



Quick Start Guide

TMR7-Radio | TMR7-Mount

EN

Software Version 8-03 and higher | 01.2020



RTW
EYES ON YOUR AUDIO

Quick Start Guide

for

RTW TouchMonitor TMR7-Radio | TMR7-Mount

Manual Version: 1.0
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WEEE Reg.-no.: DE 90666819
RoHS Conformity: These instruments comply with and fall under category 9 Monitoring and control equipment of the regulations of the Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment of the European Parliament and Council from June 8th, 2011.



Please carefully **read** the safety instructions, **understand** them and **act** as requested to prevent any hazards or not to violate any laws.

Please note:

The external power supply is UL Listed for CAN/US, model ATS 065T-P/A240, manufactured by Adapter Technology Co Ltd. (RTW 1178-R), Class II double insulated, rated:
Input: 100 - 240 V, 47 - 63 Hz, 1 A max.
Output: 24 Vd.c., 2.71 A, 65 W

The figures in this operating manual are carefully created and are used to illustrate the descriptions. However, they may differ a little bit from the displays of your unit.

The current version of this manual and the available firmware/firmware updates can be found under Audio Monitors/TouchMonitor TMR7 in the download area of our web site:
<https://www.rtw.com/en/support/manuals-software.html>.

The package contains a USB flash device source by a third party company. The device is certified to be CE conform and RoHS compliant. A detailed RoHS declaration of conformity about TouchMonitor TMR7-Radio and TMR7-Mount can be found in the appendix.

Safety Instructions

The following symbols may be marked on the panels or covers of equipment or module and are used in this manuals with these terms:

WARNING!

This symbol alerts you to a potentially hazardous condition, such as the presence of dangerous voltage that could pose a risk of electrical shock. Refer to the accompanying Warning Label or Tag, and exercise extreme caution.

ATTENTION!

This symbol alerts you to important operating considerations or a potential operating condition that could damage equipment. If you see this marked on equipment, consult the operating manual for precautionary instructions.

NOTE

This symbol points your attention to specific characteristics that are no malfunctions.

Important Safety Instructions

- Read these instructions. Study carefully and understand all safety and operating instructions before you install and operate the unit!
- Keep these instructions. Keep all safety and operating instructions for future reference!
- Heed all warnings on the unit and in the safety and operating instructions before you install and operate the unit!
- Follow all instructions to ensure against injury to yourself and damage to the unit or other objects connected to the unit.

To prevent possible electrical shock, death, fire, injuries and malfunctions, use this product only as specified.

Only use attachments and accessories specified by the manufacturer. The units of the TouchMonitor series are designed for indoor use only and may only be operated with a power supply unit provided for it.

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WARNING!

Always follow the safety precautions below to avoid the possibility of serious injury or even death from electrical shock, short-circuiting, damages, fire, or other hazards. These precautions include, but are not limited to, the following:

- Do not open the housing. Inside, there are no user-serviceable parts. Any necessary servicing shall be performed by a properly qualified technician.
- Do not attempt to repair any part of the unit. Repairs shall only be carried out by qualified personnel.
- Never remove any parts from the unit and do not make any modifications to the unit without the express written consent of RTW. Modifications can cause both safety hazards and affect the unit's conformity and certifications.
- Only use the power cord and power supply specified for this product and certified for the country of use.
- Use with power supply model ATS 065T-P/A240, manufactured by Adapter Technology Co Ltd. (RTW 1178-R).
- The power cord of the external power supply disconnects the product from the power source. Do not block the power cord or power supply; it must remain accessible to the user at any time.
- Connect and disconnect properly. Use only connectors specified for this product and fix them tight before use.
- Observe all terminal ratings and markings on the product. Consult the operating manual for further ratings information before making connections to this product.
- Do not apply a potential to any terminal that exceeds the maximum rating of that terminal.
- Avoid exposed circuitry. Do not touch exposed connections and components when power is present.
- Turn off and disconnect the power supply immediately if the unit produces unusual smells, noises or smoke, or if foreign substances (e. g. liquids) or foreign objects enter the unit.
- Because of the installed battery the unit shall not be exposed to excessive heat such as sunshine, fire, or similar.
- Caution: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type.
- Do not cover the unit and do not place any objects or anything containing liquids on it.
- Do not insert your fingers or any other objects into the housing.
- Do not operate without cover plates or panels.
- Do not operate with suspected failures. If you suspect there is damage to the unit, have it inspected by qualified service personnel.
- Do not use this apparatus near water.
- Do not operate in wet/damp conditions.
- Do not operate in explosive atmosphere.
- Do not operate in dusty environments.



ATTENTION!

Always follow the safety precautions below to avoid the possibility of physical injury to you or others, or damage to the unit or other property. These precautions include, but are not limited to, the following:

- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions to prevent the internal temperature from becoming too high.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Also keep away the unit from direct incident solar radiation.
- Keep product surfaces clean and dry. Clean only with dry cloth.
- Never use any solvent based liquids for cleaning the housing surfaces and the display.
- Do not place the unit in an unstable position where it might accidentally fall over.
- Before connecting any devices to the unit make sure that the power supply is disconnected.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Before moving the unit, remove all connected cables.
- When transporting or moving the unit, always take care not to scratch or damage the housing surfaces and the display.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Information on installed battery

The pcb features a battery socket with a 3 V Li/Mn coin cell battery, type CR 1225. It must be inserted from the side with its positive pole on top and its negative pole towards the pcb surface.

Environmental Considerations

Observe the following information about the environmental impact of the product and the following guidelines when recycling an instrument or component (product end-of-life handling):

- **Equipment Recycling**

Production of this equipment required the extraction and use of natural resources. The equipment may contain substances that could be harmful to the environment or human health if improperly handled at the product's end of life. In order to avoid release of such substances into the environment and to reduce the use of natural resources, we encourage you to recycle this product in an appropriate system that will ensure that most of the materials are reused or recycled appropriately.

- **Battery Recycling**

This product contains a lithium manganese dioxide (Li/Mn) battery, which must be recycled or disposed of properly according to your local government regulations.

- **Restriction of Hazardous Substances**

These instruments comply with and fall under category 9 Monitoring and control equipment of the regulations of the Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment of the European Parliament and Council from June 8th, 2011. This product may contain lead, cadmium and/or mercury in slight quantities. Please dispose of or recycle the electronic parts or devices according to your local government regulations.

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Before You Begin

Introduction

Thank you for purchasing a TouchMonitor TMR7-Radio resp. TMR7-Mount. Loudness, true peak, PPM, audio vectorscope, moving-coil instruments, RTA, chart, and correlation: The TMR7-Radio and TMR7-Mount 4-channel solution featuring 7" touchscreen and the unique TouchMonitor operating concept integrate all metering options required in radio broadcasting to a solution made to measure.



Simple and flexible

The graphical user interface used in the TouchMonitor range is controlled simply by using your finger or a mouse. Instruments can be scaled, randomly positioned and combined in almost every way for optimized use of available screen space. Even multiple instruments of the same type, assigned to different input channels and configurations, can be displayed simultaneously. A context-sensitive, on-screen help feature and the intuitive operatable menu system supports the user, allowing him to make setup changes with ease.

Audio I/O interface

TMR7-Radio's resp. TMR7-Mount's hardware and software are perfectly adjusted to radio-broadcast requirements and easily integrates into any studio environments. The four audio inputs provided by the two AES3 XLR ports are flexibly configurable for mono, stereo, or multi-channel sources, providing separate instruments for each source. So TMR7 allows parallel monitoring of the on-air signal and a PFL source.

Integrated Software

With the integrated software package, TMR7-Radio and TMR7-Mount are fully equipped and ready for use. The comprehensive set of frequently used instruments provides all relevant loudness and audio metering tools to meet the demands.

Many display functions are available to choose from: loudness meters compliant to all relevant loudness standards including Loudness Sum, numerical displays, Loudness Range, and Loudness Chart, Audio Vectorscope, Real-Time Analyzer (RTA), Stereo Correlator, and Moving Coil instruments.



Scope of Delivery

Unpack the instrument and check, if you received all items listed. If components are missing, please contact your dealer. The instruments included in the software package are also listed.

TouchMonitor TMR7-Radio | TMR7-Mount

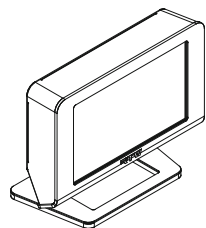
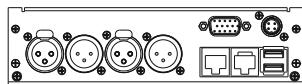


Table-top unit TMR7S

> with Audio Interface:



2 x AES3 In
2 x AES3 Out

> with Software:



PPM/TP



Moving Coil



RTA



Vectorscope



Correlator



Loudness Sum



Chart



LRA



Loudness Num



AES Status



Clock



Hardware Status



Global Keyboard



Mains adapter



USB flash drive (Presets, Man.)



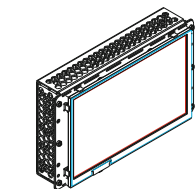
Quick start guide



USB flash drive (Presets, Man.)



> Quick start guide



Panel-mount TMR7-Mount >

Installation

The TouchMonitor **TMR7-Radio** table-top unit is designed for free positioning on tables, desks, et. al. The panel-mount version **TMR7-Mount** is designed for panel-mounting e. g. into mixing consoles. All necessary power supply voltages are supplied through the +24 V DC - 1 A connector. Use with power supply model ATS 065T-P/A240, manufactured by Adapter Technology Co Ltd. (which is the external power supply unit RTW **1178-R** wide voltage power supply, included in TMR7-Radio package, optional for TMR7-Mount). The units feature a 7" VGA 16 : 9 touch screen.

Optional an external computer mouse or a Wacom® graphics tablet can be connected to one of the USB interfaces.

The other ports and interfaces are connected with the appropriate standard connection cables.



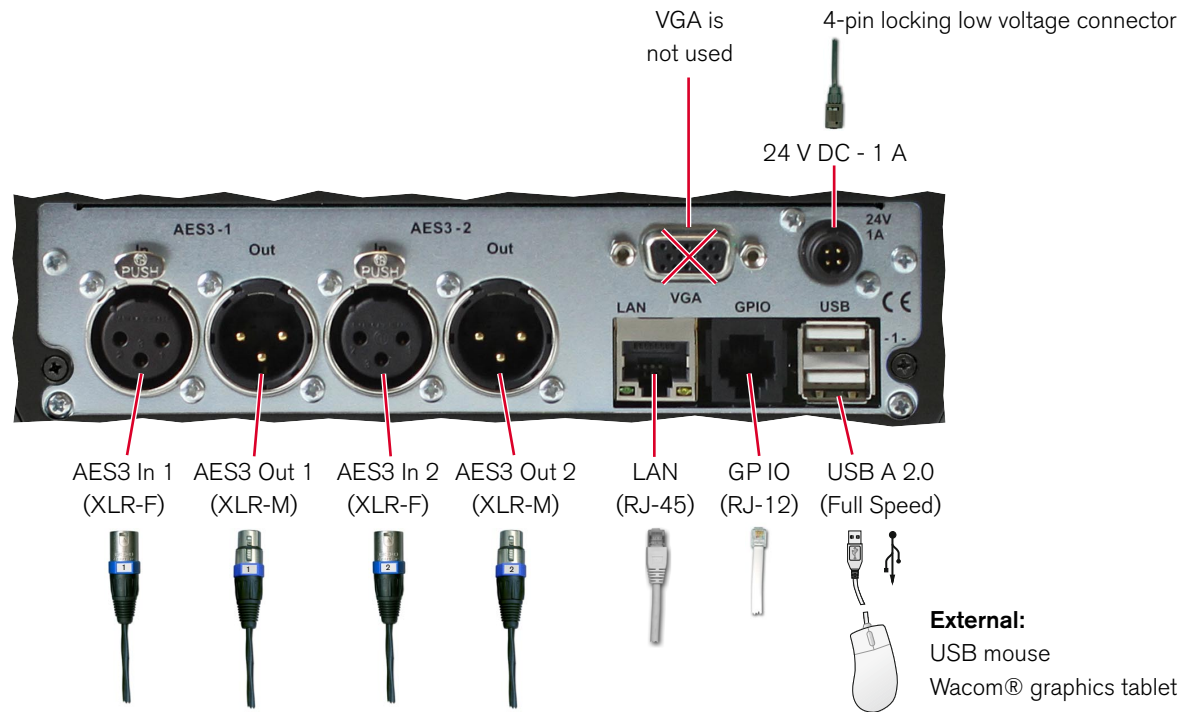
ATTENTION – Please read before installing:

- Before installing the unit please study the safety instructions and the information on connection and pin assignment.
- An external overcurrent protective device (2 A max.) shall be installed when using an external 24 V DC power supply!
- Make sure that the delivered power supply unit is not connected.
- Place or mount the unit at a suited place.
- Connect your signal sources and all your other components to the appropriate connectors, using the correct standard connection cables for the components. Take care about the pin assignment!
- Finally, connect the locking 4-pin low voltage connector of the external power supply to the +24 V DC - 1 A connector on the rear. Connect the external power supply to mains.
- The TouchMonitor will initiate its system startup sequence. After the boot-up the unit is ready for use.

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Connection

TouchMonitor TMR7-Radio | TMR7-Mount

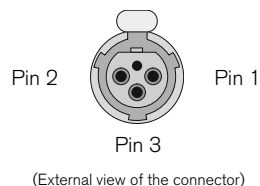


Pin Assignment

AES3 In 1, AES3 In 2 (transformer-bal., 3-pin XLR-F)

Pin: Function:

- | | |
|---|----------------|
| 1 | Shield/chassis |
| 2 | +, hot |
| 3 | -, cold |

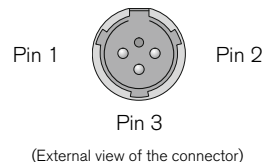


NOTE - The AES3 inputs are permanently terminated with 110 Ω .

AES3 Out 1, AES3 Out 2 (transformer-bal., 3-pin XLR-M)

Pin: Function:

- | | |
|---|----------------|
| 1 | Shield/chassis |
| 2 | +, hot |
| 3 | -, cold |



24 V - 1 A (4-pin locking low voltage connector, Typ Binder 710)

Pin: Function:

- | | |
|-------|----------|
| 1 - 2 | +24 V DC |
| 3 - 4 | 0 V |



NOTE - An external overcurrent protective device (2 A max.) shall be installed when using an external 24 V DC power supply!

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Pin Assignment (continued)

GP IO (RJ-12 6P6C socket)

External control of functions defined in the Global Keyboard menu. The inputs defined as „active low“ have to be switched against 0 V (Pin 1).

Pin: Function:

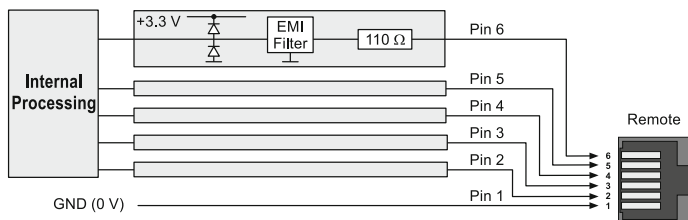
1 GND (0 V)

2 - 6 Function acc. to definition in the menu



(External view of the connector)

Block diagram of the GPIO interface



USB-A

2 Full Speed USB 2.0 interfaces for the connection of USB flash drives (presets, updates) and an external mouse or Wacom® tablet.

LAN

RJ-45 standard network connector (10/100 MBit)

Schnellstart

Inbetriebnahme

Bitte vergewissern Sie sich vor dem Anschließen der Stromversorgung, dass die folgenden Anschlüsse passend zu Ihrem Gerät (TM7, TMR7, TM9 oder entsprechende Modelle) und zu Ihrer individuellen Installation vorgenommen wurden:

- Analoge und/oder digitale Audio-Eingangssignale (je nach Typ und Ausstattung Ihres Gerätes)
- Digitale Ausgänge (falls vorhanden)
- Optionaler externer VGA-Bildschirm (16 : 9) (nicht TMR7 Smart)
- Optionale USB-Maus
- LAN/Ethernet-Netzwerkanschluss (falls benötigt)
- Netzspannung

Nach dem Anlegen der Stromversorgung startet der TouchMonitor direkt sein Betriebssystem. Nach kurzer Zeit erscheint die Haupt-Bildschirmseite, das Gerät ist betriebsbereit.

Wir nehmen an, dass Sie Ihren TouchMonitor zum ersten Mal starten. An dieser Stelle sollten Sie einige globale Einstellungen zur Anpassung Ihres Gerätes an Ihr Audio-System vornehmen. Nach dieser kurzen Prozedur können Sie Ihr erstes Preset für Ihre Arbeit erstellen.



HINWEIS - Die Abbildungen in den folgenden Abschnitten können Optionen zeigen, die auf Ihrem Gerät nicht verfügbar sind. Der Options-Umfang ist abhängig vom Typ Ihres Gerätes (TM7, TMR7, TM9 oder entsprechende Modelle), von dessen Hardware-Konfiguration und von den auf dem Gerät freigeschalteten Lizenzen bzw. der auf dem Gerät installierten Software.

DE

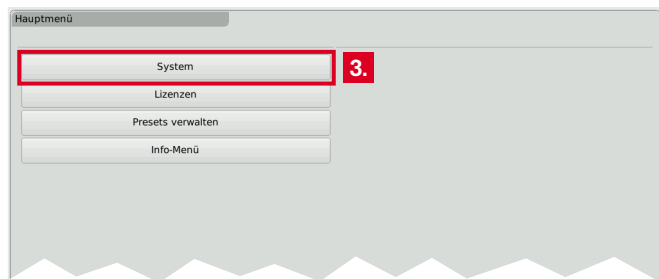
Anpassung des TouchMonitors an Ihr Audio-System

Die folgende Beschreibung führt Sie durch die wichtigsten Schritte der globalen Einstellungen, um einmalig den TouchMonitor für Ihr Audio-System zu konfigurieren. Diese Einstellungen bleiben beim Laden neuer Presets unverändert.

1. Falls nicht sichtbar, berühren Sie eine freie Stelle des Bildschirms zur Anzeige der Steuerleiste.




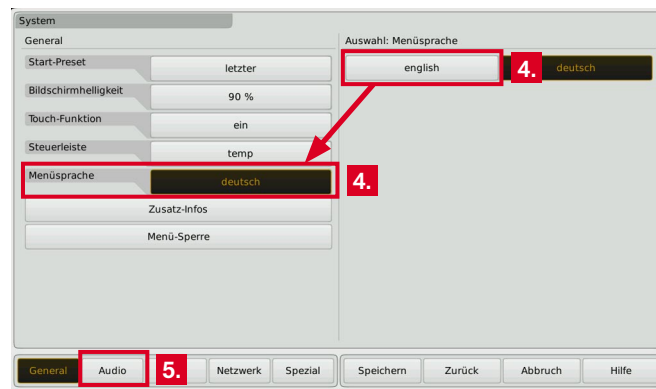
2. Berühren Sie die Taste **Menü** im rechten Bereich der Steuerleiste. Sie gelangen ins Menü-System, das **Hauptmenü** wird angezeigt.



3. Berühren Sie die Taste **System**. Sie gelangen ins System-Menü, von dem das Untermenü **General** aktiviert ist (Taste ist in der Steuerleiste markiert).

4. Berühren Sie, falls erforderlich, die Taste **Menüsprache**. Wählen Sie in der rechten Hälfte des Menüs Ihre Sprache, die Auswahl wird auf der Taste **Menüsprache** angezeigt.


 Die Umstellung auf die neue Sprache erfolgt nach Neustart.

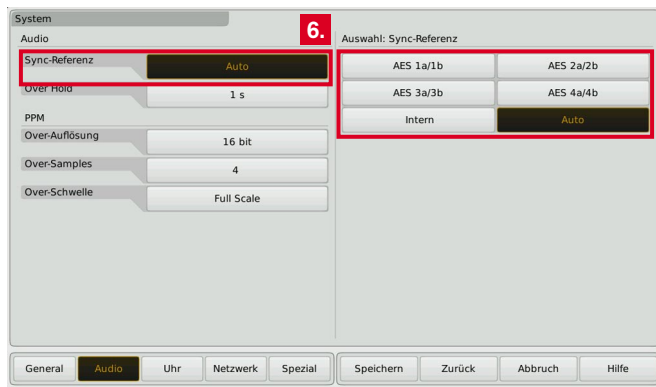


5. Berühren Sie die Taste **Audio** im linken Bereich der Steuerleiste, um ins Untermenü **Audio** zu gelangen.

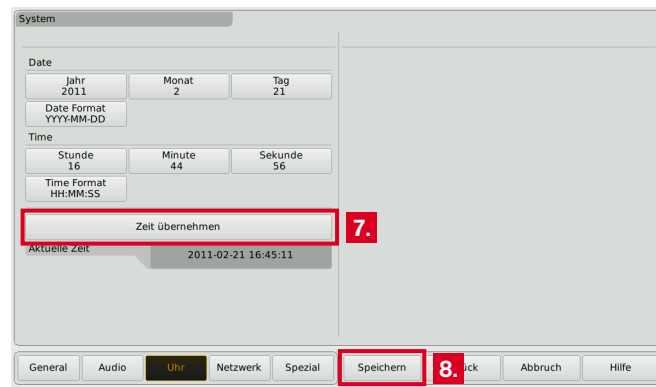


6. Falls Ihr TouchMonitor eine definierte Referenzquelle benötigt, berühren Sie die Taste **Sync-Referenz** und wählen Sie die gewünschte Option in der rechten Hälfte des Menüs.

 Die Anzahl der verfügbaren Sync-Referenz-Quellen ist abhängig vom Geräte-Typ und von Umfang und Art der installierten Audio-Schnittstellen.



7. Berühren Sie die Taste **Uhr**, falls Sie das aktuelle Datum und die aktuelle Uhrzeit einstellen möchten. Berühren Sie die Taste **Zeit übernehmen** zum Starten der internen Uhr.



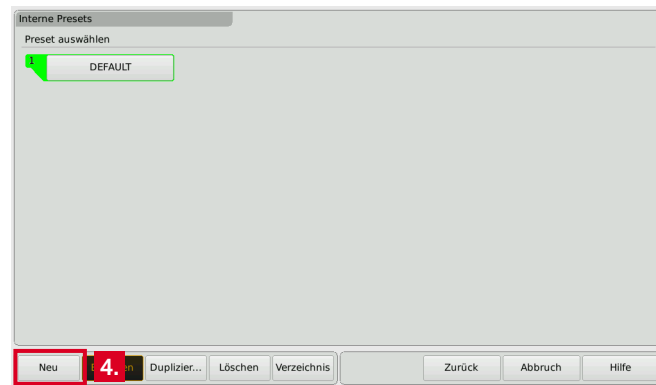
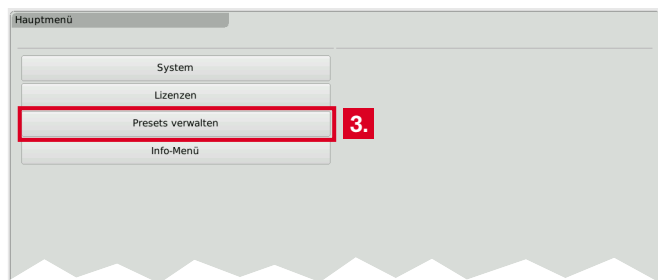
8. Berühren Sie die Taste **Speichern**, um Ihre globale Einstellung zu sichern. Das Gerät kehrt zurück in den normalen Anzeige-Modus.

Erstellen eigener Presets

Presets enthalten die Einstellungen für Ihren Work-Flow. Sie können Audio-Gruppen erstellen, die auf bestimmte Eingänge zugreifen und eines oder mehrere Instrumente mit dieser Zuordnung enthalten. Ebenso können Sie Non-Audio-Gruppen erzeugen, die von Audio-Eingangssignalen unabhängige Instrumente enthalten, z. B. Uhren, Hardware-Statusinformationen oder ein Globales Tastenfeld.

Gehen Sie wie folgt vor, wenn Sie ein neues Preset erstellen möchten:

1. Falls nicht sichtbar, berühren Sie eine freie Stelle des Bildschirms zur Anzeige der Steuerleiste.
2. Berühren Sie die Taste **Menü** im rechten Bereich der Steuerleiste. Sie gelangen ins Menü-System, das **Hauptmenü** wird angezeigt.
3. Berühren Sie die Taste **Presets verwalten**. Sie gelangen ins Menü **Interne Presets**.
4. Berühren Sie die Taste **Neu**. Ein Preset mit einem editierbaren vorgegebenen Namen wird erstellt (siehe Abbildung unter 5., berühren Sie die Taste **Preset-Name** zur Änderung).



5. Berühren Sie die Taste **Audio neu** zur Erstellung der ersten Audio-Gruppe.

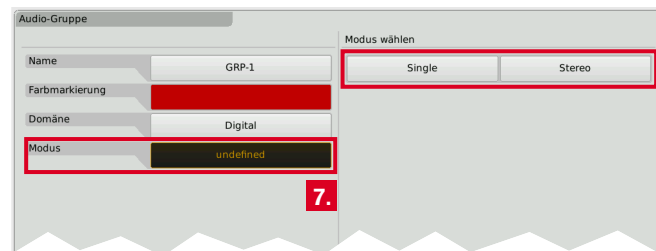


6. Die Taste **Domäne** ist markiert. Wählen Sie die Domäne der eingesetzten Signalquelle in der rechten Hälfte des Menüs.

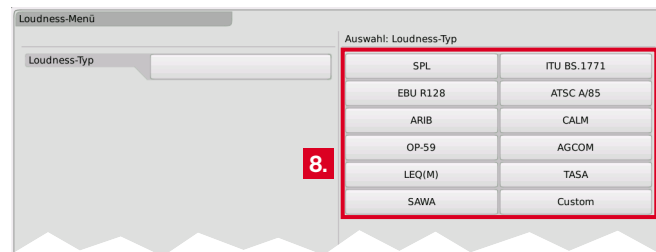


7. Die Taste **Modus** erscheint und ist markiert. Wählen Sie Ihren Kanalmodus in der rechten Hälfte des Menüs.


Die Anzahl der Modi ist abhängig vom Geräte-Typ und von den aktivierten Software-Lizenzen.

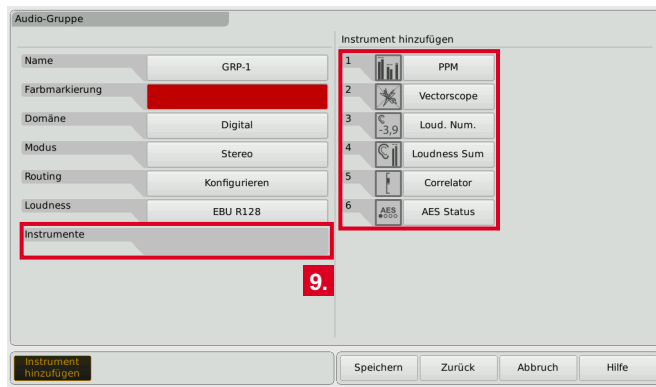


8. Falls die Lizenz **Loudness and SPL display** (SW20002) aktiviert oder das Gerät ein TMR7 Smart ist, erscheint das Untermenü **Loudness-Typ**. Wählen Sie Ihren bevorzugten Loudness-Typ.

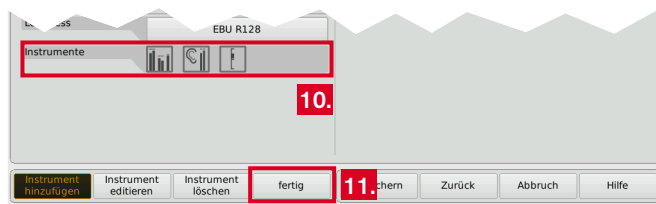


9. Links erscheint das Feld **Instrumente** und rechts eine Liste der verfügbaren Instrumente.

 Die Anzahl der Instrumente ist abhängig von den aktivierten Software-Lizenzen.




10. Berühren Sie jeweils die Tasten der gewünschten Instrumente. Die Auswahl erscheint als Piktogramm im Feld **Instrumente**.

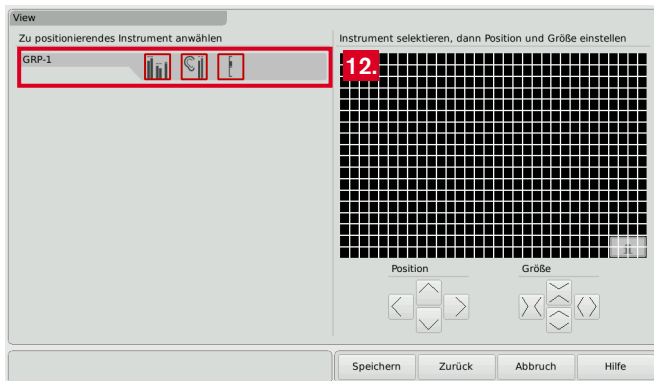


11. Wenn Sie mit der Auswahl fertig sind, berühren Sie die Taste **fertig**. Sie kehren ins Menü **Preset** zurück.



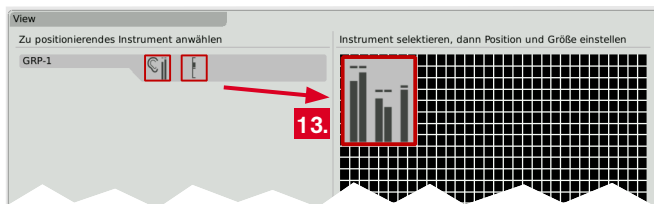
 Das Menü **Preset** zeigt nun die gerade erstellte Audio-Gruppe mit einem kleinen farbigen Dreieck in der linken oberen Ecke. Im Normalbetrieb sind alle Instrumente dieser Gruppe mit diesem Dreieck markiert. Bei mehreren Gruppen erleichtert die Farbmarmierung die Identifizierung, zu welcher Gruppe ein Instrument gehört.

12. Berühren Sie die Taste **View**. Das angezeigte Untermenü dient der Anordnung der Instrumente auf dem Bildschirm. Die definierten Gruppen mit ihren Instrumenten erscheinen in der linken Hälfte des Menüs (nächstes Bild).

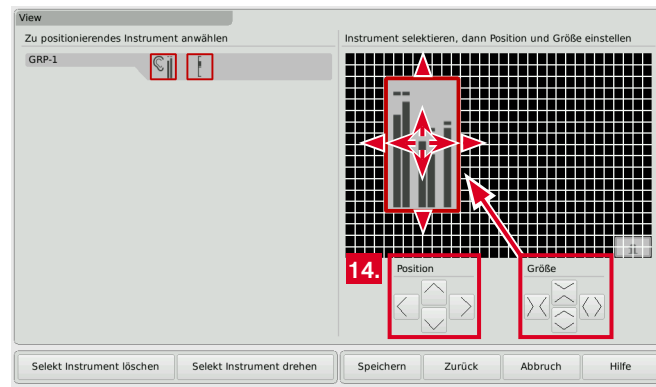


i Das Untermenü **View** ist ein umfangreicher Editor zur Positionierung und Skalierung der im aktuellen Preset definierten Instrumente. Alle Instrumente, die Sie im Normalbetrieb sehen möchten, müssen hier positioniert werden.

13. Berühren Sie ein Piktogramm. Es wird in der linken oberen Ecke der Bildschirm-Grafik platziert.

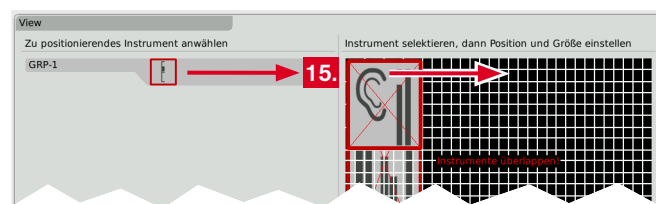


14. Benutzen Sie die Tasten **Position** und **Größe** zur Platzierungs- und Größenänderung.

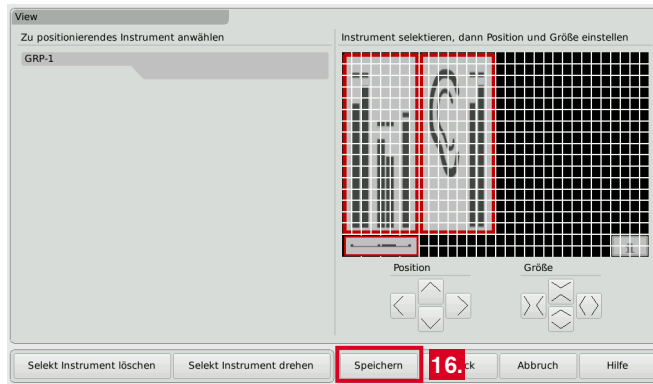


15. Verfahren Sie ebenso mit den anderen Piktogrammen.

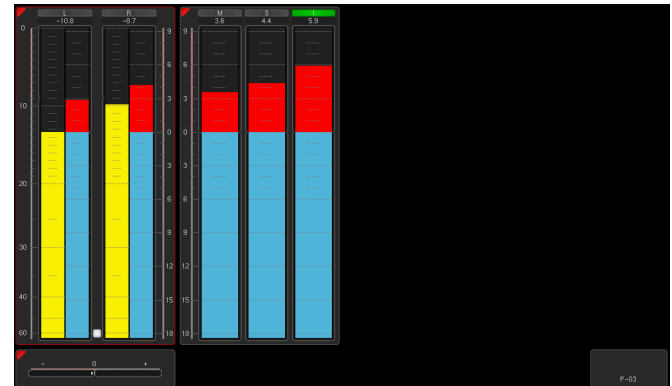
i Sollten sich Instrumente überlagern, erscheint eine Warnung. Verschieben Sie das Piktogramm mit den Tasten **Position** und **Größe** an eine freie Stelle.



16. Wenn das Bildschirm-Layout Ihren Anforderungen entspricht (Sie können Instrumente auch drehen), berühren Sie die Taste **Speichern** unten im rechten Bereich der Steuerleiste.



17. Sie gelangen zurück in den Normalbetrieb. Auf dem Bildschirm sehen Sie das neu erstellte Preset mit den ausgewählten Instrumenten in der definierten Anordnung.



Arbeiten mit Instrumenten und Presets

Im Normalbetrieb zeigt der TouchMonitor die Instrumente und das Bildschirm-Layout entsprechend der Definition im ausgewählten Preset. Sie können mit den Tasten der Steuerleiste ein gewähltes Instrument steuern oder ein neues Preset laden.

i Falls die Steuerleiste nicht sichtbar ist, berühren Sie einfach den Bildschirm. Die Steuerleiste wird zur Wahl der gewünschten Funktion für einige Sekunden angezeigt.

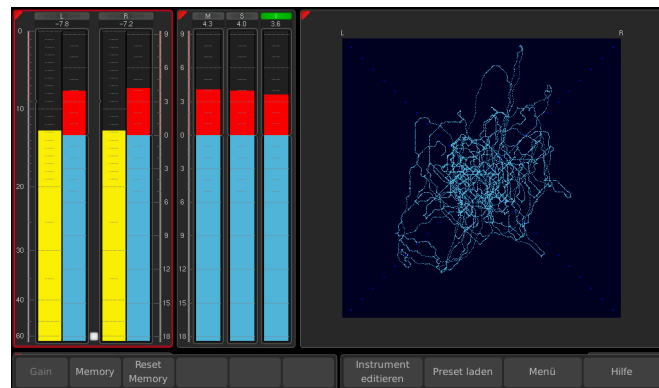
Gehen Sie wie folgt vor, wenn Sie die Funktionen eines Instrumentes nutzen möchten:

1. Berühren Sie die Fläche des Instruments auf dem Bildschirm. Es erhält den Fokus. Im linken Bereich der Steuerleiste erscheinen die speziellen Funktionen des fokussierten Instrumentes.

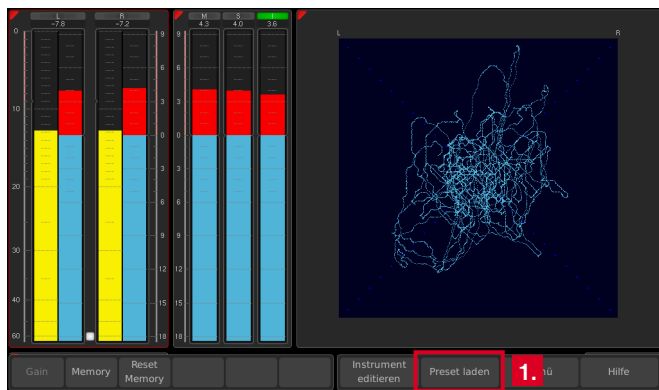
i Das aktuell gewählte Instrument ist mit einem farbigen Rahmen entsprechend der Farbmarkierung zur Identifizierung des Instruments versehen.

2. Wählen Sie die gewünschte Funktion.

i Bei mehr als 6 Funktionen berühren Sie die Taste **mehr**. Falls eine Funktionstaste eine weitere Funktionsebene öffnet, gelangen Sie mit der Taste **Schließen** wieder zurück in die vorherige Ebene.




Gehen Sie wie folgt vor, wenn Sie ein Preset laden möchten:



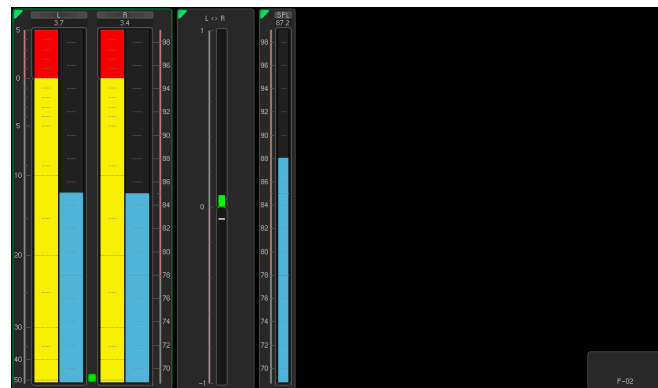
1. Berühren Sie die Taste **Preset laden** im rechten Bereich der Steuerleiste. Eine Liste mit verfügbaren Presets wird angezeigt.




2. Berühren Sie die Taste des gewünschten Presets.

 Das aktuell gewählte Preset ist mit grün als aktiv markiert. Im Normalbetrieb erscheint der Name des aktiven Presets in der rechten unteren Ecke des Bildschirms.

3. Das gewählte Preset wird geladen. Das Gerät kehrt automatisch in den Normalbetrieb zurück und zeigt das neu gewählte Preset.



 Für die in den Bildern gezeigten Funktionen wie Loudness oder Vektorskop ist je nach Gerätetyp (außer TMR7 Smart) die Aktivierung weiterer Software-Lizenzen erforderlich.

Delivered Presets

TouchMonitor TMR7-Radio and TMR7-Mount come with five predefined presets on the delivered USB flash drive, presenting typical applications and standards supported by the units. Using these presets, you can start working with the devices right out of the box, but you also can adapt them to your individual needs. Screenshots and most important features are described on the following pages.

Load presets from USB flash drive

1. Touch the screen, then **Load Preset** in the right part of the control bar (lower edge of the screen).
2. Touch **External**. The available presets are displayed.
3. Touch the preset you prefer. It will be loaded and will be available for normal operation after some seconds.

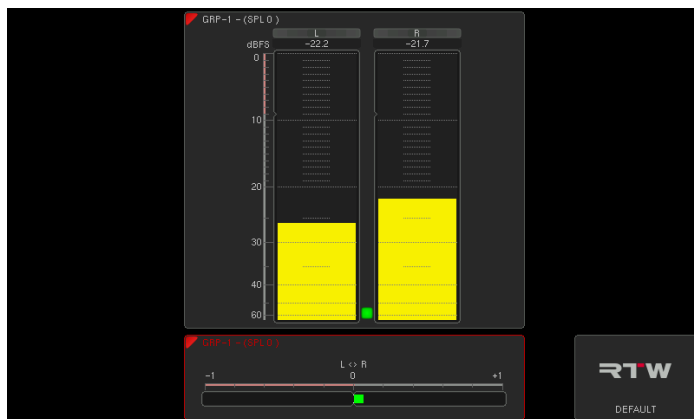


NOTE - Please note that the TouchMonitor will only allow to import presets, if the hardware and instruments of the unit matches with the instruments and hardware setup of the preset. In case of a mismatch an error message will be seen and the import will be refused.



Short descriptions of the instruments used in the presets as well as some hints for a fast interpretation of the readings are presented on the internal help page of the focussed instrument (touch **Help** in right edge of the control bar) or clicking the **Function Description/Instruments** options of the manual stored on the USB flash drive.

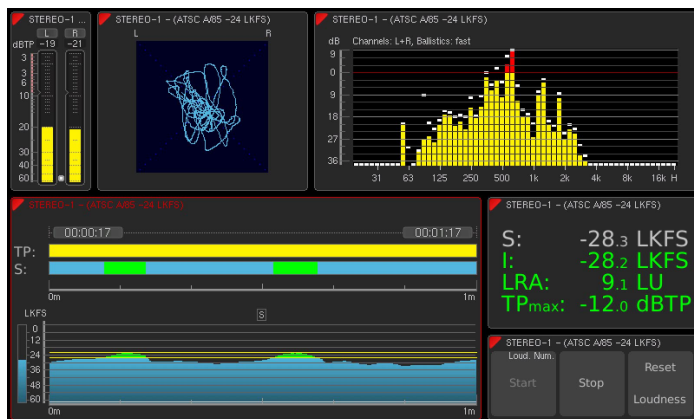
DEFAULT



Input: AES3 1
Program Meter Scale: Dig60: 0..-60 dB (-60 to 0 dBFS)
Instruments: Program Meter (PPM mode), Correlator

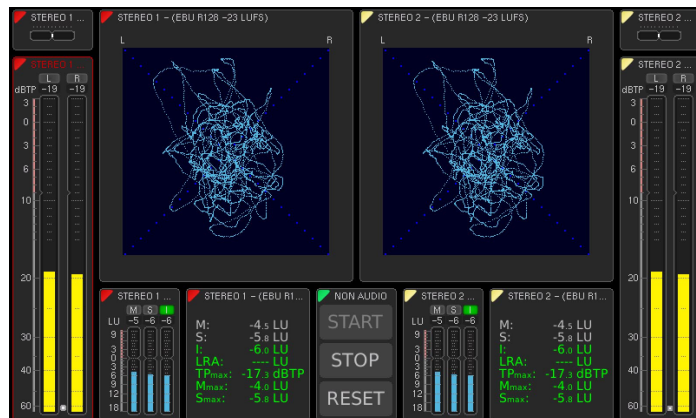
⚠ NOTE - This preset is fixed to secure basic display functionality. It can't be edited. Touching keys referred to presets shows no reaction.

ATSC CHART



Group: Stereo-1
 Input: AES3 1
 Loudness: ATSC A/85
 Program Meter Scale: TP60: +3..-60 dB (-60 to 3 dBTP)
 Instruments: Program Meter (TruePeak mode), Vectorscope, RTA, Loudness Chart with I bargraph, horizontal bars (TP, S), course over time (S), Loudness Num (S, I, LRA, TP_{max})
 Keys: Loudness Num Keys: Start, Stop, Reset Loudness

DUAL STEREO EBU

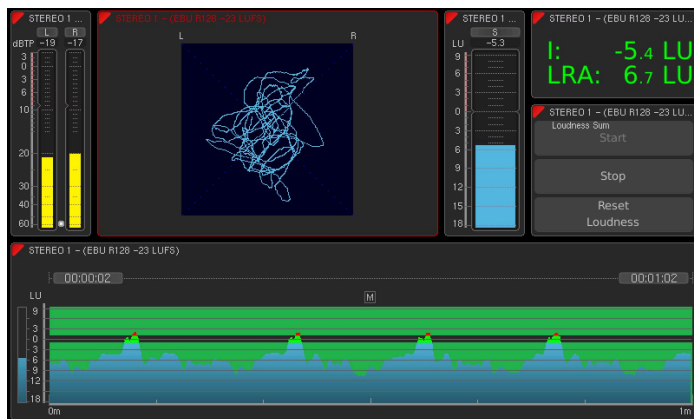


Group: Stereo 1
 Input: AES3 1
 Loudness: EBU R128
 Program Meter Scale: TP60: +3..-60 dB (-60 to 3 dBTP)
 Instruments: Correlator, Program Meter (TruePeak mode),
 Vectorscope, Loudness Sum (M, S, I), Loudness Num (M, S, I, LRA, TPmax, Mmax, Smax)

Group: Stereo 2
 Input: AES3 2
 Loudness: EBU R128
 Program Meter Scale: TP60: +3..-60 dB (-60 to 3 dBTP)
 Instruments: Vectorscope, Correlator, Program Meter (TruePeak mode), Loudness Sum (M, S, I), Loudness Num (M, S, I, LRA, TPmax, Mmax, Smax)

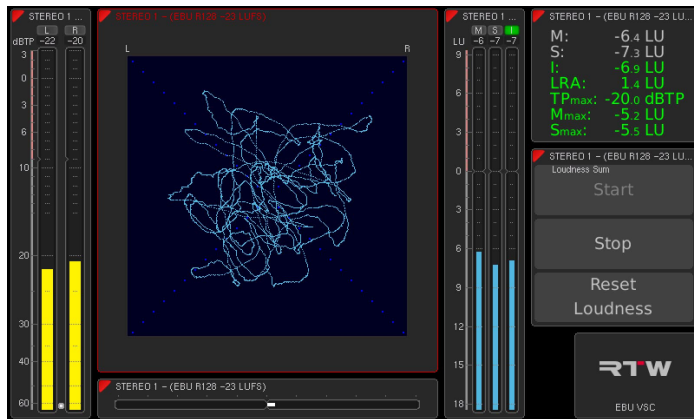
Global Keyboard: Keys: Start, Stop, Reset

EBU CHART



Group: Stereo 1
 Input: AES3 1
 Loudness: EBU R128
 Program Meter Scale: TP60: +3..-60 dB (-60 to 3 dBTP)
 Instruments: Program Meter (TruePeak mode), Vectorscope,
 Loudness Sum (S), Loudness Num (I, LRA),
 Loudness Chart with I bargraph and course
 over time including tolerance indicator (M)
 Keys: Loudness Sum Keys: Start, Stop, Reset Loud-
 ness

EBU VSC



Group: Stereo 1

Input: AES3 1

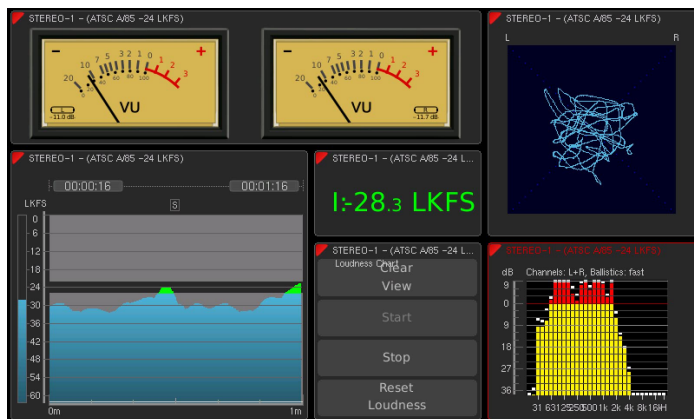
Loudness: EBU R128

Program Meter Scale: TP60: +3..-60 dB (-60 to 3 dBTP)

Instruments: Program Meter (TruePeak mode), Vectorscope, Correlator, Loudness Sum (M, S, I), Loudness Num (M, S, I, LRA, TPmax, Mmax, Smax)

Keys: Loudness Sum Keys: Start, Stop, Reset Loudness

STEREO ATSC



| | |
|----------------------|--|
| Group: | Stereo-1 |
| Input: | AES3 1 |
| Loudness: | ATSC A/85 |
| Program Meter Scale: | VU digital |
| Instruments: | Moving Coil (VU modes Stereo Horizontal), Vectorscope, Loudness Chart with I bargraph and course over time including tolerance indi- cator (M), Loudness Num (I), RTA |
| Keys: | Loudness Chart Keys: Clear View, Start, Stop, Reset Loudness |

Software Update

If you want to add new functions and instruments to your unit at any time, periodic maintenance of the system software (firmware) is necessary, because you only will find options and licences that were provided for your model and were already available at the release date of the software version installed on the unit.

Software updates are available from your sales partner or the download area of our web site (<https://www.rtw.com/en/support/manuals-software.html>). There, click „Audio Monitors“, then choose the option corresponding to your model.



If you want to update your software, please proceed as follows:

1. Copy the update file (rtw-tm-fw-n-n.bin, n-n: firmware version) into the main directory of a USB flash drive.
2. **Unmount** the USB flash drive from the computer system! Not till then remove it from your computer!

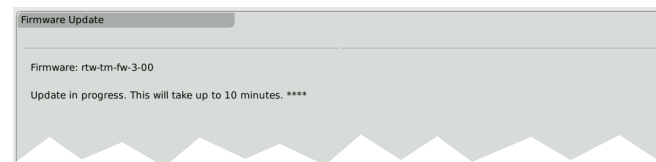


ATTENTION! - Unmounting from the computer system shall be performed to avoid damage of the copied update file!

3. Remove the unmounted USB flash drive from your computer and insert it to one of the USB ports on TouchMonitor's rear panel.



4. If not visible, touch the empty space of the screen to display the control bar.
5. Touch the **Menu** key in the right section of the control bar, then the **System** key in the **Main Menu**.
6. Touch the **Special** key. The additional **Start Firmware Update: rtw-tm-fw-n-n** key is displayed.
7. Touch the key. The update starts and takes about 10 minutes.



8. When the update is finished, the TouchMonitor reboots automatically.
9. Touch the **Menu** key in the right section of the control bar, then the **Info** key in the **Main Menu**.
10. Check the **Software Version** (the designation of the update file should be displayed), the Serial Number and the Model Number.

Specifications (Extract)

System

General

| | |
|-------------------------|---|
| Power requirements: | +24 V DC (2 A overcurrent protective device shall be installed!) |
| Current drain: | 1 A nominal current, 2.5 A power-up current (10 µsec.) |
| Power dissipation: | approx. 8.5 W |
| Display: | 7" TFT touch screen 16 : 9 (800 x 480 pixel) |
| Connectors: | 1 x 4-pin locking low voltage typ 710 (DC) 2 x USB A; USB 2.0 Full Speed connectors for: <ul style="list-style-type: none">▪ USB sticks for preset export and import, software updates▪ external computer mouse or Wacom® graphics tablet |
| | 1 x GPIO (RJ-12-6P6C, for remote control of defined functions) |
| | 1 x LAN (RJ-45) |
| | 2 x XLR-F (2 x AES3 In) |
| | 2 x XLR-M (2 x AES3 Out) |
| Dimensions (W x H x D): | 198 x 139.5 (163) x 46 (95) mm (with table-stand) |
| Weight: | approx. 2.7 kg (without power supply) |
| Operating temperature: | in the range from +5° to +40° C |

Functions

- Operating using a finger (touch screen), mouse, or tablet
- Instruments can be freely scaled and randomly positioned
- Multiformat 4-ch. PPM (2-ch. Stereo, 2 x 2-ch. Stereo, single)

- Loudness-Meter: EBU R128, ITU-R BS.1770-4/1771-1, ATSC A/85, ARIB, OP-59, AGCOM, CALM Act, LEQ(M), TASA, SAWA
- SPL-Meter
- Loudness Test Time Control
- Loudness Range instrument (LRA)
- Loudness Chart instrument
- Moving Coil instrument (BR, VU, Loudness, BBC mode)
- Stereo Correlator
- 31, 61, and 122 band spectrum analyzer
- 2-channel Audio Vectorscope
- AES3 status monitor
- Numerical displays
- 5 preset definable

Digital Inputs

| | |
|-----------------|---|
| Inputs: | 2 AES3 inputs (transformer balanced, 110 Ω), 2 XLR-F connectors, 3-pin |
| Sampling rates: | 44.1, 48, 96 kHz, synchronisation to digital input signal or internal clock |

Digital Outputs

| | |
|-----------------|--|
| Outputs: | 2 AES3 outputs, XLR-M connector, 3-pin |
| Sampling rates: | referenced to digital inputs or internal clock |



Complete Software Package

General

| | |
|------------------|--|
| Input sources: | digital via XLR audio interface (AES3) |
| 4-ch. peakmeter: | 2-ch. Stereo, 2 x 2-ch. Stereo, single channel |
| Displays: | <ul style="list-style-type: none">▪ Peak level▪ Peak hold▪ Numerical value of the display▪ Digital over |
| Functions: | <ul style="list-style-type: none">▪ Gain (+20 dB, +40 dB depending on selected standard)▪ Peak hold on/off, Memory, Reset |

Digital Peakmeter

| | |
|----------------------------|---|
| Word width: | 24 bit |
| Digital scales: | <ul style="list-style-type: none">▪ TP60: +3 .. -60 dB▪ Dig60: 0 .. -60 dB▪ DIN5: +5 .. -50 dB,▪ Nordic: +12 .. -42 dB,▪ BR IIa: 7 .. 1 (British),▪ BR IIb: +12 .. -12 dB (British), |
| Headroom/Head: Ref: | adjustable in 1 dB steps in the range from 0 to -20 dB |
| Operation range: | adjustable in 1 dB steps in the range from 0 to -20 dB |
| Integration time (Attack): | acc. to corresponding standard or selectable: Sample, 20 ms, 10 ms, 1 ms, 0.1 ms, additional 150 ms for British scales |
| Gain: | +20 dB, +40 dB depending on selected standard |
| High-pass filter: | Off, 5 Hz, 10 Hz, 20 Hz |
| Peak hold display: | 1 s, 2 s, 4 s, 10 s, 20 s, 30 s, manual reset or off |
| Over display hold time: | 1 s or manual |
| PPM Over threshold: | Full Scale, Full Scale -1LSB, Full Scale -2LSB, -0.1 dBFS, -0.5 dBFS, -1 dBFS, -2 dBFS, -3 dBFS |
| PPM Over attack time: | 1 to 15 samples |
| PPM Over word width: | 16 to 24 Bit, selectable |
| True Peak Over threshold: | -1.0 dBTP, -2.0 dBTP, -3.0 dBTP, -4.0 dBTP |

Stereo Correlator

| | |
|-------------------------|---|
| Display: | Bargraph, additional spot indicator between PPM bargraphs |
| Scale range: | -1 r to 0 to +1 r |
| Standard color setting: | <ul style="list-style-type: none">▪ red: -1 r to -0.1 r▪ white: 0 r (-0.1 r to +0.1 r)▪ green: +0.1 r to +1 r |
| Attack/release time: | 1.0 s/2.5 s |

Audio Vectorscope

| | |
|---------------|---|
| Display mode: | 2 channel |
| Inputs: | L/R (Stereo signal with the input channels of the selected audio group) |
| AGC: | fast/slow |
| Grid: | L/R or M/S |

AES3 Status Monitor

| | |
|-----------|---|
| Displays: | <ul style="list-style-type: none">▪ Channel data are displayed as plain text, hex or binary▪ Channel selectable▪ Audio bit activity▪ Hardware status |
|-----------|---|

Global Keyboard

The Global Keyboard is used for simultaneous control of defined functions in multiple instruments, and for preset recall. It also allows the external control with the integrated GP IO interface.

Loudness Parameters

Depending on the loudness standard being used, the options and settings listed below are fixed, reduced, or not available. Please definitely note the provided buttons and their labelling in the corresponding menus.

| | |
|------------|--|
| Standards: | EBU R128, ITU BS.1771, ATSC A/85, ARIB, OP-59, AGCOM, CALM Act, LEQ(M), TASA, SAWA |
|------------|--|

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| | | |
|----------------------------|--|---|
| Display: | <ul style="list-style-type: none"> ▪ M bargraph (Momentary - summation of momentary loudness values of all channels for a short span of time) ▪ S bargraph (Short - loudness summation value of an adjustable dynamic time frame) ▪ I-Bargraph (Integrated - long term loudness value infinite or manual control) | <ul style="list-style-type: none"> - Relative Gate: -10.0 LU, switchable |
| Numerical display: | <ul style="list-style-type: none"> ▪ adjustable tolerance range for M, S, I ▪ for M, S, I values (labelling adjustable) ▪ for LRA, TPmax, Mmax, Smax values | Level adjustment for the summation: *) 0.0 dB, adjustable between -3 and +3 dB in steps of 0.5 dB |
| Scales: *) | Loudness scale: <ul style="list-style-type: none"> ▪ EBU+9: +9 .. -18 LU ▪ EBU+18: +18 .. -36 LU ▪ EBU+9a: 14 .. -41 LUFS ▪ EBU+18a: -5 .. -59 LUFS ▪ EBU0: 0 .. -60 LUFS ▪ ITU+9: +9 .. -18 LU (Loudness Units) ▪ ITU0: 0 .. -30 LKFS ▪ ATSC0: 0 .. -60 LKFS ▪ ATSC0a: 0 .. -30 LKFS | *) Depending on the used loudness standard not all of the listed settings are available. |
| Weighting filter: | K filter acc. to ITU BS.1770 | Loudness Test Time Control Settings for operating automatic, semi-automatic or manual loudness measurements. Start: <ul style="list-style-type: none"> - Functions: Autostart after preset load, autostart with gate, autostart with gate and autoreset, manually via keys or GPI - Level for gate: -70,0 LUFS/LKFS; adjustable from -85 to -10 LUFS/LKFS in steps of 0.5 LUFS/LKFS Stop: <ul style="list-style-type: none"> - Functions: manually via keys or GPI, autostop with gate, autostop with gate and time - Level for gate: -70,0 LUFS/LKFS; adjustable from -85 to -10 LUFS/LKFS in steps of 0.5 LUFS/LKFS - Time for gate: 1 s; adjustable from 1 to 15 s in steps of 1 s |
| Target Level: *) | <ul style="list-style-type: none"> ▪ -23 LUFS; adjustable from -10 LUFS to -30 LUFS in steps of 1 LUFS ▪ -24 LKFS; adjustable from -10 LKFS to -30 LKFS in steps of 1 LKFS | Loudness Range Instrument (LRA) Display: Graphical display of the Loudness Range Mode: selectable: LRA Bar, MagicLRA, MagicLRA + I, MagicLRA + I + Num Scale range: selectable: 6 LU, 10 LU, 20 LU, 30 LU LRA low range: 2 LU; adjustable from 1 to 20 LU in steps of 1 LU Comfort zone: 4 LU; adjustable from 1 to 20 LU in steps of 1 LU LRA high range: depends on the selected scale range and the spread of the comfort zone Colors: selectable for each range |
| Time & Gate Momentary: *) | | |
| - Integration time: | 400 ms | |
| Time & Gate Short: *) | | |
| - Integration Time: | 3 s; time window adjustable from 1 to 20 s in steps of 1 s | |
| Time & Gate Integrated: *) | | |
| - Silence Gate: | <ul style="list-style-type: none"> ▪ -70.0 LUFS, switchable ▪ -70.0 LKFS, switchable | |



SPL Meter Mode

| | |
|-------------------|---|
| Display: | <ul style="list-style-type: none">Bargraphs for each single channel (can be combined with PPM bargraphs)Summation bargraph |
| Reference point: | adjustable in the range from 68 dB to 88 dB in steps of 1 dB |
| Weighting: | Linear, A (Leq(A)), C, CCIR (Leq(M)), k |
| Integration time: | Fast (125 ms), Slow (1 s) |

Spectrum Analyzer (RTA)

| | |
|--------------------------------|--|
| Input sources: | selectable: single channels, Stereo pairs, depending on mode |
| Frequency range: | <ul style="list-style-type: none">Norm: 20 Hz to 20 kHz, additional band > 20 kHz switchableLF: 5 Hz to 5 kHz |
| Number of bands: | <ul style="list-style-type: none">1/3-octave: 31 bands, filter acc. to IEC 225 class 21/6-octave: 61 bands |
| Weighting filter: | Linear; Linear, A, C selectable |
| Peak hold indicator: | 1 s, 2 s, 4 s, 10 s, 20 s, 30 s, manual reset or off |
| Measuring range: | 45 dB max. |
| Scaling: | 3, 6, 9 dB |
| Functions: | <ul style="list-style-type: none">Input selectionPeak hold on/offA, C weighting, LinearIntegration timeSet referenceScalingFrequency rangeBargraph arrangementDisplay-Hold |
| Integration time (ballistics): | Impulse, Fast, Slow, Peak (10 ms) |

Moving Coil Instrument

| | |
|-----------------|--|
| Type: | PPM (L/R), PPM (M/S), VU, Loudness, PPM + Loudness (L/R; M, S, or I), selectable |
| PPM: | <ul style="list-style-type: none">Ch. arrangement: Dual, Dual + M/S horizontal, Dual + M/S vertical, Stereo horizontal, Stereo verticalScales:<ul style="list-style-type: none">BR IIa: 7..1, BR IIa ext: 7..1BR IIb: +12..-12 dB, BR IIb ext: +12..-12 dBIntegration time: Sample (digital only), 0.1 ms, 1 ms, 10 ms, 20 ms, 150 msHeadroom Ref: -10 dB; adjustable from 0 to -20 dB in steps of 1 dBS mode: only available, if M/S type is selected: M3, M6Peak indicator: Off, Peak, True Peak, BR PeakBR Peak Threshold: 6 dB,<ul style="list-style-type: none">BR IIa: adjustable from 4 to 7 dB in steps of 1 dBBR IIb: adjustable from 0 to 12 dB in steps of 1 dB |
| VU: | <ul style="list-style-type: none">Ch. arrangement: Stereo horizontal, Stereo verticalScale analog: VU (-20 to +3 dB)Scale digital: VU Digital (-20 to +3 dB)Lead: 0 dB, adjustable from 0 to 12 dB in steps of 1 dBPeak indicator: Off, Peak, True Peak |
| Loudness: | <ul style="list-style-type: none">Ch. arrangement: Dual, Stereo horizontal, Stereo verticalScales: acc. to Loudness settingsIntegration time: acc. to standardPeak indicator: Off, no selectable option available |
| PPM + Loudness: | <ul style="list-style-type: none">Ch. arrangement: Dual-PPM (as described above) with additional Loudness display (BBC mode) for M, S, or I (selectable) in one instrument |

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- Scales:
 - PPM: BR IIa: 7..1, BR IIa ext: 7..1, BR IIb: +12..-12 dB, BR IIb ext: +12..-12 dB,
 - Loudness: +9 to -9 LU fixed (mid of scale corresponds to Target Level)
- Integration time: Sample (digital only), 0.1 ms, 1 ms, 10 ms, 20 ms, 150 ms
- Headroom Ref: -10 dB; adjustable from 0 to -20 dB in steps of 1 dB
- Peak indicator: Off, Peak, True Peak, BR Peak
- Loudness type: M, S, I, selectable
- Numerical display: switchable

Loudness Chart Instrument

- Functions:
- Horizontal running bargraphs (Timeline Bars) with individual selected colors for evaluating the common quality of Loudness values TP, M, S, I
 - Coordinate system displaying a graph with the course over time of one measured value
 - Position of the Relative Gate switchable
 - Adjustable time ranges
 - Selection of time periods for analyzing
 - Vertical Integrated bargraph switchable
 - Adjustable tolerance levels
- Display:
- Bargraph: Color change of a running bargraph indicates the move of its loudness value through the different sections: Normal, Operation, Headroom, Over, Invalid (depending on selected value)
 - Chart-Graph: Course over time of the selected value with color filling acc. to the color selection for the Timeline Bars (color change), Tolerance Indicator, position of the Relative Gate
- Colors:
- Bargraph: Individual selectable colors (32) for Normal (bar color), Operation (Range), Headroom (TP only), TP-Over (TP only), Over (M, S, I only), Invalid (M, S, I only)

- Chart-Graph: Adoption of the corresponding colors of the Timeline Bars, additional selectable colors for Tolerance Indicator and Relative Gate
- Time Range:
- Selectable timescale of the coordinate system and the Timeline Bars
- Increasing or decreasing the defined time-scale in steps of one unit or ten units each
 - Stretching the measured course to the available width of the window
- Timerange presets:
- Auto stretch: Automatical stretching of the selected timescale to the available width of the window
 - Hours: 0 h; adjustable from 0 to 3 h in in steps of 1 h
 - Minutes: 1 m; adjustable from 1 to 59 m in steps of 1 m
- Time Select:
- Selection of the current displayed time scale
 - Stepwise increasing and decreasing of the selection acc. to timescale
 - Moving the selection and magnifying its content to the available width of the window
- Tolerance Levels:
- TP Headroom: -9.0 dB; adjustable from 0 to -20 dB in steps of 0.1 dB
 - TP Operation Range: 0.0 dB; adjustable from 0 to -20 dB in steps of 0.1 dB
 - M High: +1.0 LU; M tolerance above the Target Level, adjustable from 0 to 10 LU in steps of 0.1 LU
 - M Low: -1.0 LU; M tolerance below the Target Level, adjustable from 0 to -12 LU in steps of 0.1 LU
 - S High: +1.0 LU; S tolerance above the Target Level, adjustable from 0 to 10 LU in steps of 0.1 LU
 - S Low: -1.0 LU; S tolerance below the Target Level, adjustable from 0 to -12 LU in steps of 0.1 LU
 - I High: +1.0 LU; I tolerance above the Target Level, adjustable from 0 to 10 LU in steps of 0.1 LU
 - I Low: -1.0 LU; I tolerance below the Target Level, adjustable from 0 to -12 LU in steps of 0.1 LU

EC Declaration of Conformity

EC Declaration of Conformity | Directive 2004/108/EG and Directive 2006/95/EG

We, RTW GmbH & Co. KG, Am Wassermann 25, 50829 Köln, Germany, declare under sole responsibility that the products of the

RTW TouchMonitor TMR7 Models

(TMR7-Radio table-top unit | TMR7-Mount panel-mount unit)

meet the intend of the Directive 2004/108/EG and the Directive 2006/95/EG. Compliance was demonstrated to the following specifications as listed in the official Journal of the European Communities:

EMC 2004/108/EG

EN 61000-6-3: 2012-11 Emissions:

EN 55022: 2011-12 Class B, radiated

EN 55022: 2011-12 Class B, conducted

EN 61000-6-1: 2007-12-01 Immunity:

EN 61000-4-2 + A1 + A2: 2002-02-01

EN 61000-4-4: 2005-09-01

EN 61000-4-5: 2007-08-01

Safety 2006/95/EG

EN 60950-1: 2007-01-01

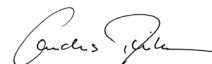
Tested and documented by the following companies:

RTW GmbH & Co.KG, Cologne

Date and signature of the responsible person:

2019-03-01

on behalf of RTW



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RoHS Declaration of Conformity

RoHS Declaration of Conformity for TMR7-Radio, TMR7-Mount | Directive 2011/65/EU

We, RTW GmbH & Co. KG, Am Wassermann 25, 50829 Köln, Germany, declare under sole responsibility that the products of the

RTW TouchMonitor TMR7 Models

consisting of the components:

- TMR7-Radio (with digital audio interface in a table-top frame)
- TMR7-Mount (panel-mount unit with digital audio interface)

meet the intend of the Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic

equipment of the European Parliament and Council from June 8th, 2011.

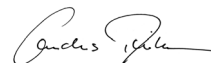
Tested and documented by the following companies:

RTW GmbH & Co.KG, Cologne

Date and signature of the responsible person:

2019-03-01

on behalf of RTW



EC and RoHS declarations of third party components

- 1178-R (power supply 100 - 240 V AC/24 V DC, 2,71 A)
Supplier: Dehner-Elektronik
Manufacturer: Adpater Technology Co., Ltd.

CE Certificate No. T150115D02-E

RoHS conformity is declared together with EC declaration.

UL reference TH/SPC-1411065-SPC

Licenses of the Implemented Software

In addition to the hardware the RTW TouchMonitor 7" and 9" Series products also include a software package for which a variety of licenses apply. Detailed information and the licenses can be found in the **Info** menu of your device (**Menu -> Info -> License Informationen**) or in the detailed operating manual, which is stored to the attached USB flash drive. Below a short overview:

1. Software produced by RTW GmbH & Co. KG.

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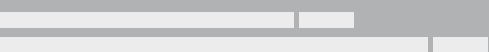
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Cologne, November 20th, 2019

Depending on the model the start screen of the TouchMonitor contains an adapted image based on the photography "Cologne_CathedralNight-6.jpg" of Lukasz Kryger, Edingburgh, Scotland. The images fall under the Creative Commons Attribution 2.0 Generic License (http://commons.wikimedia.org/wiki/File:Cologne_CathedralNight-6.jpg, <http://creativecommons.org/licenses/by/2.0/deed.en>).



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