

KNX Multiroom amplifier

Art. no.: MR-AMP4.4
 MR-AMP4.8
 MR WR-AMP4.4
 MR WR-AMP4.8

Technical manual

Safety instructions

Electrical equipment must only be installed and assembled by qualified electricians.

Failure to comply with these instructions may result in damage to the device, fire or other hazards.

These instructions are a component part of the product and must remain with the end customer.

Structure of the device

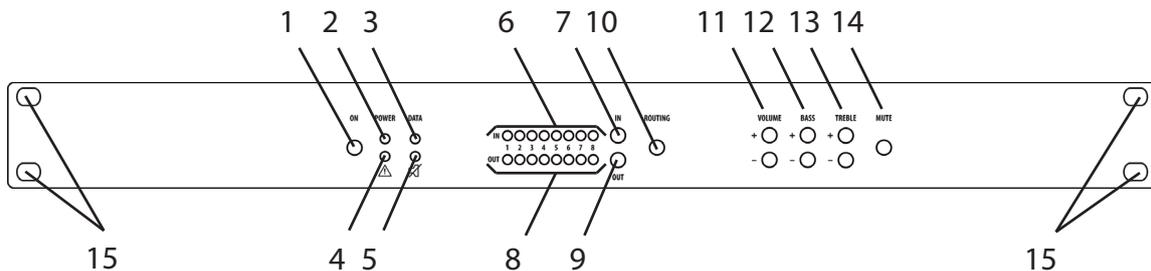


Fig.1.: Front view

- 1: On/Off button
- 2: Green LED, Power
- 3: Yellow LED, Data
- 4: Red LED, Error
- 5: Yellow LED, Zones silent
- 6: 8 blue LEDs, IN
- 7: IN button
- 8: 8 blue LEDs, OUT
- 9: OUT button
- 10: Routing
- 11: Volume +/-
- 12: Bass +/-
- 13: Treble +/-
- 14: Mute
- 15: Fastening, 19" rack

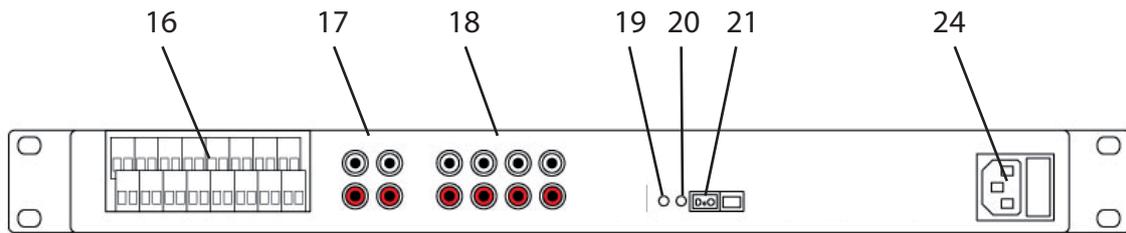


Fig.2.: Rear view MR-AMP4.x

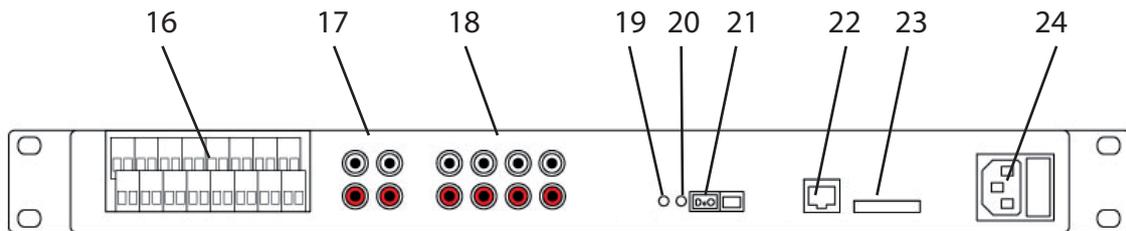


Fig.3.: Rear view MR WR-AMP4.x

- 16: Loudspeaker connection terminals
- 17: Audio OUT (LF)
- 18: Audio IN (LF)
- 19: Prog button KNX
- 20: Prog LED KNX
- 21: KNX connection
- 22: LAN (only MR WR-AMP4.x)
- 23: SD-Card (only MR WR-AMP4.x)
- 24: Power supply

Function

System information

This device is a product of the KNX system and conforms to the KNX directives. Detailed knowledge obtained through KNX training is a prerequisite for understanding.

The device function is software-dependent. Detailed information about software versions and the respective function scope, as well as the software itself can be found in the manufacturer's product database. The device is planned, installed and commissioned by means of KNX-certified software. The product database and the technical descriptions can be found on our website at all times.

Correct use

- Sound exposure of various building zones
- Fixed installation in interior areas
- For mounting in 19" rack systems IEC 60297

Product characteristics

- Operation via KNX or via buttons on the front of the device
- Audio matrix with integrated amplifier levels
- Independent sound exposure of 4/8 zones
- 4/8 loudspeaker outputs
- 2 Stereo outputs (LF signals)

- Expandable due to modular structure
- Integrated bus coupling
- Status indicator

MR-AMP 4.x

- 4 Stereo inputs (LF signals)

MR WR-AMP 4.x

- 3 Stereo inputs (LF signals)
- 1x LAN/SD-card
- Webradio
- MP3 player
- Web service

Operation on the device and settings

Switching the device on and off

The device is connected and ready for operation.

- Press the On button (1)
Green LED, Power illuminated
The device is switched on
- Press the On button (1)
Power LED is off
The device is in Standby mode

Assigning the input source of a zone

Select the input signal.

- Press the IN button (7) until the desired input has been selected.
The LED (6) of the selected input flashes.

Select the target zone.

- Press the OUT button (9) until the desired zone has been selected.
The LED (8) of the selected zone flashes.

Confirm the assignment of the input signal/zone.

- Press the Routing button (10).
The assignment is routed.

i Pressing the Routing button again releases the zone. The assignment is removed.

Setting the volume of the zone

- Select the zone by pressing the OUT button (9) until the LED (8) of the appropriate zone flashes.
- Use the VOLUME+ and VOLUME- (11) buttons to set the volume.
The volume is displayed using the IN LED row (6).

Setting the sound control of the zone (bass)

- Select the zone by pressing the OUT button (9) until the LED (8) of the appropriate zone flashes.
- Use the BASS+ and BASS- buttons (12) to set the bass.
The value is displayed using the IN LED row (6).

Setting the sound control of the zone (treble)

- Select the zone by pressing the OUT button, until the LED of the appropriate zone flashes.
- Use the TREBLE+ and TREBLE- buttons (13) to set the trebles.
The value is displayed using the IN LED row (6).

Muting all zones

- Press the Mute button (5).
The Status LED  (5) lights up.
All the zones are switched off.
- Pressing it again switches all the zones on again.
The Status LED  (5) is off.

Information for electrically-skilled persons

Installation and electrical connection



DANGER!

**Electric shock from touching live parts in the installation environment.
An electric shock can be fatal.**

Before working on the device, disconnect the power and cover live parts in the area!

Installing and connecting the device

The device is mounted in a 19" rack. A free SCHUKO® socket is required for mounting.

- Connect the bus cable.
 - Connect the LF inputs and loudspeaker outputs.
 - Connect the power supply cable.
- i The Programming button and LED and the interfaces are only accessible from the rear side of the device. If possible, load the physical address and application software into the device before final mounting.

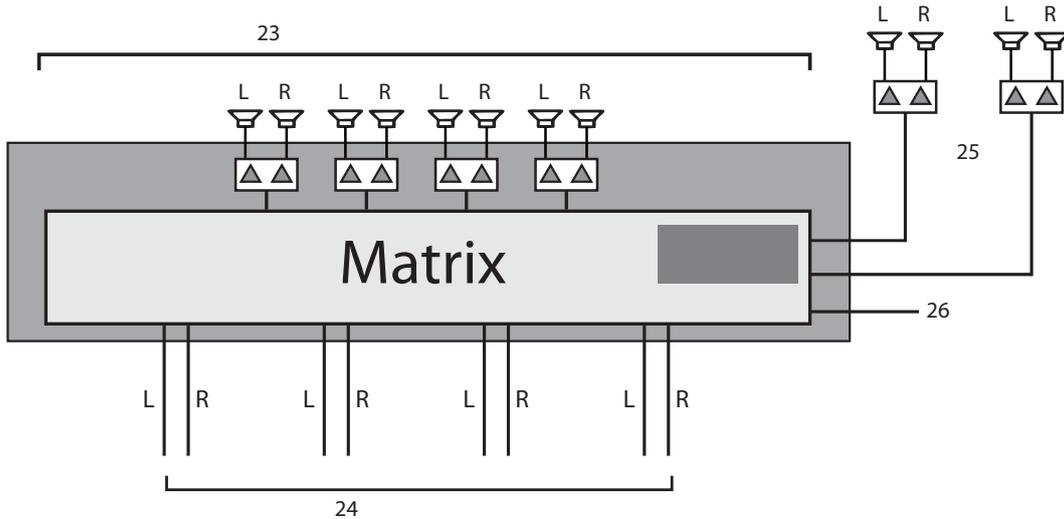


Fig.4.: Connection diagram, Multiroom amplifier 4.4

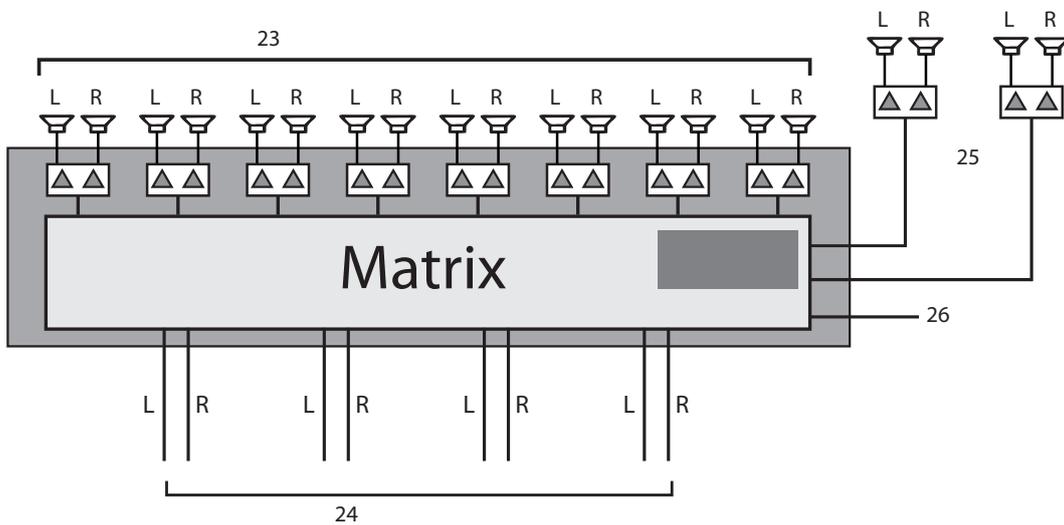


Fig.5.: Connection diagram, Multiroom amplifier 4.8

- 25: Loudspeaker outputs for zones 1-4/8
- 26: LF inputs 1-4
- 27: LF outputs LF1 for Zone1, LF2 for Zone2,
- 28: KNX connection

Connections

Loudspeaker connection

Only loudspeakers with the following properties may be connected to the Multiroom amplifier:

Load capacity: min. 30 W
 Impedance: 8 Ohms

The loudspeaker cables are connected using screw terminals. These screw terminals allow the connection of cables of up to 2.5 mm².

Audio outputs (LF)

In addition to the amplifier outputs, unamplified audio signals are output. Such signals can then be connected to external amplifiers. Two such audio outputs are available:

Audio signal of Zone 1 (Stereo)

Audio signal of Zone 2 (Stereo)

These LF signals are connected to the same KNX communications objects as the amplifier outputs.

Audio inputs (LF)

Audio outputs of construction-side players are connected via the 4 audio LF inputs (stereo cinch sockets).

These audio input signals are then available to all the integrated amplifier levels (up to 8 amplifiers).

KNX Port

Connection to the KNX bus system is made via a screw terminal.

LAN/SD (only MR WR-AMP 4.x)

For devices with LAN expansion card the LAN port (RJ45) and the SD card slot are located on here. Functions such as WEB radio, MP3 player and Web service are available then via browser.

Power supply

The power is supplied via a kettle coupling.

LED feedback

The front panel of the Multiroom amplifier has LEDs, which are grouped as follows:

Channel LEDs:

- 8 x LED Input
- 8 x LED Output

Status LEDs:

- 1 x Power
- 1 x Data
- 1 x Warning (Symbol "⚠")
- 1 x Mute (Symbol "Struck-through loudspeaker")

Function	POWER LED	Warning LED	Data LED	Mute LED	OUTPUT LEDs
Boot sequence completed	On	x	x	x	x
Overheat alarm	x	On	x	x	x
KNX data traffic	x	x	Flashing	x	x
Saving data	Flashing	x	x	x	x
Master Mute On	x	x	x	On	x
Master Mute Off	x	x	x	Off	x

Start-up

Loading the address and application software

- Switch on the mains voltage.
- Switch on the bus voltage.
- Assign the physical address and note it down on the device label.
- Start up the device with start-up software.
- Load the application software into the device.

i Programming is also possible without the mains voltage.

Start-up and operation MR WR-AMP4.x

General description

The LAN expansion card is equipped with a so-called web server.

This server offers the user a simple way to operate and set the system. For that purpose you connect by browser to the web server. Through this server concept the system stays platform independent.

The following browsers are recommended:

- Google Chrome
- Mozilla Firefox
- Safari
- Atomic

LAN in general

The LAN module MCO requires as well as every other network device an IP-address, to provide its functions in the local network.

When delivered, the device is preset to the „DHCP mode“. In most networks, this setting should be enough.

If needed, it could also be changed to “Manual IP address”.

IP address assignment (without DHCP)

The device in the „DHCP mode“ (dispatch configuration) will try automatically to obtain an IP-address from the local network. It is important for this process that the LAN cable is plugged in before the power cord is connected to the device. After the successful IP address assignment, you can access and configure the device via a web browser. Please start on your laptop or PC one of the recommended web browser and go to the following address:

jungamp

Some types of browsers / networks require that data as follows:

http://jungamp

Enter the setup page

After integration into the network the setup will be done by browser access.
Enter the following address:

jungamp/setup

- i Some types of browsers / networks require that data as follows:

http://jungamp/setup

IP address assignment (without DHCP)

If the device does not receive an IP address from the local network, it will start with a default IP address.

To then get a connection to the system, enter this default IP address in your browser.

Default IP address of the device (if no DHCP is available): 192.168.178.185

- i If the system is started without a connected network cable, it also accepts the before mentioned, default IP address.
- i To find the device on the network, your laptop / PC must be in the same IP number range.
If necessary, you need to change the IP address on your laptop / PC.
This is only when operating without DHCP.
An IP-address of the same number range for example would be 192.168.178.184

Webradio

The module “webradio” directly receives Internet radio and provides it to the audio zones. Operation is via a web interface (called WEB GUI) or via KNX data points. Using the web interface the user can set the so called radio URLs and the channel names.

A radio station can then be selected to play as follows:

- operation via the Web GUI
- - operation via KNX data point

The following formats are allowed as radio-URLs:

- mp3
- ogg
- m3u (from the m3u list the first radio stream is played)

MP3 Player

The module plays MP3 files from the built-in memory card. Scope of delivery includes a 16GB memory card, which is located in the SD-card slot. SD cards with capacity of up to 64GB can be used. The SD card must be formatted in FAT32 format.

The MP3 player can be controlled via KNX data points or via the Web GUI.

Information from the MP3 files (Titel, Album and artists) are transferred directly to the KNX bus.

KNX object description / General functions

This chapter describes the control of the Multiroom amplifier via the KNX communication objects.

Switching the amplifier board ON / OFF

Object Designation	Function	Data type
■ ↕ 1 Amplifier board ON/OFF	Switching	1,001 ON/OFF
■ ↕ 2 Amplifier board ON/OFF	Status	1,001 ON/OFF

The amplifier board can be switched on or off via communication object 1. Object 2 returns the status. Even after the amplifier board is switched off, telegrams can be received from the KNX Bus and executed.

It is wise to switch the amplifier board off when then Multiroom amplifier is not to be used for longer periods of time. (e.g.: night, holiday...).

Amplifier board temperature

Object Designation	Function	Data type
■ ↕ 3 Amplifier board temperature	Status	9,001 Temperature

The object transmits the temperature of the amplifier board to the KNX bus as a status. The appropriate telegram is always transmitted when the temperature has changed by at least 1 Kelvin.

Switching Master Mute ON / OFF

Object Designation	Function	Data type
■ ↕ 4 Master Mute ON/OFF	Switching	1,001 ON/OFF
■ ↕ 5 Master Mute ON/OFF	Status	1,001 ON/OFF

The Master Mute can be switched on or off via communication object 4. Object 2 returns the status. When Master Mute is set (value 1), all the amplifiers are muted. The value 0 resets the amplifiers to the status they had before muting.

It is wise to switch off the amplifiers via Master Mute when all the amplifier outputs are to be muted briefly (e.g.: muting on an incoming telephone call, ELA message...).

Overheat alarm

Object Designation	Function	Data type
■ ↕ 8 Overheat alarm	Status	1,002 Boolean

This object is transmitted with the value 1 when the system overheats. At the end of the alarm (temperature back in normal range), the value 0 is transmitted as the status. The Multiroom amplifier is switched off automatically. After the end of the alarm, the multiroom amplifier must be switched on again. It can either be switched on on the device itself or via the KNX bus.

KNX object description / Amplifier

Amplifier n: Input signal - stepped

Object	Designation	Function	Data type
31	Amplifier 1 Input signal, stepped	Step	1,007 Step
51	Amplifier 2 Input signal, stepped	Step	1,007 Step
71	Amplifier 3 Input signal, stepped	Step	1,007 Step
91	Amplifier 4 Input signal, stepped	Step	1,007 Step
111	Amplifier 5 Input signal, stepped	Step	1,007 Step
131	Amplifier 6 Input signal, stepped	Step	1,007 Step
151	Amplifier 7 Input signal, stepped	Step	1,007 Step
171	Amplifier 8 Input signal, stepped	Step	1,007 Step

The input signals for the amplifiers (audio zones) are selected via these communication objects. Four input signals are available. When the value 1 is sent to a communication object, the system switches to the next highest input number. Accordingly, the value 0 switches to the next lowest input number.

Amplifier n: Input signal - value

Object	Designation	Function	Data type
32	Amplifier 1 Input signal value	Value	5,010 counting pulses
52	Amplifier 2 Input signal value	Value	5,010 counting pulses
72	Amplifier 3 Input signal value	Value	5,010 counting pulses
92	Amplifier 4 Input signal value	Value	5,010 counting pulses
112	Amplifier 5 Input signal value	Value	5,010 counting pulses
132	Amplifier 6 Input signal value	Value	5,010 counting pulses
152	Amplifier 7 Input signal value	Value	5,010 counting pulses
172	Amplifier 8 Input signal value	Value	5,010 counting pulses

The input signals for the amplifiers (audio zones) are selected via these communication objects. Four input signals are available. Transmission of the..

- ..value 1 connects the amplifier n to audio input 1.
- ..value 2 connects the amplifier n to audio input 2.
- ..value 3 connects the amplifier n to audio input 3.
- ..value 4 connects the amplifier n to audio input 4.

The value 0 would lift routing.

Amplifier n: Input signal - status

Object	Designation	Function	Data type
33	Amplifier 1 Input signal status	Status	5,010 counting pulses
53	Amplifier 2 Input signal status	Status	5,010 counting pulses
73	Amplifier 3 Input signal status	Status	5,010 counting pulses
93	Amplifier 4 Input signal status	Status	5,010 counting pulses
113	Amplifier 5 Input signal status	Status	5,010 counting pulses

133	Amplifier 6 Input signal status	Status	5,010 counting pulses
153	Amplifier 7 Input signal status	Status	5,010 counting pulses
173	Amplifier 8 Input signal status	Status	5,010 counting pulses

The number of the currently selected audio input is returned via these communication objects.

Amplifier n: Switching Mute ON / OFF

Object	Designation	Function	Data type
34	Amplifier 1 Mute ON/OFF	Switching	1,001 ON/OFF
35	Amplifier 1 Mute ON/OFF	Status	1,001 ON/OFF
54	Amplifier 2 Mute ON/OFF	Switching	1,001 ON/OFF
55	Amplifier 2 Mute ON/OFF	Status	1,001 ON/OFF
74	Amplifier 3 Mute ON/OFF	Switching	1,001 ON/OFF
75	Amplifier 3 Mute ON/OFF	Status	1,001 ON/OFF
94	Amplifier 4 Mute ON/OFF	Switching	1,001 ON/OFF
95	Amplifier 4 Mute ON/OFF	Status	1,001 ON/OFF
114	Amplifier 5 Mute ON/OFF	Switching	1,001 ON/OFF
115	Amplifier 5 Mute ON/OFF	Status	1,001 ON/OFF
134	Amplifier 6 Mute ON/OFF	Switching	1,001 ON/OFF
135	Amplifier 6 Mute ON/OFF	Status	1,001 ON/OFF
154	Amplifier 7 Mute ON/OFF	Switching	1,001 ON/OFF
155	Amplifier 7 Mute ON/OFF	Status	1,001 ON/OFF
174	Amplifier 8 Mute ON/OFF	Switching	1,001 ON/OFF
175	Amplifier 8 Mute ON/OFF	Status	1,001 ON/OFF

The amplifier mute can be switched on or off via these communication objects. When Amplifier Mute is set (value 1), the appropriate amplifier is muted. The value 0 resets the amplifier to the status it had before muting.

The Master Mute (see above chapter) is always superior to the amplifier (zones) mute. If, therefore, the Master Mute is set, all the zones (amplifiers) are muted. However, the Master Mute does not overwrite the communication object of the mute in the individual amplifiers. If, therefore, the Master Mute is set to the value 0, then the data point for the zone defines whether the amplifier is muted or not.

Amplifier n: Setting volume – Relative

Object	Designation	Function	Data type
36	Amplifier 1 volume, relative	Dimming	3,007 Dimmer step
56	Amplifier 2 volume, relative	Dimming	3,007 Dimmer step
76	Amplifier 3 volume, relative	Dimming	3,007 Dimmer step
96	Amplifier 4 volume, relative	Dimming	3,007 Dimmer step
116	Amplifier 5 volume, relative	Dimming	3,007 Dimmer step
136	Amplifier 6 volume, relative	Dimming	3,007 Dimmer step

■ ↕ 156	Amplifier 7 volume, relative	Dimming	3,007 Dimmer step
■ ↕ 176	Amplifier 8 volume, relative	Dimming	3,007 Dimmer step

The amplifier volume can be controlled via these communication objects. The data point is intended for relative modification of the volume. Both the operating mode "with Stop telegram" and "without Stop telegram" are supported.

Amplifier n: Setting volume – Value

Object	Designation	Function	Data type
■ ↕ 37	Amplifier 1 volume value	Value	5,001 percent (0-100)
■ ↕ 57	Amplifier 2 input signal value	Value	5,001 percent (0-100)
■ ↕ 77	Amplifier 3 input signal value	Value	5,001 percent (0-100)
■ ↕ 97	Amplifier 4 input signal value	Value	5,001 percent (0-100)
■ ↕ 117	Amplifier 5 input signal value	Value	5,001 percent (0-100)
■ ↕ 137	Amplifier 6 input signal value	Value	5,001 percent (0-100)
■ ↕ 157	Amplifier 7 input signal value	Value	5,001 percent (0-100)
■ ↕ 177	Amplifier 8 input signal value	Value	5,001 percent (0-100)

The amplifier volume can be controlled via these communication objects. Using the data point, an amplifier can be set directly to a specific volume value. In this case, the Multiroom amplifier regulates the volume with a fixed audio ramp.

Amplifier n: Volume – Status

Object	Designation	Function	Data type
■ ↕ 33	Amplifier 1 volume status	Status	5,001 percent (0-100)
■ ↕ 53	Amplifier 2 volume status	Status	5,001 percent (0-100)
■ ↕ 73	Amplifier 3 volume status	Status	5,001 percent (0-100)
■ ↕ 93	Amplifier 4 volume status	Status	5,001 percent (0-100)
■ ↕ 113	Amplifier 5 volume status	Status	5,001 percent (0-100)
■ ↕ 133	Amplifier 6 volume status	Status	5,001 percent (0-100)
■ ↕ 153	Amplifier 7 volume status	Status	5,001 percent (0-100)
■ ↕ 173	Amplifier 8 volume status	Status	5,001 percent (0-100)

The Multiroom amplifier returns the volume value of the appropriate zone back via these communication objects.

KNX object description / Sound settings

Amplifier n: Trebles, setting - stepped

Object	Designation	Function	Data type
■ ↕ 39	Amplifier 1 Trebles, stepped	Step	1,007 Step
■ ↕ 59	Amplifier 2 Trebles, stepped	Step	1,007 Step
■ ↕ 79	Amplifier 3 Trebles, stepped	Step	1,007 Step
■ ↕ 99	Amplifier 4 Trebles, stepped	Step	1,007 Step

119	Amplifier 5 Trebles, stepped	Step	1,007 Step
139	Amplifier 6 Trebles, stepped	Step	1,007 Step
159	Amplifier 7 Trebles, stepped	Step	1,007 Step
179	Amplifier 8 Trebles, stepped	Step	1,007 Step

The amplifier treble setting can be controlled via these communication objects. The data point is intended for stepped modification of the trebles. When the value 1 is sent to a communication object, the system switches to the next highest value. Accordingly, the value 0 switches to the next lowest value.

Amplifier n: Trebles, setting - Value

Object Designation	Function	Data type
40 Amplifier 1 Trebles value	Value	5,001 percent (0-100)
60 Amplifier 2 Trebles value	Value	5,001 percent (0-100)
80 Amplifier 3 Trebles value	Value	5,001 percent (0-100)
100 Amplifier 4 Trebles value	Value	5,001 percent (0-100)
120 Amplifier 5 Trebles value	Value	5,001 percent (0-100)
140 Amplifier 6 Trebles value	Value	5,001 percent (0-100)
160 Amplifier 7 Trebles value	Value	5,001 percent (0-100)
180 Amplifier 8 Trebles value	Value	5,001 percent (0-100)

The amplifier treble setting can be controlled via these communication objects. Using the data point, an amplifier can be set directly to a specific value.

Amplifier n: Treble status

Object Designation	Function	Data type
41 Amplifier 1 Treble status	Status	5,001 percent (0-100)
61 Amplifier 2 Treble status	Status	5,001 percent (0-100)
81 Amplifier 3 Treble status	Status	5,001 percent (0-100)
101 Amplifier 4 Treble status	Status	5,001 percent (0-100)
121 Amplifier 5 Treble status	Status	5,001 percent (0-100)
141 Amplifier 6 Treble status	Status	5,001 percent (0-100)
161 Amplifier 7 Treble status	Status	5,001 percent (0-100)
181 Amplifier 8 Treble status	Status	5,001 percent (0-100)

The device sends the treble setting status value back to the appropriate zone using these communication objects.

Amplifier n: Middles, setting - stepped

Object Designation	Function	Data type
42 Amplifier 1 Middles, stepped	Step	1,007 Step
62 Amplifier 2 Middles, stepped	Step	1,007 Step
82 Amplifier 3 Middles, stepped	Step	1,007 Step
102 Amplifier 4 Middles, stepped	Step	1,007 Step
122 Amplifier 5 Middles, stepped	Step	1,007 Step

142	Amplifier 6 Middles, stepped	Step	1,007 Step
162	Amplifier 7 Middles, stepped	Step	1,007 Step
182	Amplifier 8 Middles, stepped	Step	1,007 Step

The middle setting can be controlled via these communication objects. The data point is intended for stepped modification of the middles. When the value 1 is sent to a communication object, the system switches to the next highest value. Accordingly, the value 0 switches to the next lowest value.

Amplifier n: Middles, setting - Value

Object Designation	Function	Data type
43 Amplifier 1 Middles value	Value	5,001 percent (0-100)
63 Amplifier 2 Middles value	Value	5,001 percent (0-100)
83 Amplifier 3 Middles value	Value	5,001 percent (0-100)
103 Amplifier 4 Middles value	Value	5,001 percent (0-100)
123 Amplifier 5 Middles value	Value	5,001 percent (0-100)
143 Amplifier 6 Middles value	Value	5,001 percent (0-100)
163 Amplifier 7 Middles value	Value	5,001 percent (0-100)
183 Amplifier 8 Middles value	Value	5,001 percent (0-100)

The middle setting can be controlled via these communication objects. Using the data point, an amplifier can be set directly to a specific value.

Amplifier n: Middle status

Object Designation	Function	Data type
44 Amplifier 1 Middles status	Status	5,001 percent (0-100)
64 Amplifier 2 Middles status	Status	5,001 percent (0-100)
84 Amplifier 3 Middles status	Status	5,001 percent (0-100)
104 Amplifier 4 Middles status	Status	5,001 percent (0-100)
124 Amplifier 5 Middles status	Status	5,001 percent (0-100)
144 Amplifier 6 Middles status	Status	5,001 percent (0-100)
164 Amplifier 7 Middles status	Status	5,001 percent (0-100)
184 Amplifier 8 Middles status	Status	5,001 percent (0-100)

The device sends the middle setting status value back to the appropriate zone using these communication objects.

Amplifier n: Basses, setting - stepped

Object Designation	Function	Data type
45 Amplifier 1 Basses, stepped	Step	1,007 Step
65 Amplifier 2 Basses, stepped	Step	1,007 Step

85	Amplifier 3 Basses, stepped	Step	1,007 Step
105	Amplifier 4 Basses, stepped	Step	1,007 Step
125	Amplifier 5 Basses, stepped	Step	1,007 Step
145	Amplifier 6 Basses, stepped	Step	1,007 Step
165	Amplifier 7 Basses, stepped	Step	1,007 Step
185	Amplifier 8 Basses, stepped	Step	1,007 Step

The bass setting can be controlled via these communication objects. The data point is intended for stepped modification of the basses. When the value 1 is sent to a communication object, the system switches to the next highest value. Accordingly, the value 0 switches to the next lowest value.

Amplifier n: Basses, setting - Value

Object Designation	Function	Data type
46 Amplifier 1 Basses value	Value	5,001 percent (0-100)
66 Amplifier 2 Basses value	Value	5,001 percent (0-100)
86 Amplifier 3 Basses value	Value	5,001 percent (0-100)
106 Amplifier 4 Basses value	Value	5,001 percent (0-100)
126 Amplifier 5 Basses value	Value	5,001 percent (0-100)
146 Amplifier 6 Basses value	Value	5,001 percent (0-100)
166 Amplifier 7 Basses value	Value	5,001 percent (0-100)
186 Amplifier 8 Basses value	Value	5,001 percent (0-100)

The bass setting can be controlled via these communication objects. Using the data point, an amplifier can be set directly to a specific value.

Amplifier n: Basses status

Object Designation	Function	Data type
47 Amplifier 1 Basses status	Status	5,001 percent (0-100)
67 Amplifier 2 Basses status	Status	5,001 percent (0-100)
87 Amplifier 3 Basses status	Status	5,001 percent (0-100)
107 Amplifier 4 Basses status	Status	5,001 percent (0-100)
127 Amplifier 5 Basses status	Status	5,001 percent (0-100)
147 Amplifier 6 Basses status	Status	5,001 percent (0-100)
167 Amplifier 7 Basses status	Status	5,001 percent (0-100)
187 Amplifier 8 Basses status	Status	5,001 percent (0-100)

The device sends the bass setting status value back to the appropriate zone using these communication objects.

KNX object description / Input amplification

Explanation

Any number of audio sources can be connected to the audio inputs of the device. Such audio sources must hand over their signal as an analogue LF signal (normally via cinch socket).

As various audio sources may supply output levels of different strengths, appropriate compensation can take place on the device. For this, the 4 inputs can be set independently of one another. This setting is termed input amplification. In the as-delivered state, a medium input amplification is assigned to all the inputs. This presetting can be changed as necessary using the following communication objects. The settings described in this chapter are intended for first start-up. Normally, the input sensitivity of an input need not be changed in later system operation.

Please note that a high input amplification can lead to distortion of the music signal.

Audio input n: Setting the input amplification - Stepped

Object Designation	Function	Data type
191 Input 1 Input amplification, stepped	Step	1,007 Step
194 Input 2 Input amplification, stepped	Step	1,007 Step
197 Input 3 Input amplification, stepped	Step	1,007 Step
200 Input 4 Input amplification, stepped	Step	1,007 Step

The input amplification of the appropriate audio input can be controlled via these communication objects. The data point is intended for stepped modification of the input amplification. When the value 1 is sent to a communication object, the system switches to the next highest value. Accordingly, the value 0 switches to the next lowest value.

Audio input n: Setting the input amplification - Value

Object Designation	Function	Data type
192 Input 1 Input amplification, value	Value	5,001 percent (0-100)
195 Input 2 Input amplification, value	Value	5,001 percent (0-100)
198 Input 3 Input amplification, value	Value	5,001 percent (0-100)
201 Input 4 Input amplification, value	Value	5,001 percent (0-100)

The input amplification of the appropriate audio input can be controlled via these communication objects. Using the data point, the input can be set directly to a specific input amplification.

Audio input n: Input amplification - Status

Object Designation	Function	Data type
193 Input 1 Input amplification, status	Status	5,001 percent (0-100)
196 Input 2 Input amplification, status	Status	5,001 percent (0-100)
199 Input 3 Input amplification, status	Status	5,001 percent (0-100)
202 Input 4 Input amplification, status	Status	5,001 percent (0-100)

The device sends the status value of the input amplification of the appropriate audio input back via these communication objects.

KNX object description / Saving/opening settings

Explanation

In the as-delivered state, the device is already assigned with a default sound setting. These set-

tings are suitable for most requirements.

If necessary, the sound settings can be adapted to construction-side conditions using the named KNX communication objects.

Such adaptations can be saved permanently via an additional data point. This ensures that, after voltage returns, the device works with the adapted sound settings.

The data point "Reset" allows restoration of the factory sound settings.

In order to save these permanently to the device, the above-mentioned data point can be used to save sound settings.

During the saving operation (approx. 5 seconds), the device does not react to bus telegrams.

Sound settings: Saving

Object Designation	Function	Data type
■ ↕ 10 Save sound settings Trigger	Trigger	1,017 (0-1)

The sound settings can be saved permanently using these communication objects.

Sound settings: Reset

Object Designation	Function	Data type
■ ↕ 11 Sound settings reset Trigger	Trigger	1,017 (0-1)

The default sound settings can be opened using these communication objects.

KNX object description / LAN extension (MCO) (only MR WR-AMP 4.x)

Explanation

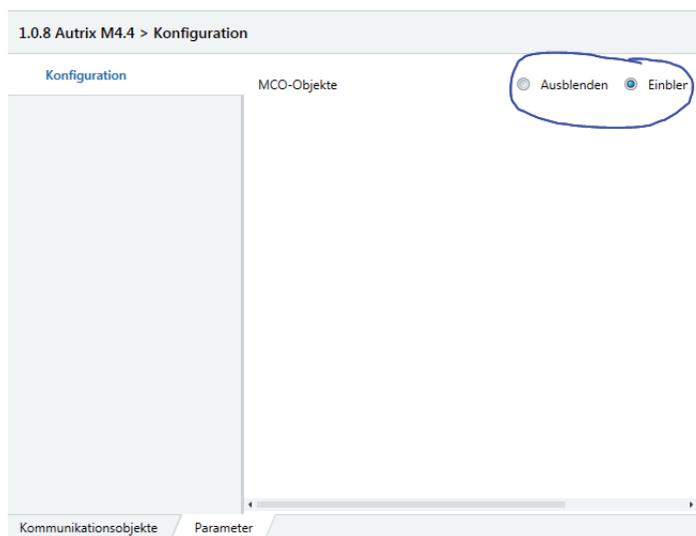
The JUNG MR WR-AMP 4.x will be delivered with a LAN expansion card. This expansion card is permanently installed in the device. For equipment already delivered without an expansion card, there is the possibility of an update. For this, get in contact with the JUNG service center.

The LAN card expands the device to the following functional units:

- Webradio receiver
- MP3 Player (internal memory card)
- WEB controlling (for example via Smartphone)

- i This extension will internally occupy input 4.
So input 4 will no longer be available externally.

To be able to use the MCO relevant data points, the parameter „MCO objects“ in the input field „Parameter“ must be set to „fade in“.



MCO-ID3 tag info (metadata) part 1

Object Designation	Function	Data type
23 Meta data /ID3 tag information	Textual information	16.001

Via these communication objects the device sends actual informations to the KNX-Bus. These are:

- 1) in webradio mode: text information sent from the internet radio stations.
- 2) in MP3 mode: text information contained in the currently playing MP3 file.

Info: This object displays during the switching of a radio station or a folder, also the name of the radio station or the name of the folder. Thus, this data point would be best described as “mini-visualization” suitable, if no other visualization objects are available.

MCO-ID3 tag info (metadata) part 2

Object Designation	Function	Data type
■ 24 Meta data /ID3 tag information	Textual information	16.001

Via these communication objects the device sends actual informations to the KNX-Bus. This object is only active, if a long text is to be transmitted.

Example 1: The textual information „best music“ should be transmitted. In this case the complete text would be transmitted via the data point 23 (Part 1). The data point 24 (Part 2) would then remain empty.

Part 1 – data point 23: „best music“

Part 2 – data point 24: „ “

Example 2: The textual information „best music from JUNG“ should be transmitted. In this case the first text part (the first 14 text signs) would be transmitted via the data point 23 (Part 1). The remaining text would additionally appear in the data point 24 (Part 2)

Part 1 – data point 23: „best music“

Part 2 – data point 24: „from JUNG“

MCO-radio channel / folder names

Object Designation	Function	Data type
■ 25 Meta information	Textual information	16.001

Via these communication objects the device sends actual informations to the KNX-Bus.

1) In radio mode: the station name, which was specified by the user.

2) in MP3 mode: the name of the folder, in which the current played MP3 data is located

MCO-radio stations - stepwise

Object Designation	Function	Data type
■ 213 Radio stations stepwise	Switch	1.001

Via this communication object, the radio station can be switched. For this purpose the object with the value 1 or the value 0 can be sent to the device.

1) Sending with value 1: The device switches to the next radio channel. For example, if the radio was set on channel 4, now the radio channel 5 is set.
Info: If the radio channel 16 is set and value 1 is sent, the device turns to the radio channel 1.

2) Sending with value 0: The device switches back to the last previous radio channel. For example, if the radio channel 4 was set, then it will turn to the radio channel 3.
Info: If the radio channel 1 is set and value 0 is sent, the device turns to the radio channel 16.

MCO-radio stations - value

Object Designation	Function	Data type
214 Radio stations value	Value	5.010

Via this communication object, the radio station can be switched. Therefore the object with the value 0 till 16 can be sent. With this, the 16 radio channels can be selected directly.

MCO-folder (SD-card) - stepwise

Object Designation	Function	Data type
215 Folder stepwise	Step	1.007

Via this communication object, the folder (it contains the MP3 files) can be switched. For this purpose, the object with the value 1 or the value 0 can be sent to the device.

- 1) Sending with value 1: The device switches to the next folder. For example, if folder 4 was set, now folder 5 is set.
Info: If the folder with the highest index number is set and value 1 is sent, the device turns to folder 0.
- 2) Sending with value 0: The device switches back to the last previous folder. For example, if folder 4 was set, then it will turn to folder 3.
Info: If folder 0 is set and the value 0 is sent, the device turns to the folder with the highest index number (last folder of the list).

The folder name of the currently selected folder is sent to the KNX Bus via the communication objects 23 and 25. The selection of a folder still does not change any music contents. The selection of a folder is more the preparation, to then select a track within the folder.

MCO-radio stations - value

Object Designation	Function	Data type
216 Folder value	Value	5.010

Via this communication object, the folder, which contains the MP3 data, can be switched. The value is zero-based. This means, that the first folder of the list with the value 0 is selected.

MCO-track (SD-card) - stepwise

Object Designation	Function	Data type
215 Track stepwise	Step	1.007

Via this communication object the track (MP3 data) can be switched. Therefore the object with the value 1 or value 0 can be sent to the device.

- 1) Sending with value 1: The device switches to the next track. For example, if track 4 was set, now track 5 is set.
Info: If the track with the highest index number is set and value 1 is sent, the device turns to track 0.

- 2) Sending with value 0: The device switches back to the last previous track. For example, if track 4 was set, then it will turn to track 3.
 Info: If track 0 is set and the value 0 is sent, the device turns to the track with the highest index number (last track of the list).

MCO-track - value

Object Designation	Function	Data type
■ 218 Track value	Value	5.010

Via this communication object the track (containing MP3 datas) can be switched. The value is zero-based. This means, that the first track of the list with the value 0 is selected. The selection of a track will only have effect, if

- 1).....the device is in MP3 playing mode
- 2).....the device is not in MP3 playing mode, but a folder index has been selected before.

For example „Device is in radio mode“:

Before a track can be selected, the folder, which contains the desired track, must be selected first. Note, that the selection of a folder is only active for a time period of approximately 5 seconds. After this time the device automatically switches back to the normal radio mode. Therefore, a track selection would be ineffective.

MCO-start / stop

Object Designation	Function	Data type
■ 219 START/STOP	Start / Stop	1.010

Via this communication object the currently played track (MP3 data) or radio station can be stopped. Therefor the object with the value 1 or the value 0 can be sent to the device.

- 1) Sending with Value 1: The device starts the first track of the last played folder.
- 2) Sending with value 0: The device stops the MP3 Player or the Webradio.

MCO-start title (once)

Object Designation	Function	Data type
■ 221 Playmode "Title once"	Start / Stop	1.010

Via this communication object the playmode for the MP3 player can be set to „title once“. If now a MP3 file is selected for the replay, the file will only be played once.

- 1) Sending with value 1: The device sets the playmode of the MP3 player to „titel once“
- 2) Sending with value 0: The device sets the playmode of the MP3 player to „folder once“ (default).

MCO-start title (once) - status

Object Designation	Function	Data type
■ ↕ 222 Playmode "Title once"	Status	1.010

This communication object shows the status of the actual playmode.

MCO-start title (repeat)

Object Designation	Function	Data type
■ ↕ 223 Playmode "Title repeat"	Start / Stop	1.010

Via this communication object the playmode of the MP3 player can be set to „title repeat“. If now a MP3 data is selected for playback, the file will be repeated permanently.

- 1) Sending with value 1: The device sets the playmode of the MP3 player to „titel repeat“
- 2) Sending with value 2: The device sets the playmode of the MP3 player to „folder once“ (default).

MCO-start title (repeat) - status

Object Designation	Function	Data type
■ ↕ 224 Playmode "Title repeat"	Status	1.010

This communication object shows the status of the actual playmode.

MCO-start folder (once)

Object Designation	Function	Data type
■ ↕ 225 Playmode "Folder once"	Start / Stop	1.010

Via this communication object the playmode of the MP3 player can be set to „folder once“. If now a MP3 file is selected for playback, the folder, in which the file is located, will be played once. So the player stops the replay, after the last file of the folder is played.

- 1) Sending with value 1: The device sets the playmode of the MP3 player to „folder once“.
- 2) Sending with value 0: The device sets the playmode of the MP3 player to „folder once“ (default).

MCO-start folder (once) - status

Object Designation	Function	Data type
■ ↕ 226 Playmode "Folder once"	Status	1.010

This communication object shows the status of the actual playmode.

MCO-start folder (repeat)

Object Designation	Function	Data type
■ ↕ 227 Playmode "Folder repeat"	Start / Stop	1.010

Via this communication object the playmode of the MP3 player can be set to „folder once“. If now a MP3 file is selected for playback, the folder, in which the file is located, will be played once. So the player stops the replay, after the last file of the folder is played.

- 1) Sending with value 1: The device sets the playmode of the MP3 player to „folder repeat“.
- 2) Sending with value 0: The device sets the playmode of the MP3 player to „folder once“ (default).

MCO-start folder (repeat) - status

Object Designation	Function	Data type
■ ↕ 228 Playmode "Folder repeat"	Status	1.010

This communication object shows the status of the actual playmode.

Web interface - operating (only MR WR-AMP 4.X)

General description

The LAN expansion card is equipped with a so-called web server. This server offers the user a simple way to operate and set the system. For that purpose you connect by browser to the web server. Through this server concept the system stays platform independent.

In the following the operating and configuration interfaces are presented and described. About the general structure of the surfaces see the following note:

The heading line

In the top of the screen is the header area, where elements are integrated for the navigation.



Image: header area

Zone select

The selection for each of the 8 zones will be done here. Inputs in the depending working area will work in the selected zone.

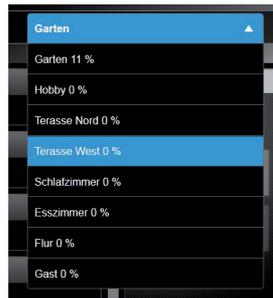


Image: Expanded zone selection“

Power ON/OFF

Switches to standby.



Image: „Power OFF“

The footer area

In the bottom of the screen is the footer area. Here are elements located for the notification of different system states and media information.



Image: footer area

The button „back“ switches back to the previous page.



Image: “Back”

The navigation bar will switch to the main menu items.



Image: navigation bar

The mute icon shows the status of the selected zone and toggles the mute mode.



Image: zone mute

Website: intro (main menue)

This page is displayed as an intro page. Here you select the function, which you want to use next.



Image: intro page

The elements of the intro page:

- Header area:
 - Zone selection
 - Power ON/OFF
- Working area (left side):
 - select Webradio
 - select MP3 player:
 - select analog inputs 1-3
- Working area (right side):
 - Media container
 - Player operation (depends on menue selection)
 - Volume control

Website: Webradio

This menu shows the available radio stations on the left side. Right sided media container shows the station name and media informations received with the stream.

The drive function buttons will swap to the next station for- and backward. The webradio icon is highlighted in the navigation area. Back button will lead back to the intro page.



Image: Web radio menue

Website: MP3 player

This menu shows the available folders on the left side. Music folders are all folders on the SD card. Selecting one folder will show the available tracks. Right sided media container shows the cover image and MP3 ID media informations.

The drive function buttons will swap to the next track for- and backward. The MP3 player icon is highlighted in the navigation area. Back button will lead back to the intro page.



Image: MP3 player

Setup menu

Enter setup

After interaction into the network the JUNG MR WR-AMP 4.X can be accessed and configured by browser. Enter the setup by:

jungamp/setup

i Hint: Some browsers needs the entry as follows:

http://jungamp/setup

Setup web radio stations

In this menu the desired radio stations will be defined. There are 16 memory locations available. There are ever entered space two information:

- 1) Name of the radio station: This name appears on the Web user interface and is also sent to the KNX as 14Byte telegram.
- 2) URL of the radio station: This web address appears later on no visible surface. The URL is needed to receive the radio stream from the Internet.

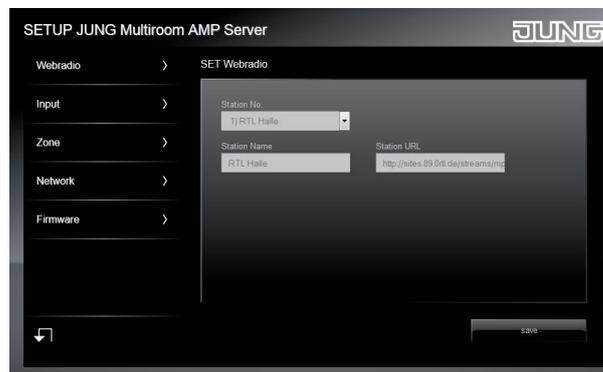


Image: Setup web radio

Setup input names

In this menu the names of the analog inputs will be defined. They will be displayed on the user interface.

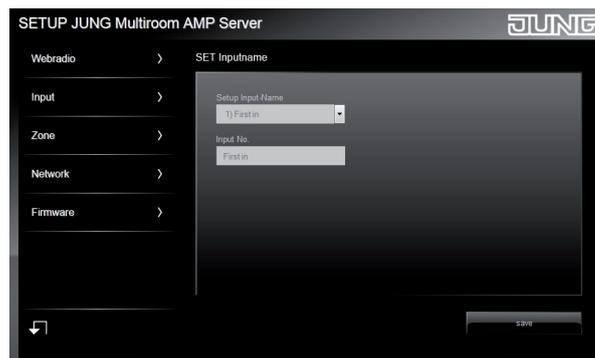


Image: Setup input names

Setup zones

the names of the zones will be defined here. They will be displayed on the user interface.

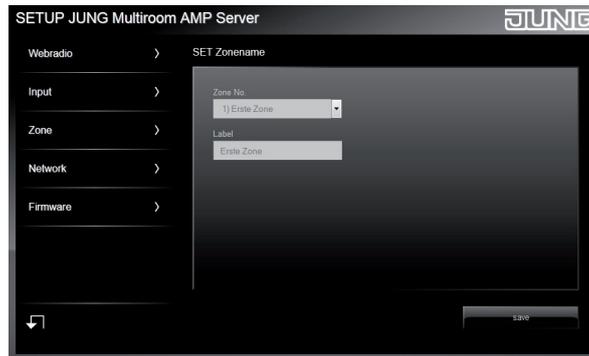


Image: Setup zones

Setup network

Here the network settings are stored. With these settings the device will enter the connected LAN.

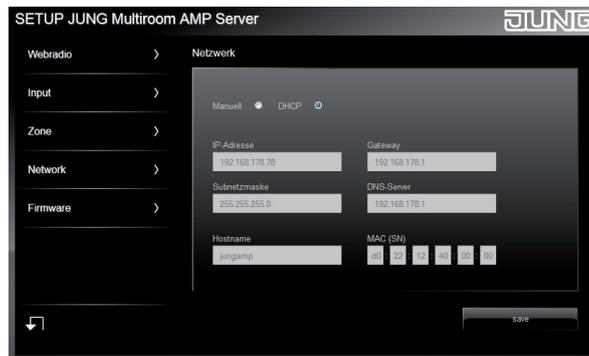


Image: Setup network

Setup network - entries

- IP / DHCP: This declares how the JUNG MR WR-AMP 4.X will get its IP address. Select “DHCP” for automatic address assignment. If this fails the device will boot on a default IP address.
- IP / Static: Mark “Manuell” to assign a static IP address. Below you can then specify the desired static IP address.
- IP-Adresse: Fill in the desired static IP address. This is only relevant as the static IP option is selected.
- Subnetzmaske: Fill in the desired IP subnet mask. This is only relevant as the static IP option is selected.
- Gateway: Fill in the applicable IP gateways address. This is only relevant as the static IP option is selected.
- DNS: Fill in the desired DNS address. This is only relevant as the static IP option is selected.

- Hostname: Fill in the desired host name. By this name the JUNG MR WR-AMP 4.X can be called from then.
- MAC(SN): Shows the MAC adress of the device.

i Hint: When changing IP settings this may cause that the device can't be entered by hostname. In this case you must enter the IP adress in the adress bar of the browser. To reenter the device by hostname adress disconnect the power supply for a few seconds. In general is ist advised to reboot the device after changes in the network settings.

Setup firmware update

With this menu the firmware of the JUNG MR WR-AMP 4.X device can be updated. Use the button „select...“ to select the firmware file. The selected file will be displayed in the text field „Selected“. To update with this firmware use the „upload“ button.

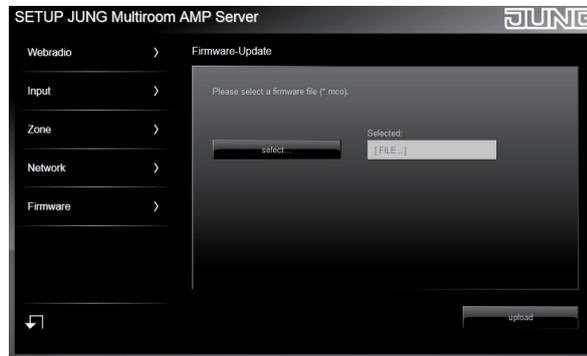


Image: Setup firmware update

Appendix

Technical data

Articles	MR-AMP4.4 MR WR-AMP 4.4	MR-AMP4.8 MR WR-AMP 4.8
External power supply		
Rate voltage	AC 110...230 V~	AC 110...230 V~
Rated frequency	50/60 Hz	50/60 Hz
Fuse		
- Rear side of the device	T1.0A	T2.0A
- Top side of the device	T10A	T10A
Connection	Kettle coupling IEC 60320-C13	Kettle coupling IEC 60320-C13
Power draw		
110 V	approx. 181 W	approx. 397 W
230 V	approx. 177 W	approx. 391 W
The power draw relates to medium to high volumes in all 8 stereo zones.		
The power draw may increase in the case of particularly bass-heavy audio contents and very loud volumes.		
Standby 110 V	approx. 5 W	approx. 5.5 W
Standby 230 V	approx. 6 W	approx. 6 W
Ambient temperature	0 ... 45 °C	0 ... 45 °C
Number of audio inputs (LF)	4 (3, with MR WR-AMP 4.4)	4 (3, with MR WR-AMP 4.8)
Number of audio outputs (LF)	2	2
LF connection type	Cinch sockets	Cinch sockets
Number of loudspeaker outputs	4	8
Loudspeaker		
Load capacity:	min. 30 W	min. 30 W
Impedance:	8 Ohms	8 Ohms
Loudspeaker connection type	Screw terminal	Screw terminal
Fine-wire without wire end sleeve		0.75...2.5 mm ² 0.75...2.5 mm ²
KNX		
KNX Medium	TP1	TP1
Start-up mode	S-Mode	S-Mode
KNX rated voltage	DC 21 ... 32 V SELV	DC 21 ... 32 V SELV
Bus connection	Hartmann/PTR BU 9502	Hartmann/PTR BU 9502
KNX current consumption	max. 9 mA	max. 9 mA
Dimensions HxWxD	483 x 44.5 x 230 mm	483 x 44.5 x 230 mm
Weight	3.0 kg	3.3 kg

i Network socket RJ45 and web interface only in the versions MR WR-AMP 4.X.

Help in case of problems

Device switches off and can only be switched back on after a long time. LED  is lit up.

Electronic overtemperature protection has tripped.

Reduce the connected load.

Check the installation situation.

Warranty

We reserve the right to modify technical and formal characteristics of the product insofar as this supports technical progress.

Our products are under guarantee within the scope of the statutory provisions.

Please send the device, post-paid, along with a description of the error, to our Service Centre.

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