INSTRUCTION OF AUTOMATICALLY AMPLIFIERS

TYPE:

MWL-7DSP1A
MWL-9DSP1A
AMWL-7DSP1A
AMWL-9DSP1A
AMWLC-9DSP1A
1. Clues for users.

- Before putting the amplifier to the 230V currency, please read the following instruction.
- Doing any unknown service to the device by any unauthorized persons makes the depriving of guarantee and can be the cause of the worsening of technical parameters and the safety of using.
- ATTENTION! The device must be supplied from the plug-in socket with the safety circuit connected (Socket with grounding wheel).
- In case of changing the plug-in fuse, the plug must be pulled off.
- The producer can introduce some changing to the device in case of modernizations or technical progress, without the necessity to put them into the instruction as far as the basic parameters, that are included in this instruction, are not changed.

The accessories of the amplifier:
- service manual with the guarantee card,
- spare fuse,
- plug-in cable,
- application software CD

2. Using and general notices

The modern amplifiers AMWL- DSP1A (Powermixer) are designed to be used in sacral buildings, large, closed areas, conference rooms, where the high quality and the hearing of speaking is required. They are cooperating with the 50V, 70V and 100V loud speakers line and with the loud speakers set of altogether impedance \( \geq 4 \) \( \Omega \). The amplifier has got: 8 symmetrical microphone – line channels to put in the dynamic, capacitive and wireless microphones or the device with line level output and music channel to put in the record player, tuner or CD player (LINE – asymmetrical). To record, there is a separate RCA (RECORD) socket.

AMWL-DSP1A is a modern amplifier equipped in signaling DSP processor that enables precise correction of sound characteristics in buildings with very difficult acoustic conditions. The amplifier activates only those microphones, that are used in that moment, what eliminates sound surrounding influence coming from not used microphone channels.

Each 1-8 channel is equipped in symmetrical XLR input, sensitivity regulation, Phantom power plugged in, microphone/line switch, 100Hz high – pass filter, preamplification regulation, and timbre regulation (bas/soprano) designed in front of the case. In 1-8 channels, diodes signal the channel activity and the microphone transposition. The amplifier is equipped with an MP3 player with remote control and an DE-ESSER which eliminate sibilance during the speech.
3. Arrangement of elements and sockets.

The view of the front board of the AMWL amplifier.

1- a diode signaling the activity of the particular microphone channels
2- a diode signaling the transposition of a certain microphone channel
3- gain potentiometer in microphone channels
4- gain potentiometer of LINE channel
5- Cinch socket for the external sound source to be plugged in
6- FULL mode switch (full range) or SPLIT (partial band)
7- potentiometer for adjustment damping values
8- damping indicator
9- potentiometer setting lower frequency for mode "SPLIT"
10- AIR button to add high frequencies
11- switch for USB or SD mode
12- repeat
13- previous file
14- next file
15- play file
16- LCD display
17- IR infrared for remote control
18- SD card slot
19- USB slot
20- a pulser to service the function on the display
21- EXIT key exit from the menu
22- USB socket for computer connection
23- Cinch record socket
24- gain sum potentiometer
25- power indicator
26- power and protect LED
27- switch on/ switch off of the amplifier's power
28- 6-pointed zone potentiometer
29- timbre regulation (bas, soprano) MASTER
30- preset 1 & 2 switches
31- LCD display
32- timbre regulation (bas, soprano) MP3/CD
33- timbre regulation (bas, soprano) for microphone channel
view of the front of the amplifier MWL-9DSP1A

view of the back of the amplifier AMWL-7DSP1A and MWL-7DSP1A
34- 230 V ~/ 50 Hz power socket
35- switch ground connection
36- Jack socket - MIX OUT
37- XLR socket - 0dB output before DSP & sum
38- GND lift switch
39- XLR socket - 0dB output after DSP & sum
40- JACK socket - Input 0dB after DSP & sum
41- Cinch socket - Line CD output
42- 3 positioned switch:  
   1. Phantom power on/off
   2. MIC / LINE switch
   3. 100 Hz high pass filter on/off
43- controller sensitivity of individual inputs (1-8)
44- XLR socket in each microphone input channel (1-8)
45- speaker output
46- output socket informing about Preset 2 switched on - this socket can also act to control (set off) an additional speaker circuit that is used only in Preset 2.
47- RJ 45 socket Preset steering panel input

4a. XLR microphone pin connection:

- 2 - hot (+ve)
- 3 - colt (-ve)
- 4 - chassis ground

Symmetrical input (operating with phantom power (plug in for the cable to 5m length at the asymmetric input)

Asymmetrical input

Phantom power off
4b. Jack pin connection:

Connection of 0 dB input and output 0 dB
SYMMETRICAL
- signal’s input
- chassis/grounding
ASYMMETRIC
- signal’s output
- chassis/grounding

hot (+ve)
cold (-ve)
chassis/grounding
terminal ring
sleeve

5. Amplifier’s menu control..

After amplifier’s connection to 230V currency by a given cable and power input (switch no 15), our company’s logo appears, and after several seconds, there is a note: “MWL Control” “Preset 1” (or “Preset 2”).

For the display menu control, there is a pulser’s handwheel (7) – to come into the settings mode – press it. Then, there is a next note – “Gain”.

Turning the handwheel left or right, there are other menu’s parts (previous or next parts). To come into the chosen part – press handwheel (7) (ENTER).

To come back to the previous part – press (EXIT) (9).

Menu structur

[Diagram]

- ENTER → Gain
  - gain regulation -30dB +6dB

- ENTER → Delay
  - delay line 0 500 ms;
  - units [m],[cm],[ms]

- ENTER → EQ
  - 15-pointed parametric or shelf equalizer
  - -12dB/+12dB; 0.05 oct, 20 Hz kHz, LoSh6, LoSh12, HiSh6, HiSh12.

- ENTER → FBS
  - digital feedback eliminator
  - adapting method or phase shifter method

- ENTER → Limiter
  - limiter with regulated reaction time: slow, medium, fast; regulated level of operation (+6dB –40dB)

- ENTER → Noise gate
  - noise gate, turn on level regulation
  - (90dB –24dB)

- ENTER → Preset
  - choice: Name Preset, beginning settings, copying preset.

- ENTER → Preset: Name
  - preset: writing the preset’s name

- ENTER → Preset: Name preset: 1

- ENTER → Options
  - choice: Password, language (polish, english)

- ENTER → Options: Password
  - options: turning on the password

- ENTER → Options: Password
  - Godow few people

- ENTER → Options: Password
  - Godow few people

For the feedback eliminator, the equalizer, the expander – compressor, the delaying line to be connected
Amplifier’s control – settings by the computer

All settings introduced by the amplifier’s control panel can be also done by the PC computer. To get the possibility of the amplifier control by the computer, the program MWL Control must be installed (it is on the CD added). MWL Control program is created only for the configurations of MWL-DSP1 and AMWL-DSP1 series.

Licensor is not responsible for any harm of the program operation or for the wrong use of the program. MWL Control program is on the CD which is given together with the amplifier. To install the program on the computer, put the CD inside the CD-ROM, than, start it by installation folder and follow the instructions.

When the installation is done, connect the amplifier with the computer and start the MWL Control program. Connect the amplifier by the cable from socket no 8 on the front panel to the USB socket in the computer and than, turn on the power – switch (15). When the program starts, open “Settings” on the menu and choose “Connection”. After the “Settings of the device” is shown, click on “Scan” to find the port, where the amplifier is installed. After scanning the ports, there is a note: “MWL is found on the port no ...”

After closing the windows (click on “OK” on every window), the amplifier connects with the program automatically. If the amplifier’s settings are saved with the password, there will be a window to introduce it – there is no possibility to change any configuration without introducing the password.
appearing “Disconnect” in “Commands” means the correct communication between the amplifier and the program.

a command to save changed settings to DSP

the language of the display can be chosen there

in that place, the option with the password can be chosen, too.

next place is for choosing the preset (settings’ configurations), that can be saved. There are two presets.

places for the edition of presets’ names (without possibility of using Polish letters or signs)

place to set up the gain level, hovering the cursor on the slider and rotate the scroll wheel changes the gain value.
place to set up the delaying – it can be done in meters (m), centimeters (cm) or in milliseconds (ms). The slider can be used here, too.

place of the noise gate – write the values from –90dB to –24dB or set up the value using the slider.

place of the feedback eliminator – choice: on/ off, choice of and the frequency method for the phase shifter method.

place of the limiter – setting up of operation from +6dB to –40dB and the choice of reaction time.
In the place of parametric equalizer, a 15-pointed parametric or shelf equalizer with parameters 20 Hz to kHz, -12dB/+12dB; 0.05 oct, LoSh6, LoSh12, HiSh6, HiSh12.

Options in the “file” menu let to open the files with the previous saved settings and to save the changes to the file.

In “Settings”, the language can be chosen.

In “Help”, the service manual can be chosen.
7. Priority settings.

Programmer nr 1 - default settings: all switches (1-8) in the top position (OFF).
Switching any of the eight switches to the bottom position (ON) turns off the automatic in each channel. This is useful if you want to use one channel as a linear channel (music).
WARNING! If you want to use priorities, the channel switch

Programmer 2 - assigning the input channels 1-8 to the channel output mix 1 (MAINSUM 2). Is assigned to output jack MIXOUT socket.

Programmer 3 - assignment of input channels 1-8 to the mix output channel 2 (MAINSUM 1). The assignment is to input 1 (In1) in the DSP and output Jack (MIX OUT).

Programmer No. 4 - factory setting: switches 1 and 2 in position (OFF), switches 3 and 4 in position (ON).
Switch 1 - OUT2 PRE / POST GATE: upper position (OFF) POST GATE - all channels for MAINSUM-2 are associated with the automation. Lower position (ON) PRE GATE - signals are assigned before automation.
Switch 2 - AUTO / MANUAL: upper position (AUTO) - function automatic operation of the mixer; lower position (MANUAL) - a standard mixer (the automatic function off).
Switch 3 - ATTENUATION OFF: mute, inactive microphones, top position - muted; lower position - mute -15 dB.
Switch 4 - LAST MIC upper position (OFF) - last used microphone after speaking shuts down, lower position (ON) - last used microphone after the speech remains active all the time. 
WARNING! If you want to use a priority, this function must be disabled (upper position OFF).

Channel programmers (1-8) factory settings: all switches of channels programmers in upper position (OFF).

Settings of any priorities’ configurations: switching of any switches in any channel’s programmer causes the setting of priority precedence of this channel over the previous chosen channel. For example: switching in channel no 1 programmer, the switch no 4 down (ON) causes that microphone no 1 can stop the work of microphone no 4.

Lower configuration (picture no 3) shows the setting of the priority for the microphone no 1 and no 2 (picture no 2). The microphone no 1 has the priority over the microphones from 2 to 8, and the microphone no 2 has the priority over the microphones from 3 to 8, but is subordinate to the microphone no 1. It means, that the speeches of the participants 3-8 can be stopped in any time by the leader (1) or his deputy (2), but the speech of the deputy (2) can be stopped only by the leader (1).
Lower configuration (pict. 4) shows the situation for three microphones, where each of them has the priority to two ones left. In such a configuration, the priority goes to that microphone which is activated as the first one. So, when somebody starts speaking to microphone no 2, the microphones no 1 and 3 are not active till the end of the speech to the microphone no 2. Microphones no 1 and 3 behave analogically. Such a configuration is possible for all eight microphones. Thanks to that, there is a situation, where only one microphone is always active and it makes impossible for somebody else to interrupt, what is valuable for the order of the conference.

![Pict. 4](image)

8. Operation of the amplifier in the sound amplification system.

![Amplifier Diagram](image)
9. Compressor – expander device (only AMWLC – 9DSP1 amplifiers)

Each AMWLC-9DSP1A amplifier’s microphone channel is additionally equipped in compressor – expander device. The settings of the compressor - expander parameters are done by the switches and potentiometers available by unscrewing the small cover on the roof of the amplifier. Practically, the compressor – expander device let to get the settled volume level independently of the input signal level.

The view of the plate by unscrewing the cap on the roof of the amplifier.
## 10. Technical data.

<table>
<thead>
<tr>
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<th>AMWL-9DSP1A</th>
<th>AMWL-7DSP1A</th>
</tr>
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<td>Output power (sinus)</td>
<td>200W, 400W, 600W</td>
<td>200W, 400W, 600W</td>
</tr>
<tr>
<td>Microphone linear inputs, symmetrical electronic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- MIC/LINE switch</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>- MIC sensitivity control</td>
<td>-40dB ÷ -15dB</td>
<td>-40dB ÷ -15dB</td>
</tr>
<tr>
<td>- LINE sensitivity control</td>
<td>-15dB ÷ +5dB</td>
<td>-15dB ÷ +5dB</td>
</tr>
<tr>
<td>- Impedance</td>
<td>1,6 kΩ</td>
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<tr>
<td>- Phantom power</td>
<td>24V DC</td>
<td>24V DC</td>
</tr>
<tr>
<td>- HPF-filter</td>
<td>100 Hz, 6dB/oc.</td>
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<tr>
<td>- Bass – soprano control</td>
<td>±12dB, 100 Hz, 10 kHz, shelving filter</td>
<td>±12dB, 100 Hz, 10 kHz, shelving filter</td>
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<tr>
<td>- Signaling</td>
<td>green diode - aktiv channel, red diode - overdrive</td>
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<tr>
<td>Universal input (mono)</td>
<td>input RCA: 9</td>
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<td>-10dB ÷ +12dB</td>
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<td>of adaption, phase shift</td>
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<tr>
<td>Delay-line</td>
<td>0 - 170 m</td>
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<td>Mp3 player</td>
<td>Yes</td>
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<td>Yes</td>
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<td>DE-ESSER</td>
<td>800Hz - 8kHz</td>
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<td>Non-grounded symmetrical output</td>
<td>100V, 70V, 50V, 8Ω, 4Ω</td>
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<td>Frequency band</td>
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<td>Non-linear distortions</td>
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<tr>
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### WARNING OF DANGEROUS ELECTRICAL VOLTAGE!

In the housing are not protected electronic components which have a high enough charge. It can be dangerous!

### USE OF DANGEROUS ELECTRICAL VOLTAGE!

The exclamation point is a form of guidance is needed in support and maintenance of the instrument.

### CAUTION

To prevent electric shock, do not remove top cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

### WARNING

To reduce the risk of fire or electric shock do not expose this equipment to rain or moisture.
Control card

Date ....................
Typ ....................
Number ....................

Output power
P U Z
200W/100V/50Ω
400W/100V/25Ω
600W/100V/16,6Ω

(Noise generator) control
  INPUT 0 dB Pre Master
  INPUT 0 dB Post Master
  Microphone – linear input
  Linear input
  Recording
  Power output (40, 8, 50V, 70V, 100V)
  100 Hz filter
  Delay regulation
  Feedback eliminator regulation
  Zone regulation
  Compressor – expander control

Computer control:
  Connection with MWL Control program test
  Correctness of saving the settings
  Factory reset

Acoustic control:
  Microphone – linear input
  Linear input
  Phantom power
  Timbre regulation of microphone – linear input
  Equalizer timbre regulation
  Feedback eliminator regulation
  100 Hz filter
  Inactive microphone mute
  “LAST MIC” function
  “AUTO/MANUAL” function
  Priorities for particular microphone channels
  Noise and hum level control

General control:
  230V AC power
  Ground measurements of the device (according to VDE 0701 norm)
  Other connections and connectors control
  Optical control of the whole

Notices: ..............................................
..............................................
..............................................
..............................................
............................................
..............................................
..............................................
..............................................

Signature ..............................
GUARANTEE CARD NO.........................

Below mentioned, efficient and in a good condition device is given to the buyer on ...............according to the rules stated in articles no 577-582 of the Penal Code. Rduch Elektoakustyka gives the buyer a guarantee on the proper working device for 36 months.

Name of this device ..................................................................................................

Rduch Elekroakustyka company, located in Godów, 1 Maja Street 196, tel. (032) 4751803 to 06, fax. (032) 475 18 07, is called a producer in the further part of the contract.

I. OPERATING CONDITIONS

1. Plug – in power socket 230 V /50 Hz should have grounding or neutral grounding.
2. The device should be situated in a place with the temperature between +5ºC to +40ºC and of the humidity between 8 to 80%.
3. The device should not be a subject to vibration, should not be placed near the sources of strong electromagnetic fields and should be protected against the excessive sun exposure.

II. WARRANTY STATEMENTS

1. Warranty period starts from the date of selling the device by the producer.
2. In order to repair the device during the warranty period, it should be delivered to the company after the previous call or fax.
3. The producer provides 7 day repair period counted from the date of the adoption of the device to repair.
4. Requirement for a complaint is to provide the device in the original packing, with the guarantee card, to the place, where the device was bought.
5. In case of the damage of the device during the warranty period, that are caused because of the producer, or hidden defects in the material, the producer reserves the right to exchange the device into another one that is free of defects after having examined the causes of the device malfunction.

III. BEYOND THE WARRANTY

1. The warranty does not cover the mechanical damage or the damage caused by the user, or the damage caused by failure to comply with the universal principles of operation of the equipment and the requirements stated in point no 1.
2. Mechanical damages or other ones, not associated with the operation of the device, result in loss of warranty.
3. Tuning, regulations or the exchange of the fuses are not the subject to the warranty.
4. Producer, as the servicing part, reserves the rights to estimate and qualify the level of the damage.
5. In case of delivering the device in a good condition or the device that was not previously reported, the servicing costs, cleaning, testing and transport costs are paid by the person or the company that complain.
6. The guarantee card is invalid without the producer’ s signature, date or the company stamp.

................................................. .............................................................
Date                                              Stamp and signature

Warranty and post- warranty service

<table>
<thead>
<tr>
<th>Date</th>
<th>Notices</th>
<th>Stamp and serviceman signature</th>
</tr>
</thead>
<tbody>
<tr>
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