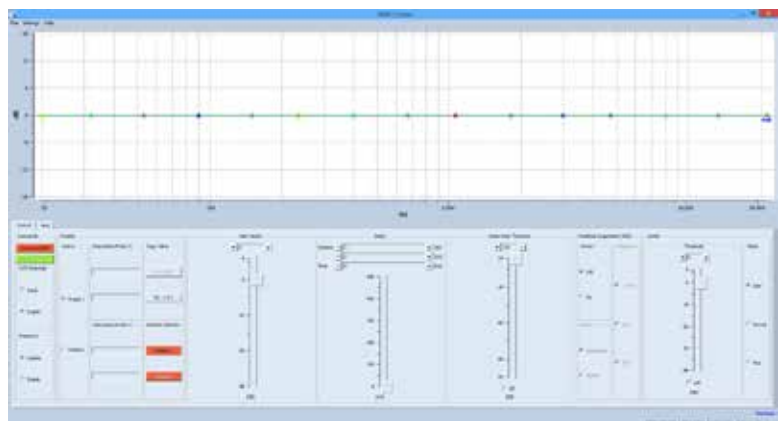
### SOFTWARE RANGE „FILE“

**OPEN:** A project saved on the hard disk is opened

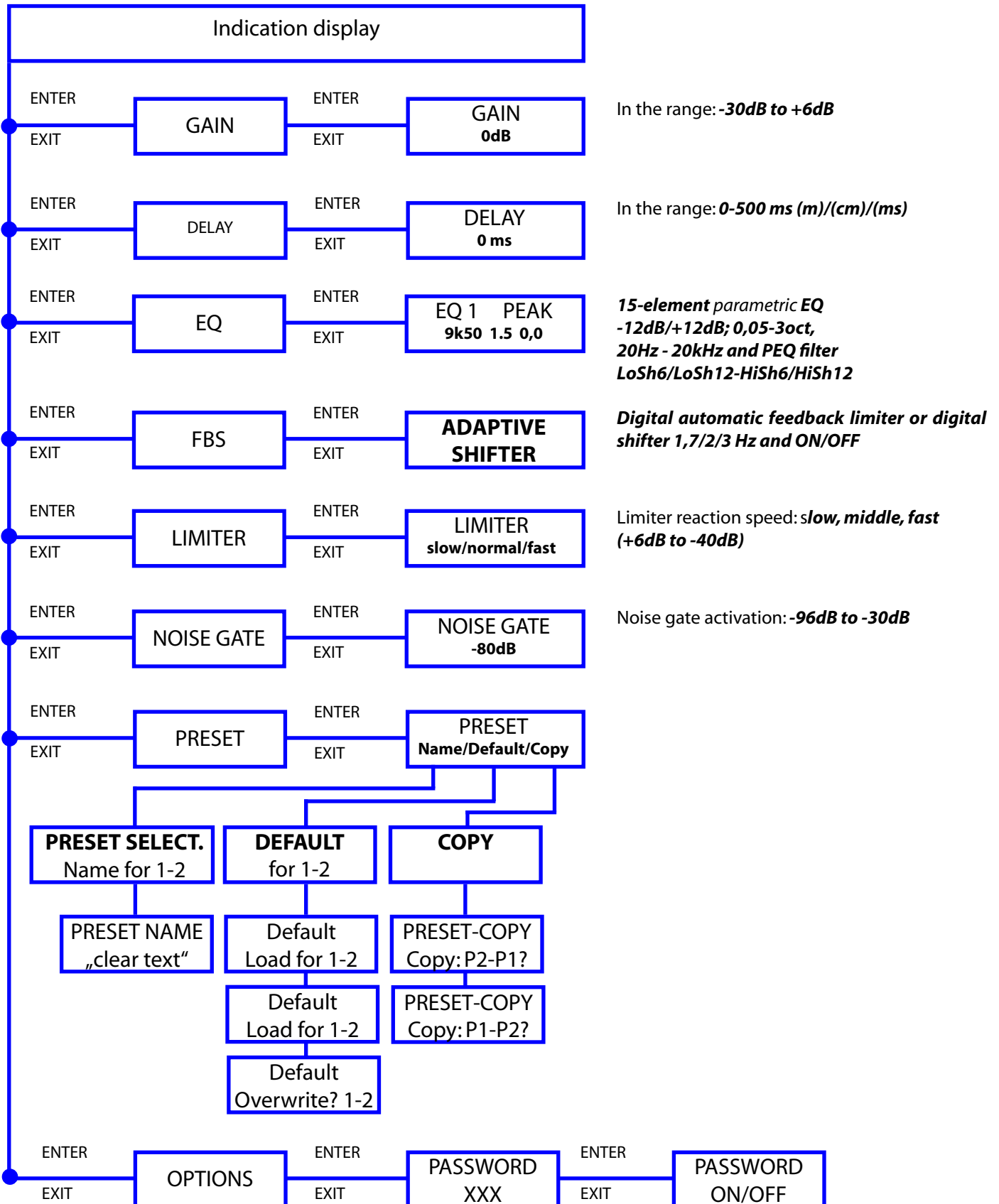
**SAVE:** A project is saved on the hard disk

**SAVE AS:** Save a project under a new file name

**EXIT:** Finish project and leave software.



## PROGRAMMING BY THE SETTINGS/ENTER BUTTON



## PROGRAMMING BY THE SETTINGS/ENTER BUTTON

### **PROGRAMMING WITH SETTINGS/ENTER BUTTON**

All DSP system functions and changes which can be carried out with the software MWL-Control, can also be carried out with the button **SETTING/ENTER**.

The advantage of software programming is the „PMWL FILE“ produced by the PC, this contains all **DSP settings (project data)**, which later is a big advantage for possible service purposes.

By pressing the **PUSH/ENTER button the first** programming mode „**GAIN**“ is indicated, by pressing the **PUSH/ENTER button again the further submenu (BANG MENU)** in the range (**GAIN**) is shown. All further settings refer to the DSP range selected by you. The just processed GUI POINT flashes.

Please turn the **PUSH/ENTER button** left or right to adjust the favoured raising or driving the parameter and press the **EXIT button** (1x), the change is saved.

By pressing the EXIT button again you leave the first PROGRAM MENU of the GUI (window metaphor).

The next PROGRAM MAIN MENU is shown in the display, continue like described above or press the **EXIT button** (1x) to leave the programming mode, the adjusted parameters are saved („**SAVING**“). Standard display indication is shown.

## ROOM EQUALIZATION (BASICS)

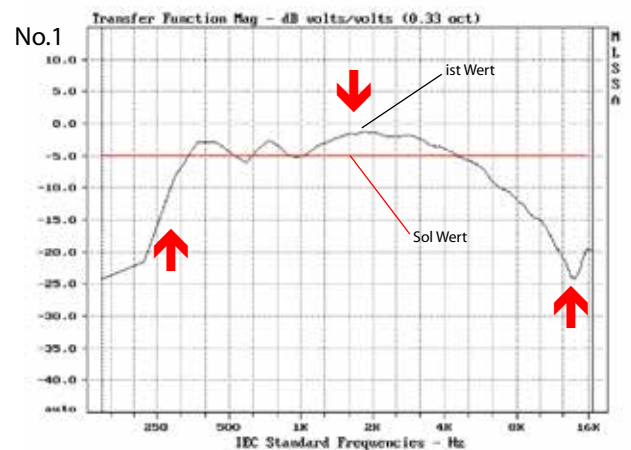
Thank you very much for deciding for the Automatic **POWER- VOICE PV-DSP-1D.9.2** from Phoenix Professional Audio GmbH.

To be able to use this correctly und to use all technical possibilities which offers the Automatic mixing amplifier PV-DSP-1D.9.2, you have to carry out a room adaption or room equalization after the installation.

To realize a room measurement, you need a measuring device. Minimum is here the NiniLink (Acoustilyzer) from Neutrik or a professional measuring software like f.i. MLSSA.

For a practical measurement the measuring microphone has to be positioned exactly at the place where later the audience will be located (f.i. for church sound in the middle of the church). By recording of „PINK NOISE“ to the Power Voice amplifier you measure the amplitude frequency response with the measuring microphone.

If the calculated frequency response does not have the aspired course, with room adaption filters (EQ) a correction by raising and driving the frequency spectrum in determined areas is carried out.

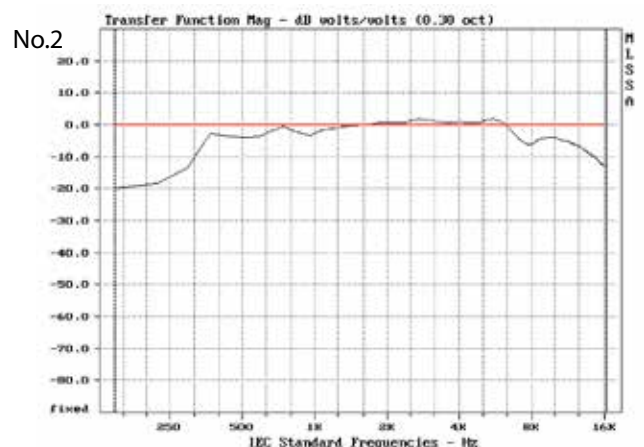


Repeat the measuring- and correction process until a linearity arises (see drawing No.2).

In big halls or with bigger distance from the signal sources (f.i. speakers) a drop in treble occurs.

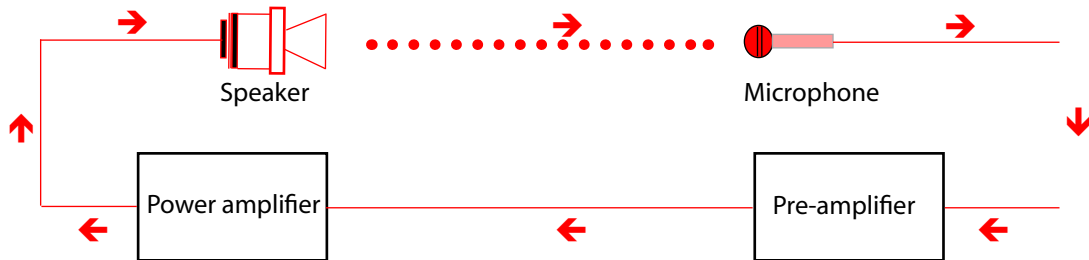
For reverberant rooms it is senseful, additionally to concentrate to the equalization of low frequencies up to 100 - 500 Hz. In this frequency range there is the biggest reverberation effect.

It has been shown that it is senseful to be careful with the equalization. Hereby always the efficiency of the speaker and the amplifier should be considered.



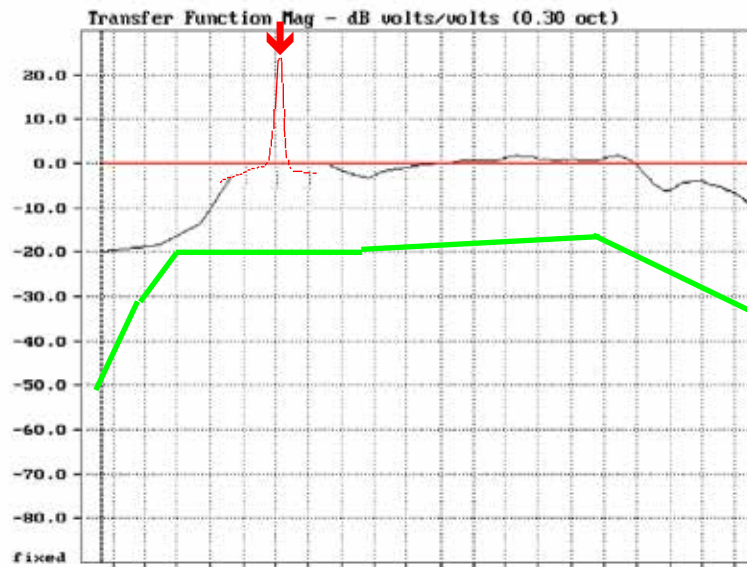
## ROOM EQUALIZATION (BASICS)

### Equalization for positive feedback suppression



The positive feedback between microphone and speaker produces the so-called feedback, which always starts with the frequency where the transmission curve shows the strongest maximum. This can be attenuated with the automatic feedback limiter which is integrated in the MIXER like follows:

At first you should reduce the parasitic frequency with the parametric EQ for a favoured value (dB) narrowband (OCT.). Then produce a feedback by raising the microphone sensitivity. Measure the occurring frequency and correct it with the parametric EQ.



The green curve shows the recommended reproduction curve for speech amplification systems.

The Automatic mixing amplifier **PV-DSP-1D.9.2 (POWER VOICE)** series has 15 parametric input EQ. Thus even acoustically difficult rooms can be equalized very well and the microphone sensitivity can be raised without parasitic feedback.

## ROOM EQUALIZATION (BASICS)

Specifications	PV-DSP-1D.9.2 (200W)
Speaker outputs, groundless:	100 V - 70 V - 50 V - 8 and 4 Ohm, 1 x separate 100V output „SPK-ZONE-LEVEL“ with 6 level control
Automatic system:	Analogue NOISE GATE system
DSP version:	DSP1 system
Frequency response:	40 Hz to 22.000 Hz @-3dB
Unweighted signal-to-noise ratio:	-90 dB to -24 dB@ NOISE GATE/ ON software setting
Harmonic distortion:	< 0,1 %
Equalization parametric EQ @ input:	15 x 20 Hz - 20 kHz, (+/- 12 dB) @ 0.05 oct - 3.00 oct
Equalization parametric EQ @ output:	no
Feedback limiter:	Automatic feedback suppressor in the range 20 Hz to 20 kHz or digital frequency shifter (shift 1,7 Hz, 2 Hz, 3 Hz.)
Tone control inputs:	LOW 100 Hz, HIGH 10 kHz, (+/- 12 dB)
DSP outputs:	MIX-OUT with MAINSUM-2 output, POST MASTER, PRE-MASTER
Inputs:	8 x mic.-line, (-40 dB to -15 db), 1.6 kΩ or LINE (-15 dB to +5 dB), 10 kΩ. 1 Line CH-9
Line outputs (process DSP):	no
LIMITER:	Limiter (-24 dB to +6 dB)
DSP signal matrix:	MIX-OUT (for inputs 8 MIC.-LINE and 9 LINE)
Audio switching matrix:	no
GAIN control:	digital in the DSP core
Delay:	shiftable in the range of 0,0 to 170 mtr. (499,92 ms)
SUB filter:	no
PEQ filter/input PEQ:	PEAKING, LoSh 6 dB, LoSh 12 dB, HiSh 6 dB,HiSh 12 dB
PEQ filter/output PEQ:	no
PRESETS:	2 PRESETS with clear text
USB/SD player:	ja
Conference configuration/priority:	no
ANALOGUE/DIGITAL GAIN system:	for all MIC-LINE inputs, analogue at the rear side, digital in the device's configurator
Phantom power:	24 VDC, shiftable to each input (channels 1 to 8), DIP-1
Input low cut filter:	shiftable to each input (channels 1 to 8), DIP-3
Input sensitivity LINE & MIC.:	shiftable to each input (channels 1 to 8), DIP-2
LC display:	multifunctional graphic display
Audio expander compressor:	no
USB interface:	USB MASTER interface (for DSP programming)
PRESETS interface:	yes
230V/DC mains LINK:	no
Programming software:	MWL-CONTROL 1.1.1 for DSP-1 systems
Power supply:	230V/AC@ 50/60 Hz
Protective circuits:	Power-on delay, current limiting, excess temperature protection, limiter
Dimensions/temperature range:	19" - width, 483 mm (W) x 135 mm- 3 U (H) x 340 mm (D), in the range -5°C to +40°C
Weight:	approx. 12 kg
Colour:	graphite

