X*AP RM1

Universal Remote Control Panel

Manual

Hardware features

• **1RU remote panel**	detachable panel with case
• **Rotary encoder (turn&push)**	high resolution encoder for parameter settings, volume control etc. with push function, e.g. for confirmation of settings
• **8 Function Keys**	F-Keys - function assigned by the application Hot-Keys – function assigned by the user
• **MENU** button	for menu control
• **ESC** button	for menu navigation
• **PAGE** button	may swap displays
• **METER** control button	selection of the display of the LED bar graphs
• **BYPASS** button	initiates a bypass function of the attached base unit
• **OLED** display	graphical display
• **8 LED** bar graphs	16 segment multicolor bar graph display
• **Status LED**	shows the device summary status provided by the attached device
• **Power 1/2 LED**	status of the two power supplies of a attached base unit
• **BYPASS LED**	shows the active bypass status of the attached base unit
• **RJ45** connector	RJ45 rear connector for Ethernet network connection
• **USB-B** connector	built in USB < > serial adapter to access the service port

Software features

• **Web server**	http connection with the device for setup and firmware update
• **EmBER plus protocol**	communication layer for connection with a base unit or 3rd party applications

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Introduction

At the heart of the **X*AP RM1** works a high power 32bit embedded micro controller.

It runs a web server to initiate firmware updates.

The communication protocol is EmBER+. So any device that speaks this protocol may easily be controlled by the **X*AP RM1**.

The **X*AP RM1** remote panel functions are for now limited to operating needs rather than setting up a device.

Beside the pre-configured key functions like loudness measurement or speaker control, the 8 Hot-Keys may be programmed by the administrator as part of the **D*AP** events system.

Hardware concept

The **X*AP RM1** remote panel is a stand alone unit. In the past it was possible to mount it in front of some 1RU devices but this is no longer the case.

The **X*AP RM1** remote panel is powered by an external 5V wall power supply. The **X*AP RM1** comes with a cord grip. One can insert one or two plastic snap-in posts and secure the cable:

Important Note! There are older versions of the **X*AP RM1** around which don't have a 5V input.
These models must be powered via POE (power over Ethernet) either from a switch that has POE ports or from a POE wall power supply.

Control concept

The communication between the **X*AP RM$_1$** remote panel, devices, setup and operating tools, is based on **TCP/IP over Ethernet**. The **X*AP RM$_1$** speaks natively **EmBER plus** protocol.

The setup **GUI** utilizes web technology. The functionality of the web GUI is developed for Mozilla Firefox > 10 and Google Chrome > 15.

The **X*AP RM$_1$** knows little about the devices it is able to control but after connecting with a specific device it downloads a description in XML format and builds up the dedicated menu structure.

Getting started – IP setup in general

The **X*AP RM$_1$** remote panel as well as the remote unit (e.g. D*AP4, D*AP8, and their derivates like the V*AP or M*AP) must have unique IP addresses and the same network mask in order to "talk" to each other as well as to other devices / PCs within a Local Area Network segment. If the **X*AP RM1** sits in an other network segment a suitable gateway address is mandatory. The **X*AP RM1** remote panel may (for now) control up to 4 units, one at a time.

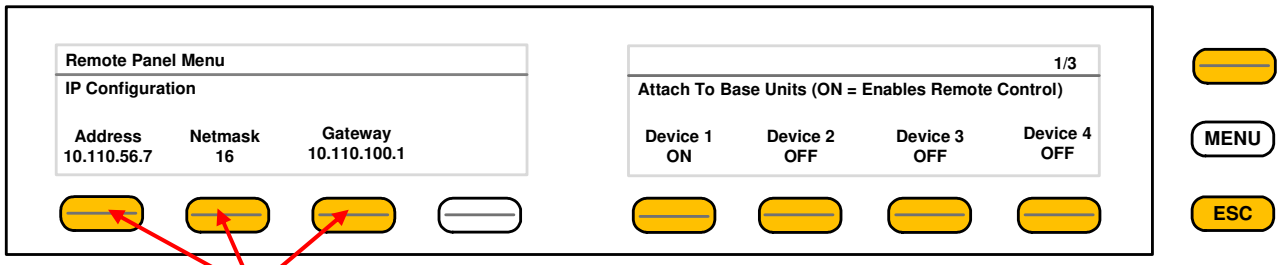
The process of installing a **X*AP RM$_1$** into an **IP network** is as follows:

1. Ask the system service people for a unique IP addresses of the network, the netmask and the gateway address.
2. Assign the **X*AP RM$_1$** remote panel an IP address, the netmask and, if necessary, a gateway address.
4. Attach a device to the **X*AP RM$_1$** remote panel.

Important Note: If you are not familiar with setting up devices for IP communication, we highly recommend consulting your system service or IT department to assist you.

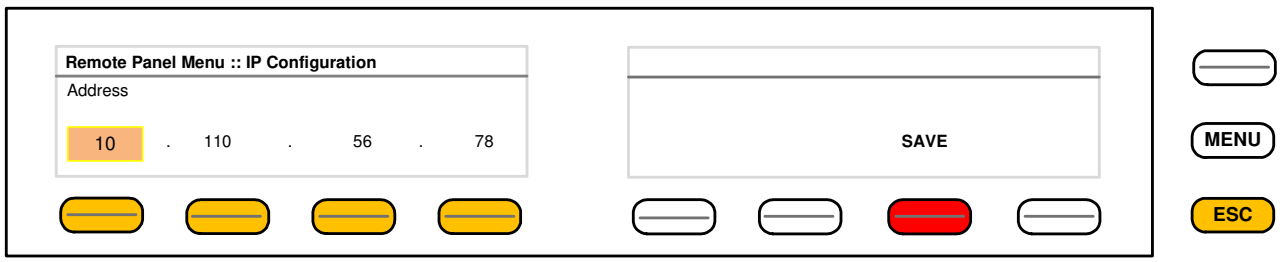
Getting started – IP setup of the **X*AP RM$_1$** remote panel

By pressing the **<MENU>** button from the main display, you will enter the **X*AP RM$_1$** **"Remote Panel Menu"** page 1/3 to set up the IP configuration of the **X*AP RM$_1$** remote panel and to attach up to four devices to this remote panel:



You may press the respective **<F-Keys>** and a separate window will appear for comfortable set-up of the respective part of the IP configuration.

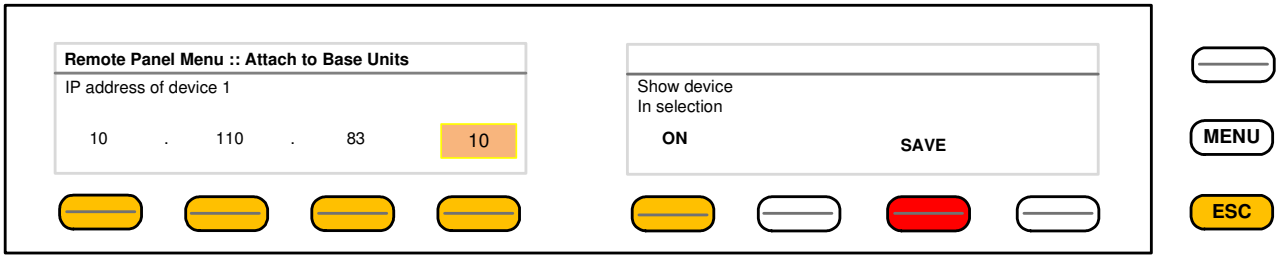
Here is an example for the IP address field (first F-Key):



You must press one of the respective **<F-Keys>** and that field will be highlighted as well as the Rotary Encoder. Now you can change the value by turning the knob. When the setting of all fields is finished, you must press **<SAVE>**. The display will return to the initial "**Remote panel Menu"** page 1/3.

Getting started – attach a device to a **X*AP RM1** remote panel

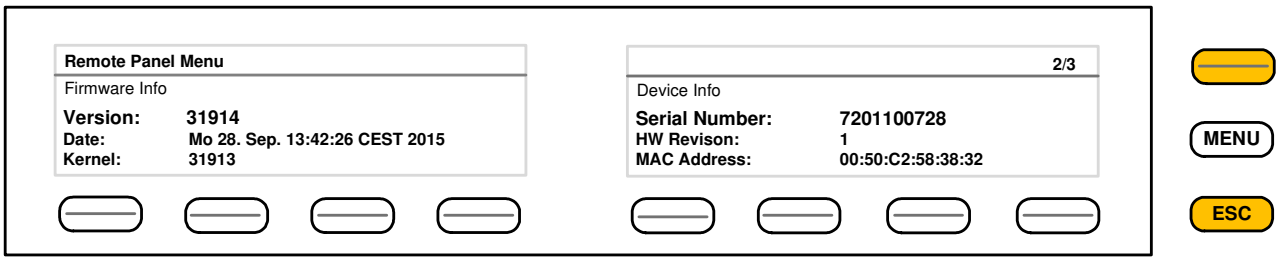
You must press one of the **"Device x" <F-Keys>** of the **"Remote Panel Menu"** and a different window will open:



Same procedure: Set up the IP address of the device you are about to attach.
You must turn "**Show device in selection"** to **ON** in order to reach that device via the initial display later on.
Pressing **<SAVE>** will return to the **"Remote Panel Menu"** menu page 1/3.

Getting started – **X*AP RM1** remote panel menu page 2/3 – **firmware display**

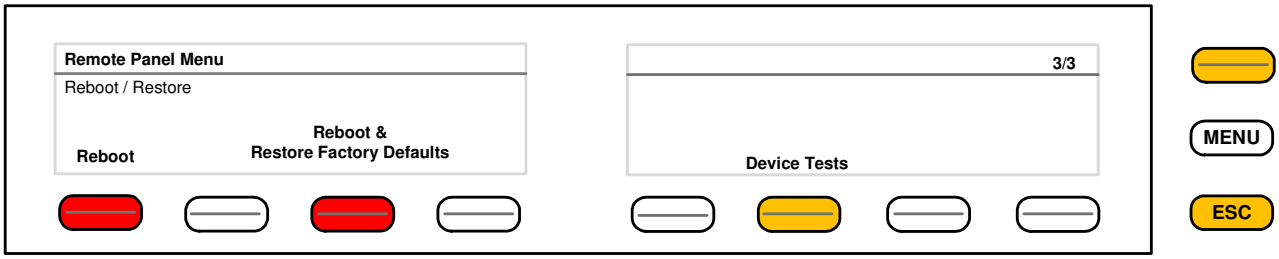
Via the upper right **<page>** button you reach the other pages of the Remote Panel Menu:



Page 2/3 shows permanent information of firmware versions and the device.

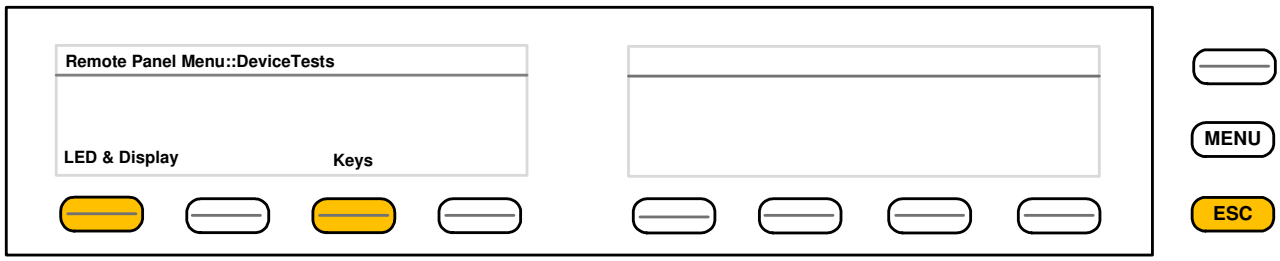
Getting started – **X*AP RM1** remote panel menu page 3/3 – **reboot, restore factory default, device test**

Page 3/3 is next in the page cycle:

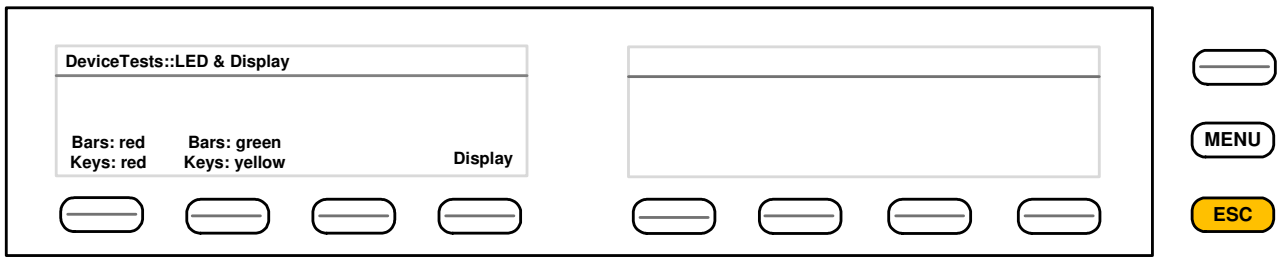


Page three allows you to reboot or restore of factory defaults. It also offers testing the device. **X*AP RM1** remote panel LEDs, buttons and the rotary knob. Pressing the Device Test button opens up further menus to test the respective items.

When you press **<Device Tests>** you will get the options to check the LEDs (bar graph and status) the display and the keys:

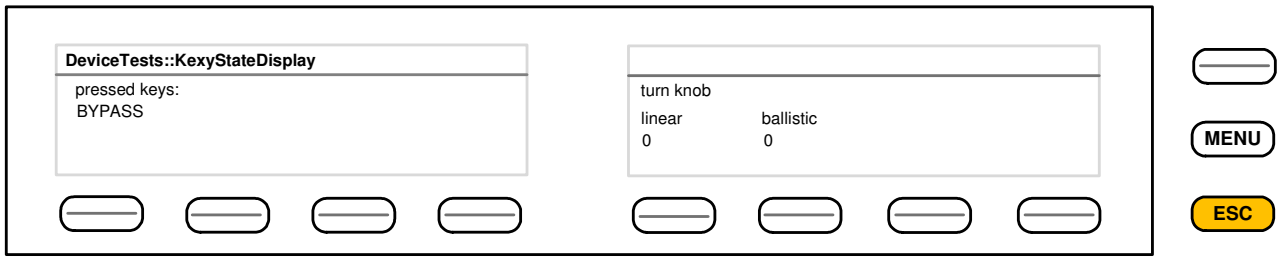


Pressing **<LED & Display>** lets you check the bar graph and status LEDs basic colors:



All bar graph and key LEDs must light in the respective color. Pressing the **<Display>** button will turn on both display windows in amber color. You will return by pressing the **<ESC>** button.

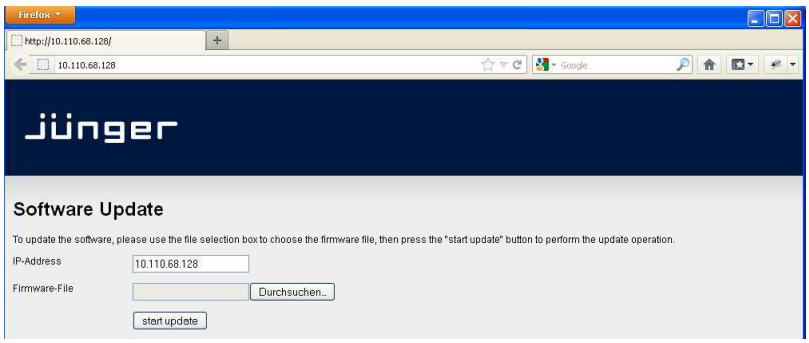
Finally you may check the buttons of the **X*AP RM$_1$** by pressing **<Keys>** in the upper menu:



When you press a key of your choice the name of it will be displayed - in the example above, the **<BYPASS>** button. You can also check the rotary encoder by either turning the knob or pressing on it. If you turn the knob you will see the momentary value generated in linear and ballistic values. Pressing on the knob will show the name **ENTER** in the left display.

Browser based set up – **firmware update of the X*AP RM1 remote panel**

You must open a browser and enter the **IP address** of the **X*AP RM1** remote panel into the **URL** field:

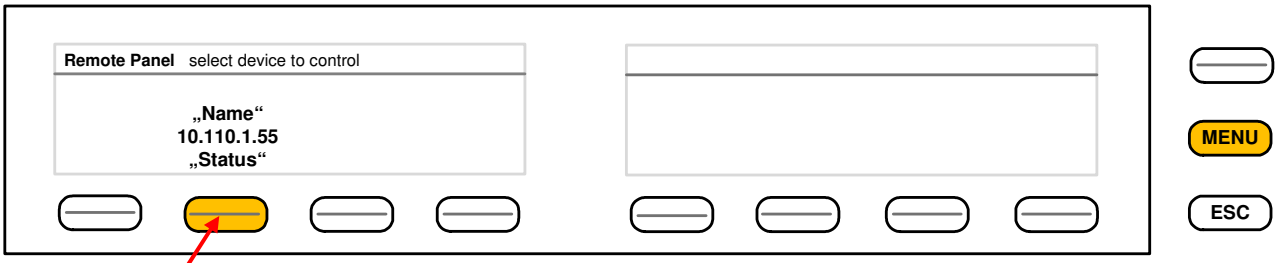


You must select the respective file and press:

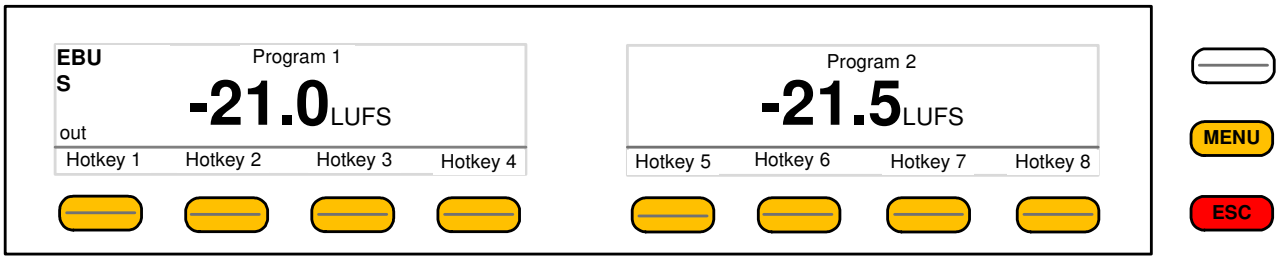
After finishing the procedure the **X*AP RM1** remote panel will reboot and you must manually reconnect the device you are about to control.

Getting started – basic **X*AP RM1** remote panel operation

After power up and booting is finished, the **X*AP RM1** remote panel shows the remote units which are "attached" to it. The display shows the respective device **"Name"**, its **IP address** and the connect **"Status"**. Options are "connect", "can't connect" and "unknown device". In case of "connect" you may press one of the highlighted buttons.



If you press the **<F-Key>** the **X*AP RM1** remote panel will connect with that unit.
(The above example has just one unit attached for remote control). Now the **X*AP RM1** remote panel will gather all necessary information from that unit (it may take a few seconds) and open up the **main display**:

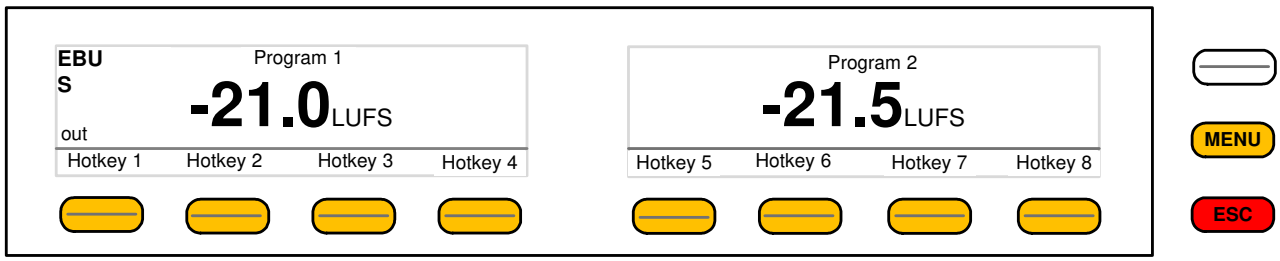


We assume here that the **X*AP RM1** is controlling a **TAP**.

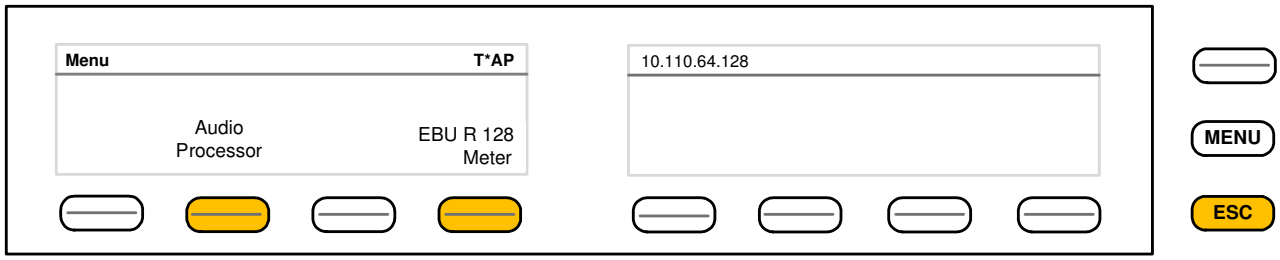
Because this is the **main operating display**, the **<ESC>** button lights **red** to indicate that the power up display is directly above the **main display**. Pressing **<ESC>** returns you back to the device selection (power up display).

Operating - menu structure of the **X*AP RM$_1$** remote panel

This example assumes that the **X*AP RM$_1$** is attached to a Television Audio Processor **T*AP** (other devices will appear differently):



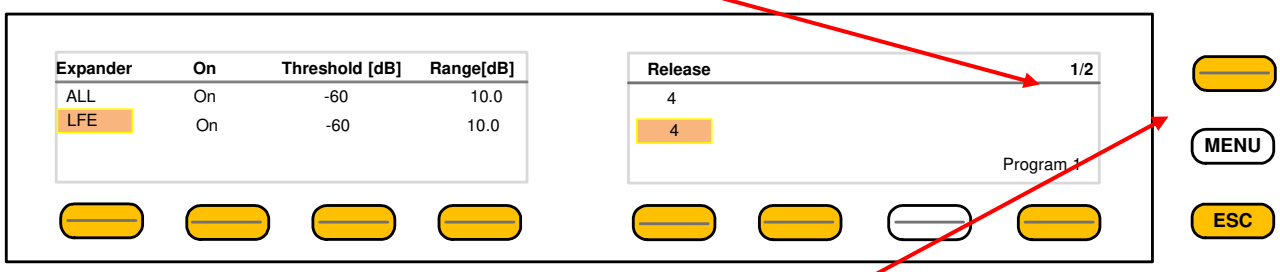
When pressing the **<MENU>** button, the **main operating menu** opens up:



The Audio Processor has the following functions available which you can reach via the F-Keys:
#1<Input> **#2**<Upmix> **#3**<Equalizer> **#4**<Spectral Signature>
#5<Dynamics> **#6**<Level Magic> **#7**<Output> **#8**<Monitor>

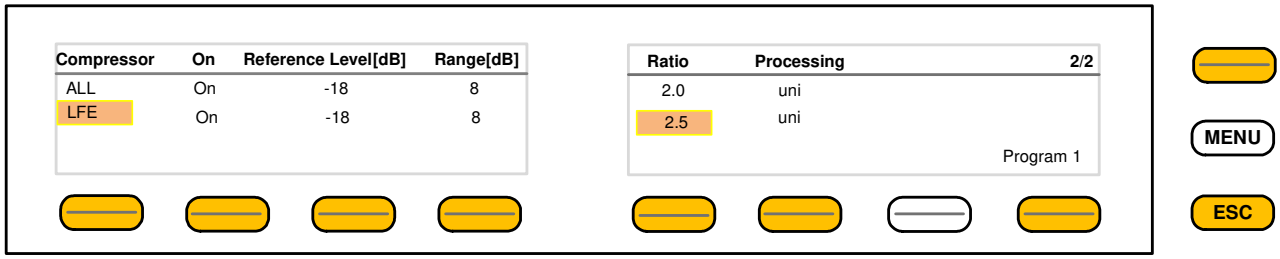
Operating – menu structure of the **X*AP RM$_1$** remote panel - **principle of operation**

If you are in a specific parameter menu the display structure may change due to the program configuration of the **T*AP**. Below is an example for setting the parameters for the **Dynamics** (F-Key #5) while the **T*AP** is in **5.1 + 2** program configuration and operates in **ITU** mode. In this case you have two parameter sets for the first program: **ALL** and **LFE** (if the **LFE** is not linked**)**.
Since the Dynamics have two subsections: **Expander** and **Compressor**, this menu has two pages, indicated by the number in the top right hand corner:

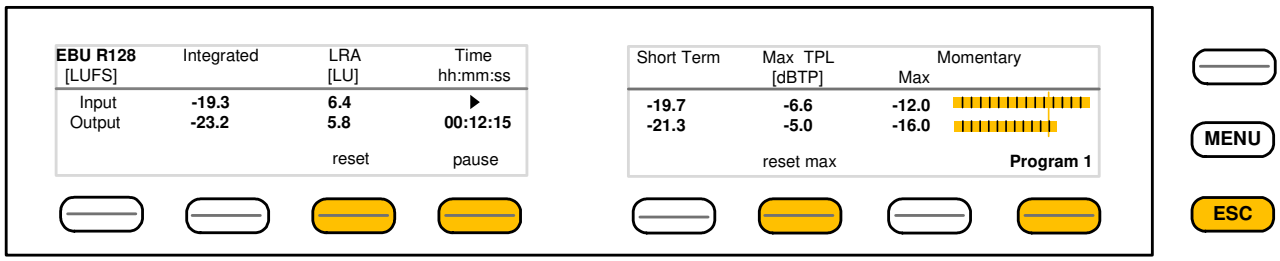


You may switch between both pages with the **<page>** button
<F-Key 1> toggles between the two parameter sets ALL / LFE. The parameter set under control is highlighted. If for example you now press **<F-Key 5>,** the **Release** setting for the **LFE** will be enabled and the **Rotary Encoder** is also illuminated. You may now change the **Ratio** by turning the knob.
<F-Key 8> toggles between **Program 1** (5.1) and **Program 2** (1x2).

Next page shows the **Compressor** parameters:



Here another example for **<EBU Meter>**



In this case the **<F-Keys>** will control the program based loudness measurement process defined by **EBUR128**. The display represents the measurements of **Integrated-** / **Short Term**- and **Momentary-Loudness** as well as the **LRA** (Loudness Range) [LU] and **Max TPL** [dBTP], the **Maximum True Peak** level.

The measure for the EBU Meter display is **[LUFS]** (Loudness Units Full Scale) as long as not defined differently.

For details pls. refer to the EBU-Tech 3341 document.

Operating – menu structure of the **X*AP RM$_1$** remote panel – **menu tree**

Power Up Display
<MENU> opens **X*AP RM1** remote panel IP setup menu.
- <Address> setup
- <Netmask> setup
- <Gateway> setup
- < empty >
- Device 1 setup IP & ON / OFF
- Device 2 setup IP & ON / OFF
- Device 3 setup IP & ON / OFF
- Device 4 setup IP & ON / OFF

<ESC> back to **power up** display

After connecting with a device the Main Display opens up:

Main Display
<ESC> will jump back to **power up** display
<MENU> opens **Operating** display:

F-Key #

- **1** <Empty>
- **2** <Audio Processor>
  - 1 <Input>
  - 2 <Upmix> [page 1 - 2]
  - 3 <Equalizer> [page 1 – 5]
  - 4 <Spectral Signature>
  - 5 <Dynamics> [page 1 - 2]
  - 6 <Level Magic> [page 1 - 3]
  - 7 <Output>
  - 8 <Monitor> [page 1 - 2]
  - <ESC> back to Menu
- **3** <Empty>
- **4** <EBU Meter>
  - 1 <empty>
  - 2 <empty>
  - 3 <reset>
  - 4 <pause/continue>
  - 5 <empty>
  - 6 <reset max>
  - 7 <empty>
  - 8 <Program_x>
  - <ESC> back to Menu
- **5** <empty>
- **6** <empty>
- **7** <empty>
- **8** <empty>

<ESC> back to **Main** display

Technical data – **X*AP RM$_1$** remote panel

• **Power supply**	External 5V wall power supply with approx. 1m cable attached
• **Consumption**	12 W
• **Dimensions**	19", 1RU, depth 6 cm
• **Environmental**	operating temperature 0 ºC to 50 ºC non-operating temperature -20 ºC to 70 ºC humidity - 90%, non condensing
• **Dimensions and Weight**	19", 1RU, depth 3 cm net weight approx. 0.5 kg shipping weight 1.0 kg

Safety information

Electrical

Safety classification	External power supply – protective insulation / Schutzklasse II
Power connection	Isolated 5V wall power supply.
Water protection	The device must not be exposed to splash or dripping water. It is permitted to place a container filled with liquids (e.g. vases) on top of the device.

Service safety

Only qualified personnel should perform service procedures.

Do not service alone	Do not perform internal service or adjustments of the device unless another person capable of rendering first aid and resuscitation is present.

To avoid fire or personal injury

Mounting	It must be placed on a flat surface or must be mounted into a 19" rack.
Provide proper Ventilation	If the device has a built in fan, a gap of at least 1cm must be left between the device edge and the steel angle. It is highly recommended to leave a gap of at least 1RU above and below the device.
Do not operate without covers	Do not operate this product with covers or panels removed.
Do not operate with suspected failures	If you suspect that there is damage to this product, have it inspected by qualified service personnel.
Risk of explosion	The device contains a lithium battery. If replaced incorrectly or by a different or inadequate type of battery, an explosion may occur.

Warranty

Standard Junger Audio one-year warranty on parts and labor.

Specifications are subject to change without notice

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