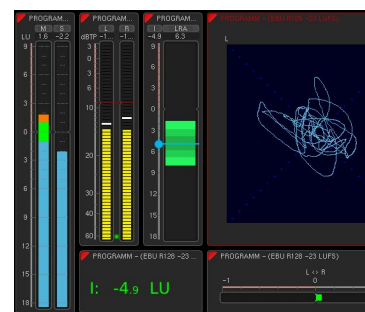


# Data Sheet

## TouchMonitor TMR7 | TMR7OEM



# TouchMonitor TMR7 | TMR7OEM



product  
design  
award

2011 ■



**Modular Software ■ Touch Screen ■ AES3 I/O via XLR ■ Highly Flexible Screen-Layout ■ 2- to 4-ch. PPM/True Peak SPL ■ Audio Vectorscope ■ Loudness acc. to all relevant standards ■ Logging ■ Chart ■ LRA ■ RTA ■ Premium PPM**

The four audio inputs provided by the two AES3 XLR ports are flexibly configurable for mono, stereo, or multichannel sources, providing separate instruments for each source. This allows e. g. in radio broadcast the parallel monitoring of the on-air signal and a separate source.

Beside the AES3 interfaces the GPIO interface for overall control, the Ethernet port, and the VGA output for external display units offer even more functional options for flexible integration of TMR7 into individual studio environments.

## Graphical User Interface

The graphical user interface used in the TouchMonitor range is controlled simply by using your finger. Instruments can be scaled, randomly positioned and combined for optimized use of available screen space. Multiple instruments of the same type, assigned to different input channels and configurations, can be displayed simultaneously. A comprehensive on-screen help feature supports the user to make setup changes with ease.

## Licences

A totally modular software concept means that you only have to purchase features that you actually require. This puts you in control, defining the functionality of an individual TouchMonitor that suits your needs best. At any time new instruments and functions can be added to the device as software modules simply by purchasing and activating a corresponding licence.

Gefördert durch:



aufgrund eines Beschlusses  
des Deutschen Bundestages

# Hardware

## Common Configuration

- 7" touch screen 16 : 9 TFT (800 x 480 pixel)
- 4-channel audio interfaces (2 x AES3 inputs and 2 x AES3 outputs via XLR)
- Connectors for Ethernet, VGA, 2 x USB 2.0, GPIO, 24 V DC
- Fully scalable, modular software approach for flexible configuration and easy on-site upgrades
- Highly flexible screen layout options with scalable instruments
- Basic PPM software (2-ch. Stereo, 2 x 2-ch. Stereo, Single, Multichannel up to 4 ch.): Peak, True Peak, Audio Vectorscope, Phase Meter, Global Keyboard
- Available software licences (see below):
  - Loudness (EBU R128, ITU, ATSC A/85, ARIB, OP-59, AGCOM, CALM, LEQ(M), TASA, SAWA) and SPL
  - RTA - Real Time Analyzer,
  - Premium PPM (with Moving Coil and second Audio Vectorscope),
  - Timecode Reader,
  - Logging Data Server (external logging or chart)

## Main Units with Interfaces

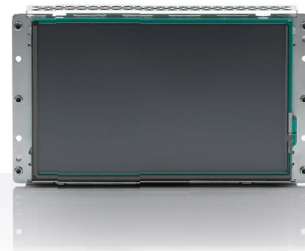
### TMR7

TouchMonitor TMR7 in a sturdy table-top frame with movable table-stand and power supply.



### TMR7OEM

TouchMonitor TMR7 without table-top frame, without table-stand and without power supply, for mounting into front panels, e. g. mixing consoles.



Hardware (continued)

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Additional Hardware Options

With the mounting adapters available as additional hardware options, the TMR7 units can be adapted to different environments such like standard 19" sub-racks or standard 19" rack-mount cabinets for video racks.

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**TM7-MA3U** (3U Mounting Adapter for TMR7OEM)

Mounting kit including a 19"/3U/42HP rack-mount panel (half-19"/3U) and fastening material for mounting TMR7OEM into standard 19" sub-racks.

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**TM7-MADT** (Table-top Mounting Adapter for TMR7OEM)

Mounting kit including a table-top frame, robust swivel-mounted table-stand, housing cover, and mounting material for remodeling TMR7OEM to a table-top unit.

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**TM7-MAVID** (VID Mounting Adapter for TMR7OEM)

Mounting kit including a half-19"/3U plug-in panel and fastening material for mounting TMR7OEM into standard 19" rack-mount cabinets for video racks.

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# Software

## Standard Software

Every TouchMonitor comes with a basic software package. Beside the signal processing and the control functions this software includes a PPMs for up to 4 channels with digital scales (0 to -60 dB, +3 to -60 dB TruePeak, DIN5, Nordic, British Ila and Iib), peak hold, peak memory, Over indicators, audio vectorscope, phase correlation meter, gain reduction, and a global keyboard 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. Optionally, different software modules are available as licences.

## Software Modules (Licences)

Software modules can be ordered as licences either together with the order of the unit or at a later point in time. Together with the order of the unit the licence will be activated at delivery.

When a licence is needed at a later point in time, the order process is started from the "Licences" menu of the TMR7 unit. A device-specific file for forwarding to RTW is created by the unit. RTW will give back a corresponding file with the activated licence for exactly this unit.

### SW20002: Loudness and SPL Display

Expands the basic Stereo-PPM with Loudness functions (EBU R128, ITU-R BS.1770-4/1771-1, ATSC A/85, ARIB, OP-59, AGCOM, CALM, LEQ (M), TASA, SAWA), SPL functions, and Loudness Range instrument (LRA).



### SW20003: RTA - Real Time Analyzer

Provides on 31, 61 or 120 bands a spectral distribution display of the frequency range of single channels, channel pairs or groups. Additional HP HF band available.

### SW20006: RTW Premium PPM

High resolution Multistandard-PPM display with advanced scales, additional PPM and VU moving coil instruments, and second audio vectorscope.

### SW20008: Timecode Reader

Decoding of SDI embedded or LTC timecode. Timecode display. Licence SW20002 is required for the possibility of recalculating loudness.

### SW20014: Logging Data Server

Export of measured data via IP connection or USB flash drive. Two-stage definition of thresholds. Advanced graphical presentation with RTW LQL PC software. Chart instrument for the display of the course of a measurement directly on the TM.

--- Precondition: Licence SW20002! ---



## Software (Fortsetzung)

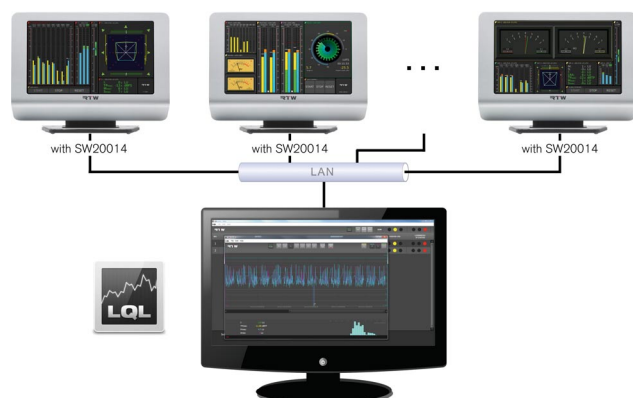
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### PC Software: LQL - Loudness Quality Logger

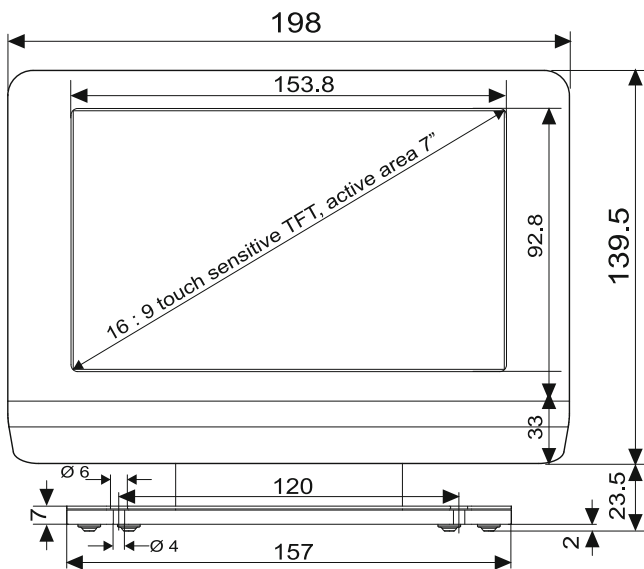
Logging console for Windows® OS to collect and store time-code or realtime based Loudness and True Peak data via IP connection or USB stick of multiple TM7, TMR7, and TM9 with LQL licence SW20014 activated. Two-stage definition of limits to generate various alarms, status overview, reports, and data export. The basic version is available for free to registered users. Please see members area of RTW's web site (Support/Manuals & Software) under „PC Software/LQL - Loudness Quality Logger“ (please log in).

--- Precondition: Licence SW20014 must be installed on each connected TouchMonitor ---

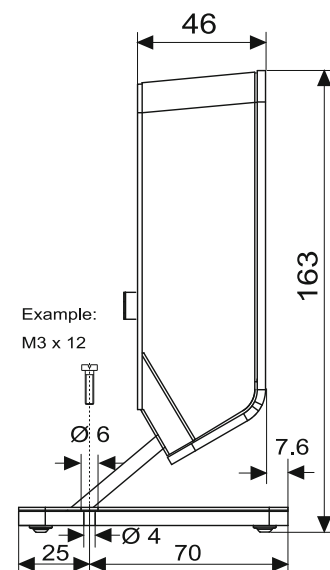


# Dimensions

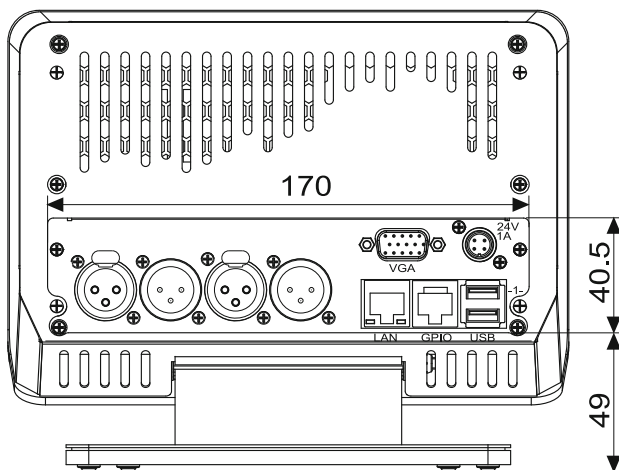
## TouchMonitor TMR7 Table-top unit (also TMR7OEM with TM7-MADT)



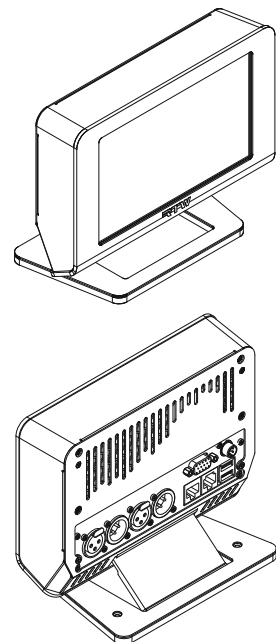
1 | Front view (dimensions in mm)



2 | Side view (dimensions in mm)

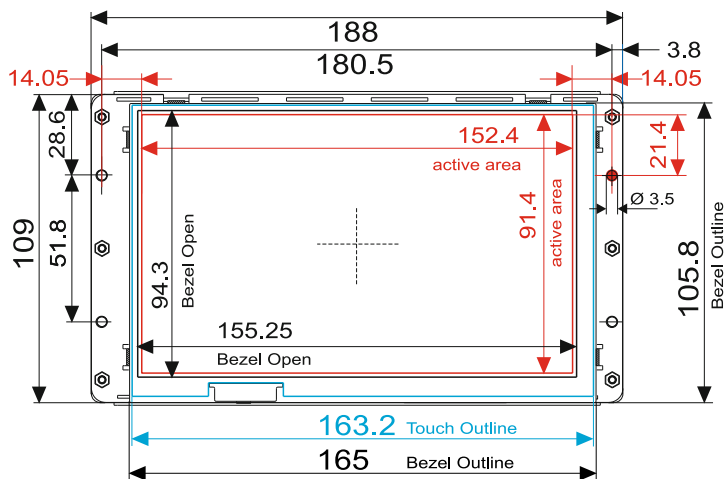


3 | Rear view (dimensions in mm)

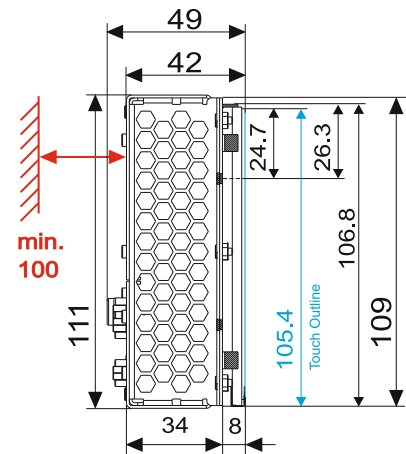


## Dimensions (continued)

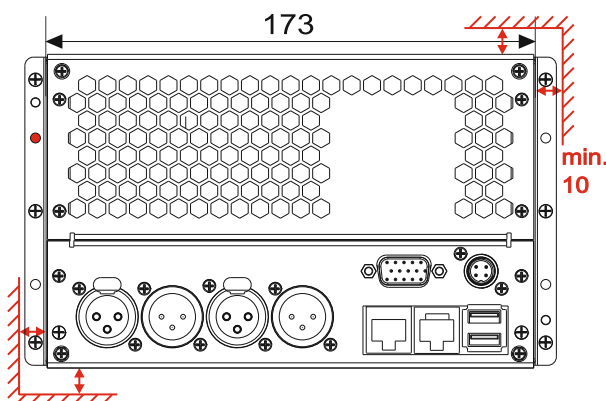
### TouchMonitor TMR7OEM Main unit for panel-mounting



1 | Front view (dimensions in mm, tolerance:  $\pm 0.2$  mm)

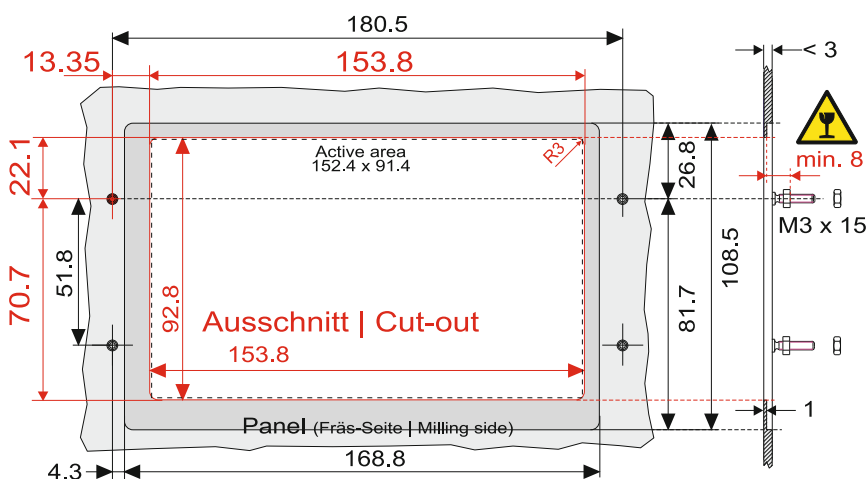
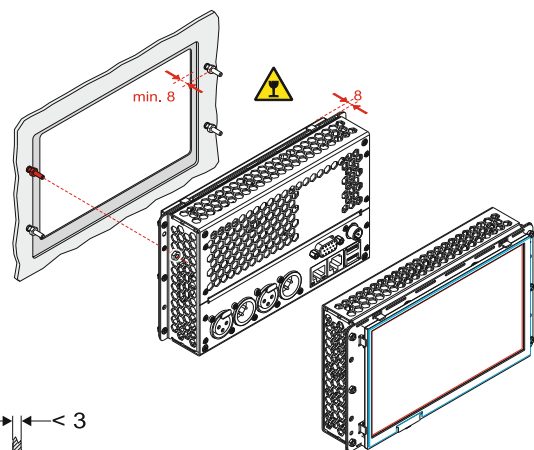


2 | Side view (dimensions in mm, tolerance:  $\pm 0.5$  mm)



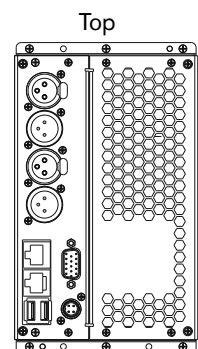
3 | Rear view (dimensions in mm, tolerance:  $\pm 0.5$  mm)

**!** For adequate ventilation a minimum space is required:  
min. 10 mm at all sides and  
min. 100 mm on the rear side!



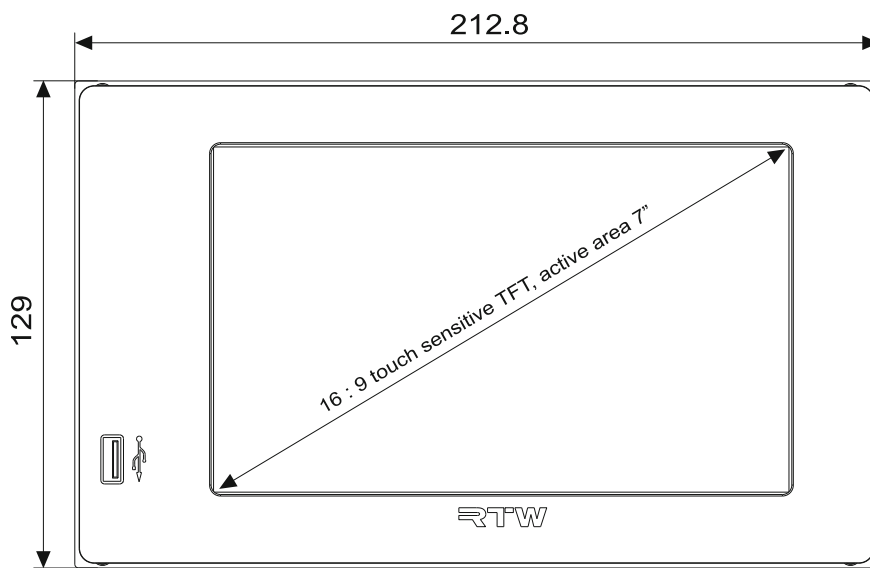
4 | Front panel cut-out (dimensions in mm, tolerance:  $\pm 0.2$  mm)

5 | Vertical mounting orientation

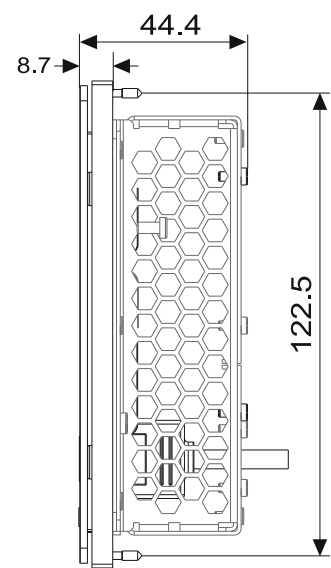


## Dimensions (continued)

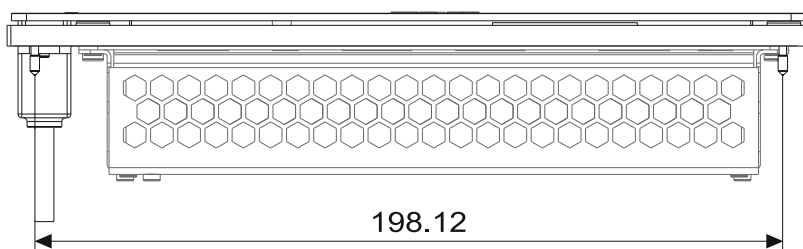
### Optional TM7-MA3U Mounting Adapter for Mounting TMR7OEM into Standard Racks



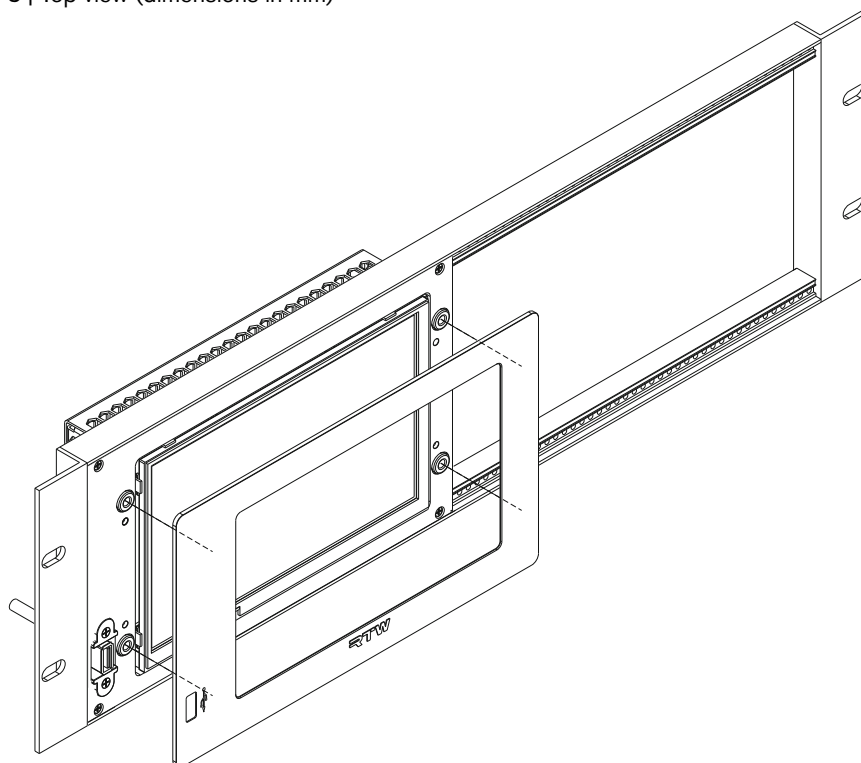
1 | Front view (dimensions in mm)



2 | Side view (dimensions in mm)



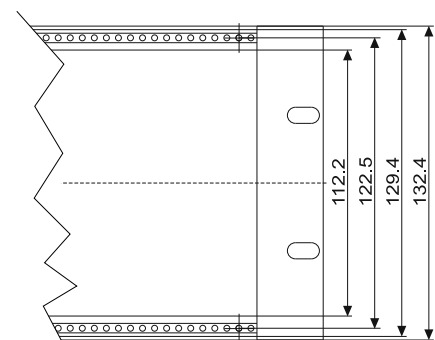
3 | Top view (dimensions in mm)



4 | Mounting into standard 19"/3U sub rack

Optional TM7-MA3U with TMR7OEM  
fits to standard 19"/3U sub racks  
(DIN EN 60297-3-101:2004  
19"/3U/84HP)

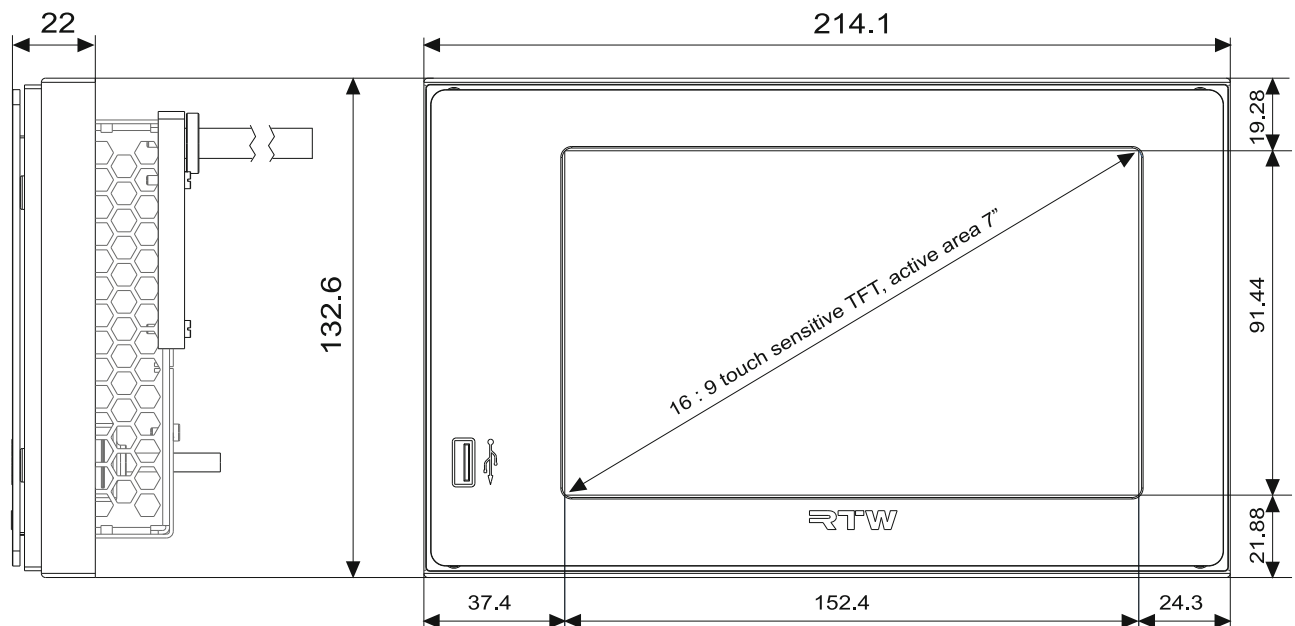
TMR7OEM and sub rack are not part  
of TM7-MA3U delivery



5 | Heights (mm) of standard 19"/3U sub racks 

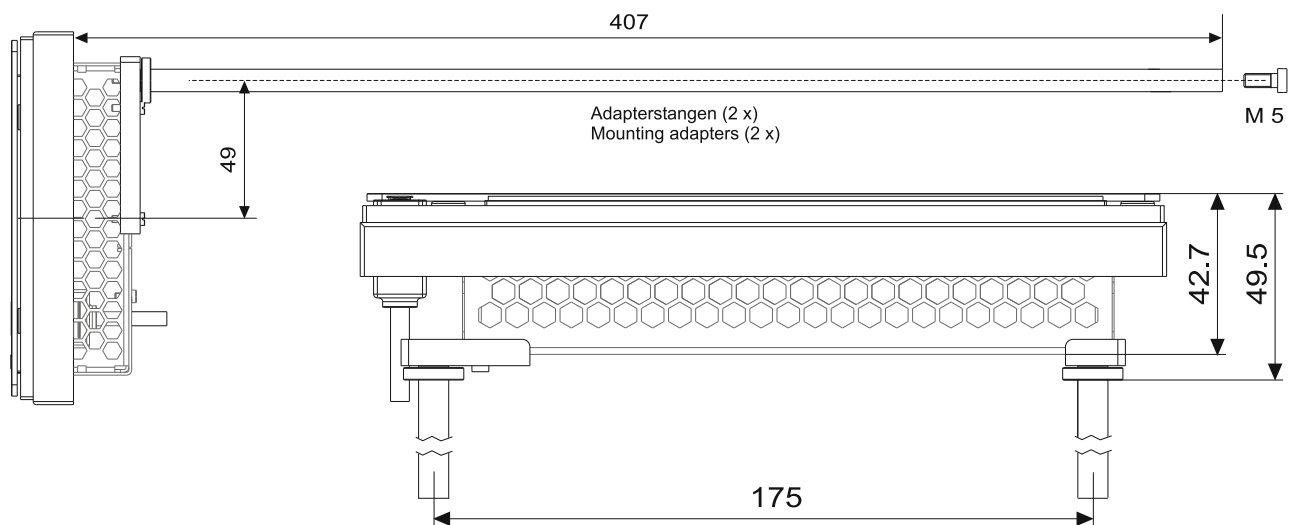
## Dimensions (continued)

### Optional TM7-MAVID Mounting Adapter for Mounting TMR7OEM into Video Racks



1 | Side view (dimensions in mm)

2 | Front view (dimensions in mm)

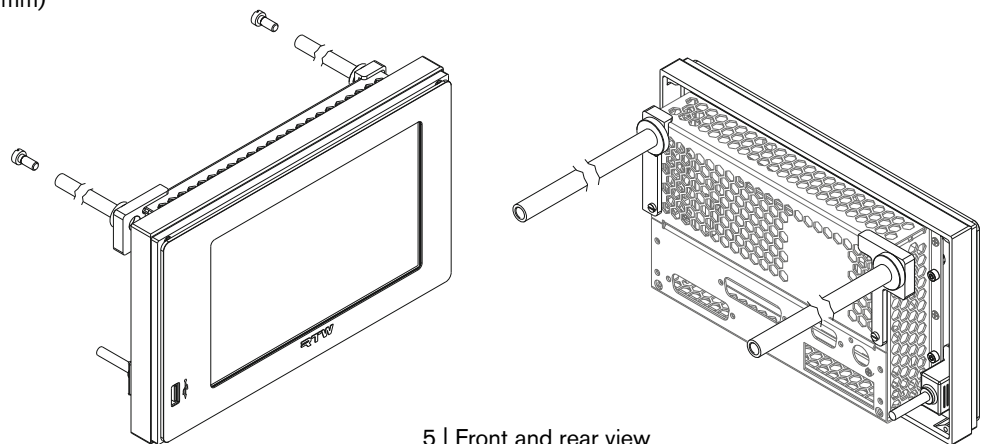


3 | Mounting depth (side view with adapters, dimensions in mm)

4 | Top view (dimensions in mm)

Optional TM7-MAVID with TMR7OEM fits into standard 19" rack-mount cabinets for waveform monitors in video studios

TMR7OEM and rack-mount cabinet are not part of TM7-MAVID delivery



5 | Front and rear view

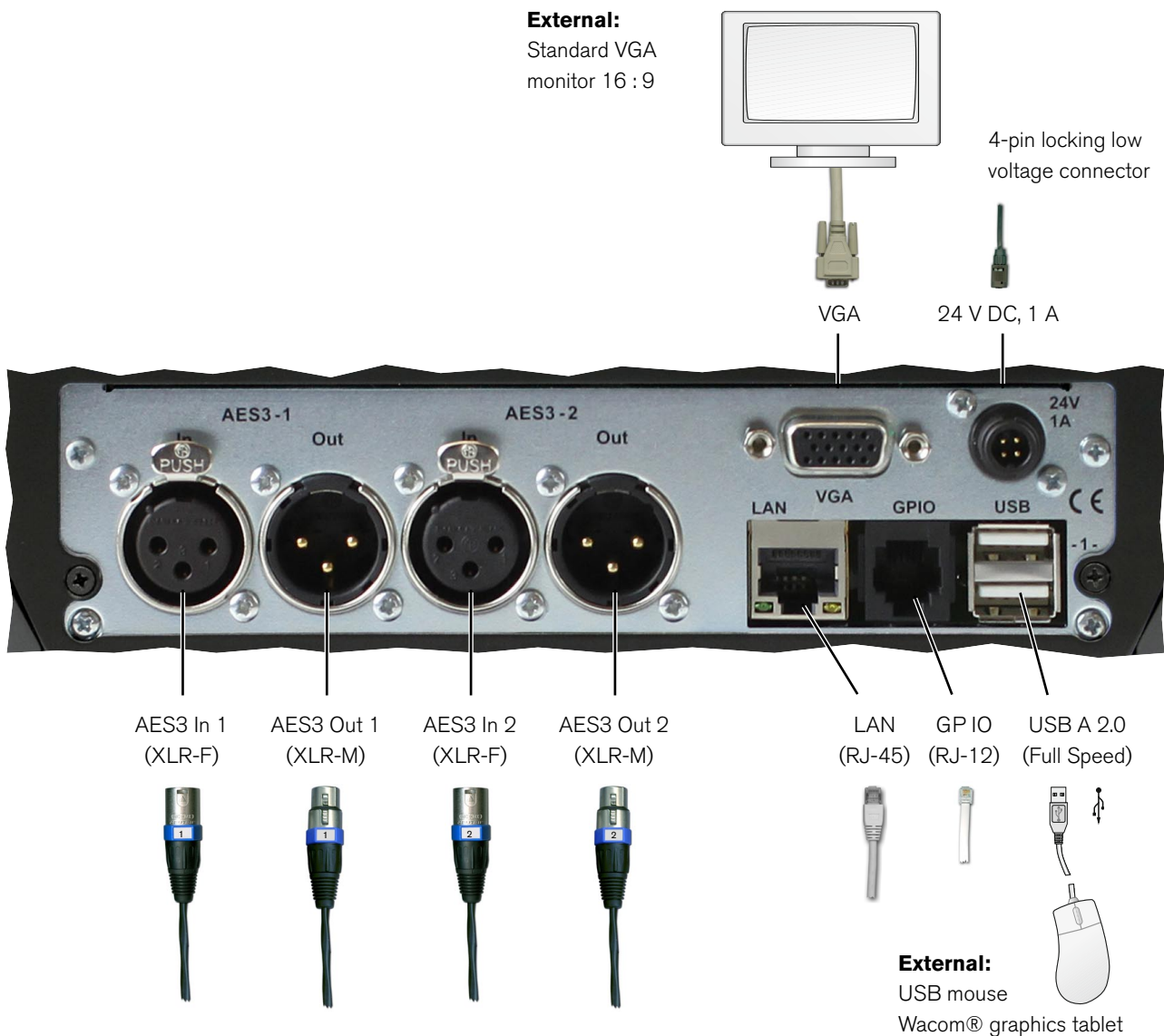
# Connection

## Connectors



**ATTENTION!** - For operating the TMR7OEM, an adapted mains adapter is required. RTW recommends the use of the RTW wide voltage power supply 1178-R (100 - 240 V AC/24 V DC, 2.7 A) approved for TouchMonitor and available as an accessory.

This power supply is included in the TMR7 table-top package.

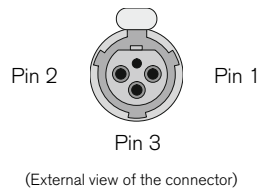


## Pin Assignment

### AES3 In 1, AES3 In 2 (transformer-balanced, 3-pin XLR-F)

Pin: Function:

- 1 Shield/case
- 2 +, hot
- 3 -, cold

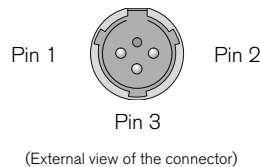


**NOTE** - The AES3 inputs are permanently terminated with 110 Ω.

### AES3 Out 1, AES3 Out 2 (transformer-balanced, 3-pin XLR-M)

Pin: Function:

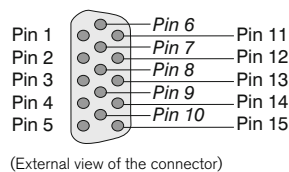
- 1 Shield/case
- 2 +, hot
- 3 -, cold



### VGA (15-pin Sub-D-F)

Pin: Function:

- 1 R | Video signal
- 2 G |
- 3 B |
- 4 GND
- 5 GND
- 6 GND
- 7 GND
- 8 GND
- 9 +5 V
- 10 GND
- 11 GND
- 12 SDA
- 13 H-sync
- 14 V-sync
- 15 SCI

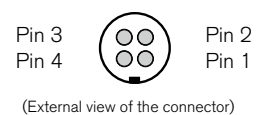


**NOTE** - The VGA cable shell not exceed 15 m length!

### 24 V - 1 A (4-pin locking low voltage, type Binder 710)

Pin: Function:

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



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

### LAN

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

### GP IO (RJ-12 6P6C socket)

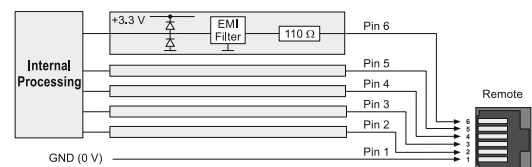
External control of functions and presets recall as defined in the Global Keyboard menu. The inputs defined as „active low“ have to be switched against 0 V (Pin 1).

Pin: Function:

- 1 GND
- 2 - 6 Function acc. to definition in the menu



### Block diagram of the GPIO interface



### USB-A

2 Full Speed USB 2.0 interfaces for connecting USB memory sticks (for licence handling, presets, et. al.), external mouse or Wacom® tablet

# Specifications

## System

### General

Power requirements:	+24 V DC (external 2 A max. overcurrent protective device shall be installed!)
Current drain:	1 A nominal, 2.5 A power-up current (10 $\mu$ sec.)
Power dissipation:	approx. 8.5 W
Display:	7" TFT touch screen 16 : 9 (800 x 480 pixel)
Connectors:	1 x 15-pin Sub-D-F; VGA output with 800 x 480 pixel, 65.536 colors, 60 Hz, for connection of an optional external 16 : 9 VGA monitor, selectable 4 : 3 mode 1 x 4-pin locking low voltage connector type Binder 710 (DC) 2 x USB A; USB 2.0 Full Speed connectors for: <ul style="list-style-type: none"><li>USB memory sticks (licence handling, preset export and import, software updates)</li><li>external computer mouse for operating</li><li>external Wacom® graphics tablet</li></ul> 1 x GPIO (RJ-12-6P6C) for defined functions or preset recall 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):	
▪ TMR7:	198 x 139.5 (163) x 46 (95) mm (with table-stand)
▪ TMR7OEM:	188 x 109 x 45 mm
Weight:	
▪ TMR7:	approx. 2.7 kg (w/o power supply)
▪ TMR7OEM:	approx. 1.2 kg
Operating temperature:	+5° to +40° C

### Functions (with all licences activated)

- Operation with one finger (touch sensitive display) or a computer mouse
- Instruments can be scaled and freely positioned
- Multiformat 4-ch. PPM (2-ch. Stereo, 2 x 2-ch. Stereo, single ch., multichannel up to 4 ch.)
- Loudness-Meter: ITU-R BS.1770-4/1771, EBU R128, ATSC A/85, ARIB, OP-59, AGCOM, CALM Act, LEQ(M), TASA, SAWA, custom mode
- Loudness Test Time Control
- Logging Data Server
- Loudness Chart instrument
- Loudness Range instrument (LRA)
- SPL meter
- Timecode Reader
- Moving Coil (BR, VU, Loudness, BBC mode)
- Gain Reduction instrument
- Stereo Correlator
- 1/3-, 1/6-, 1/12-octave spectrum analyzer
- 2-channel Audio Vectorscope (2 instances)
- AES3 status monitor
- Numerical displays

### Digital Inputs

Inputs:	2 AES3 inputs (transformer balanced, 110 $\Omega$ ), 2 x XLR-F connector, 3-pin
Sampling rates:	44.1, 48, 96 kHz, synchronisation to digital input signal or internal clock

### Digital Outputs

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

## Basic PPM (Standard Software)

### General

Input sources:	digital via XLR audio interface (AES3)
4-channel Peakmeter:	2-ch. Stereo, 2 x 2-ch. Stereo, single channel, multichannel for up to 4 channels
Display:	<ul style="list-style-type: none"><li>▪ Peak level</li><li>▪ Peak hold</li><li>▪ Numerical value of the display</li><li>▪ Gain (+20 dB, +40 dB acc. to standard)</li><li>▪ Peak hold on/off</li><li>▪ Memory</li><li>▪ Reset</li></ul>
Functions:	

### Digital Peakmeter

Word width:	24 bit
Digital scales:	<ul style="list-style-type: none"><li>▪ TP60: +3 .. -60 dB</li><li>▪ Dig60: 0 .. -60 dB</li><li>▪ DIN5: +5 .. -50 dB</li><li>▪ Nordic: +12 .. -42 dB</li><li>▪ BR IIa: 7 .. 1, BR IIa ext: 7 .. 1,</li><li>▪ BR IIb: +12 .. -12 dB, BR IIb +12 .. -12 dB,</li></ul>
Headroom/Headroom Ref:	adjustable in the range from 0 to -20 dB in steps of 1 dB
Operation field:	adjustable in the range from 0 to -20 dB in steps of 1 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 (acc. to standard)
High-pass filter:	Off, 5 Hz, 10 Hz, 20 Hz
Peak hold indicator:	1 s, 2 s, 4 s, 10 s, 20 s, 30 s, manual reset or off
Over indicator hold time:	1 s or manual
Over indicator PPM	
- Threshold:	Full Scale, Full Scale -1LSB, Full Scale -2LSB, -0.1 dBFS, -0.5 dBFS, -1 dBFS, -2 dBFS, -3 dBFS
- Attack time:	1 to 15 samples
- Word width:	16 to 24 bit, selectable
Over indicator True Peak	
- Threshold:	adjustable



## Specifications (continued)

### 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"> <li>red: -1 r to -0.1 r</li> <li>white: 0 r (-0.1 r to +0.1 r)</li> <li>green: +0.1 r to +1 r</li> </ul>
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

Display:	<ul style="list-style-type: none"> <li>channel data are displayed as plain text, hex or binary</li> <li>Channel selectable</li> <li>Audio bit activity</li> <li>Hardware status</li> </ul>
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### 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.

### Gain Reduction

Display:	1 bargraph for Mono and Stereo formats, up to 4 bargraphs in multi-channel mode
Input:	Data stream via TCP/IP and LAN (ethernet) interface
Input routing:	external featured streams selectable
Marker:	adjustable threshold for the definition of upper and lower display section
Colors:	32 colors for each bargraph section

### SW20002: Loudness and SPL Display (Software Licence)

Expands the Basic Stereo-PPM with functions for loudness measurement as well as for SPL display and summed SPL value calculation

#### EBU R128 Loudness Mode

#### ITU BS.1771 Loudness Mode

#### ATSC A/85 Loudness Mode

#### ARIB Loudness Mode

#### OP-59 Loudness Mode

#### AGCOM Loudness Mode

#### CALM Loudness Mode

#### LEQ(M) Loudness Mode

#### TASA Loudness Mode

#### SAWA Loudness Mode

#### Customer Specific Loudness Mode

Display:	<ul style="list-style-type: none"> <li>Bargraphs for each single channel (can be combined with PPM bargraphs)</li> </ul>
----------	--

### Numerical display:

### Scales:

### Weighting filter:

### Target Level: \*)

### Time & Gate Momentary: \*)

- Window Time (SQR): adjustable from 200 ms to 1000 ms in steps of 100 ms
- Integration (IIR): IEC 125 ms Fast, 250 ms (IRT), 500 ms, 750 ms, IEC 1000 ms Slow, 1500 ms, 2000 ms selectable

### 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: -70.0 LUFS/LKFS; adjustable from -80.0 to -40.0 LUFS/LKFS in steps of 0.5 LUFS/LKFS, switchable
- Relative Gate: -10.0 LU; adjustable from -40.0 LU to 0 LU in steps of 0.5 LUFS, switchable

### Level adjustment for the summation: \*)

- 0.0 dB (L, R, C), adjustable between -3 and +3 dB in steps of 0.5 dB

\*) Depending on the used loudness standard not all or no one of the listed settings are available.

### Tolerance Levels:

- TP Headroom: -9.0 dB; adjustable from 0 to -20 dB in steps of 0.1 dB
- TP Over Sensitivity: 0.0 dB; adjustable from 0 to -20 dB in steps of 0.1 dB
- M High: +1.0 LU; M tolerance above Target Level adjustable from 0 to 10 LU in steps of 0.1 LU
- M Low: -1.0 LU; M tolerance below Target Level adjustable from 0 to -12 LU in steps of 0.1 LU
- S High: +1.0 LU; S tolerance above Target Level adjustable from 0 to 10 LU in steps of 0.1 LU
- S Low: -1.0 LU; S tolerance below Target Level adjustable from 0 to -12 LU in steps of 0.1 LU
- I High: +1.0 LU; I tolerance above Target Level adjustable from 0 to 10 LU in steps of 0.1 LU
- I Low: -1.0 LU; I tolerance below Target Level adjustable from 0 to -12 LU in steps of 0.1 LU



## Specifications (continued)

### Loudness Test Time Control

Settings for operating automatic, semi-automatic or manual loudness measurements.

Start:

- 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:

- 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

### 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

### SPL Meter Mode

Display: 

- 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)

### SW20003: RTA - Real Time Analyzer (Software Licence)

Spectral distribution display of the frequency range of single channels, channel pairs or groups.

### Spectrum Analyzer (RTA)

Input sources: selectable: single channels, Stereo pairs, depending on selected mode  
Frequency range: 

- Norm: 20 Hz to 20 kHz, additional band > 20 kHz switchable
- LF: 5 Hz to 5 kHz

  
Number of bands: 

- 1/3-octave: 31 bands, filter acc. to IEC 225 class 2
- 1/6-octave: 61 bands
- 1/12-octave: 120 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: 

- Input selection
- Peak hold on/off
- A, C weighting, Linear
- Integration time
- Set reference
- Scaling
- Frequency range
- Bargraph arrangement
- Display-Hold

  
Integration time (ballistics): Impulse, Fast, Slow, Peak (10 ms)

### SW20006: RTW Premium PPM (Software Licence)

High resolution Multistandard-PPM display with advanced scales, PPM and VU Moving Coil instruments, and second audio vectorscope.

#### General

Input sources: digital via XLR audio interface (AES3)  
Display: 

- Peak level
- Peak hold
- Numerical value of the display
- Digital Over

  
Functions: 

- Gain (+20 dB, +40 dB acc. to standard)
- Peak hold on/off
- Memory
- Reset

#### Digital Peakmeter Extension

Word width: 24 bit  
Digital scales: 

- TP20: +3 .. -20 dB
- Dig20: 0 .. -20 dB
- Dig0: +18 .. 0 dB
- Dig18: +18 .. -18 dB
- Dig40: +20 .. -40 dB
- ARD9: +9 .. -60 dB
- DIN10: +10 .. -50 dB,
- Zoom10: +10 .. -10,
- Zoom1: +1 .. -1,

  
Headroom/Headroom Ref: adjustable in the range from 0 to -20 dB in steps of 1 dB  
Operation field: adjustable in the range from 0 to -20 dB in steps of 1 dB  
Integration time (Attack): acc. to corresponding standard or selectable: Sample, 20 ms, 10 ms, 1 ms, 0.1 ms  
  
Gain: +20 dB, +40 dB (acc. to standard)  
High-pass filter: Off, 5 Hz, 10 Hz, 20 Hz  
Peak hold indicator: 1 s, 2 s, 4 s, 10 s, 20 s, 30 s, manual reset or off  
Over indicator hold time: 1 s or manual  
Over indicator PPM 

- Threshold: Full Scale, Full Scale -1LSB, Full Scale -2LSB, -0.1 dBFS, -0.5 dBFS, -1 dBFS, -2 dBFS, -3 dBFS
- Attack time: 1 to 15 samples
- Word width: 16 to 24 bit, selectable

  
Over indicator True Peak 

- Threshold: adjustable

#### Moving Coil Instrument

(available in stereo mode only)

Type: PPM (L/R), PPM (M/S), VU, Loudness, PPM + Loudness (L/R; M, S, or I), selectable  
PPM: 

- Ch. arrangement: Dual, Dual + M/S horizontal, Dual + M/S vertical, Stereo horizontal, Stereo vertical
- Scales:
  - BR IIa: 7..1, BR IIa ext: 7..1
  - BR IIb: +12..-12 dB, BR IIb ext: +12..-12 dB
- Integration time: Sample (digital only), 0.1 ms, 1 ms, 10 ms, 20 ms, 150 ms
- Headroom Ref: available with digital sources only: -10 dB; adjustable from 0 to -20 dB in steps of 1 dB only available, if M/S type is selected: M3, M6
- S mode: Off, Peak, True Peak, BR Peak
- Peak indicator: Off, Peak, True Peak, BR Peak
- BR Peak Threshold: 6 dB,
  - BR IIa: adjustable from 4 to 7 dB in steps of 1 dB
  - BR IIb: adjustable from 0 to 12 dB in steps of 1 dB



## Specifications (continued)

### VU:

- Ch. arrangement: Stereo horizontal, Stereo vertical
- Scale digital: VU Digital (–20 to + 3 dB)
- Lead: 0 dB, adjustable from 0 to 12 dB in steps of 1 dB
- Peak indicator: Off, Peak, True Peak

### Loudness:

- Ch. arrangement: Dual, Stereo horizontal, Stereo vertical
- Scales: acc. to Loudness settings
- Integration time: acc. to standard
- Peak indicator: Off, no selectable option available

### PPM + Loudness:

- Ch. arrangement: Dual-PPM (as described above) with additional Loudness display (BBC mode) for M, S, or I (selectable) in one instrument
  - PPM: see above
  - Loudness: +9 to –9 LU fixed (mid of scale corresponds to Target Level)
- Scales:

Numerical display: switchable

### SW20008: TCR - Timecode Reader (Software Licence)

Decoding of SDI embedded or LTC timecode. Timecode display. With an activated licence SW20002 the timecode can be used for loudness and logging applications.

#### Timecode Reader (TCR)

- Display: numerical display of
- LTC (from analog or digital sources)
  - VITC (from SDI data stream)
- Mode: "Timecode" selectable when creating an audio group (constitutes a separate audio group)
- Input: one analog, digital or SDI channel selectable, depending on audio interface being mounted
- Colors: selectable, 32 colors

#### Loud. Recal. (Loudness Recalculation)

Settings for operating automatic, semi-automatic or manual loudness measurements (Loudness Test Time Control).

- Display: numerical display of
- current timecode
  - start time < current timecode < stop time with recalculation
- Start:
- Functions: Autostart after preset load, autostart with gate, autostart with gate and autoreset, manually via keys or GPI. With Timecode Reader licence (SW20008) activated additional control via timecode resp. timecode with recalculation.
  - Level for gate: –70,0 LUFS/LKFS; adjustable from –85 to –10 LUFS/LKFS in steps of 0.5 LUFS/LKFS
- Stop:
- Functions: manually via keys or GPI, autostop with gate, autostop with gate and time. The stop function is automatically set and fixed to timecode, if the start function has been set to a timecode option.
  - 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

### SW20014: Logging Data Server (Software Licence)

Export of measured data via IP connection or USB flash drive. Advanced graphical presentation and two-stage definition of thresholds. Communication with RTW LQL PC software. Loudness Chart instrument

--- Precondition: Licence SW20002! ---

#### Logging Instrument

##### Functions:

- Logging of Loudness and TruePeak data of two audio groups
- Storing of data on USB flash drive or via IP with LQL - Loudness Quality Logger PC software
- Definition of main and secondary limits (individual markers) for Mmax, Smax, I and TPmax to monitor the adherence of e. g. legal regulations, current standards or in-house regulations
- Data collection control automatically via LQL (IP mode) or manually via control key (USB mode)

##### Mode:

selectable: off, USB, IP

##### Display:

Status display in the top line of the instrument placed on the screen:

- in IP mode: LQL access
  - in USB mode: Disk space, running processes, storing
  - if logging functionality is turned off
- Identification for network: Device name and password definable
- Key function (USB):
- USB run: Start logging
  - USB close: Stops logging and creates a logfile on the USB flash drive

#### Loudness Chart Instrument

##### Functions:

- Horizontal running bargraphs with individually definable colors evaluate the common quality of Loudness values TP, M, S, I
- Progress of a measurement (value over time) of up to four values can be drawn as graph(s) on a coordinate system
- Position of the Relative Gate switchable, color adjustable
- Adjustable time ranges
- Selectable time periods for evaluation
- Vertical Integrated bargraph switchable
- Tolerance levels and its display adjustable
- Bargraph:

##### Display:

Color change of the running bargraph indicates the section the loudness value is moving in: normal, operation range, Headroom, Over, invalid (availability depending on selected value)

- Chart-Graph: Continuously drawn graph (value over time) either of one value as line or rectangle with colored filling corresponding to the color selection of the horizontal bargraphs or of up to four values as line, dots, or rectangles without filling with individual color selection; added with Tolerance Indicator or position of Relative Gate (if selected)



## Specifications (continued)

Color:	<ul style="list-style-type: none"> <li>Bargraph: Individual selectable colors (32) for Normal (bargraph color), Operation Range, Headroom (TP only), TP Over (TP only), Over (M, S, I only), Invalid (M, S, I only)</li> <li>Chart graph: For each value individual selectable colors (32) for display modes without filling, bei Darstellung ohne Füllung, otherwise adoption of corresponding bargraph colors, additional selectable colors for Tolerance Indicator and position of Relative Gate</li> </ul>
Time Range:	<p>Time grid adjustment for the coordinate system and the horizontal bargraphs:</p> <ul style="list-style-type: none"> <li>Increase or decrease of the preset time period in steps of one unit or ten units</li> <li>Magnification of the measured course to the available width of the instrument's window</li> </ul>
Time Range presets:	
- Auto stretch:	Automatic stretch of a stopped loudness measurement to the available width of the instrument's window, switchable (except when controlled via timecode)
- Hours:	0 h; adjustable from 0 to 3 h in steps of 1 h
- Minutes:	1 m; adjustable from 1 to 59 m in steps of 1 m
Time Select:	<ul style="list-style-type: none"> <li>Selection of current time period (marker)</li> <li>Increase or decrease of the marker in step sizes corresponding to the current time grid</li> <li>Shift of the marker and magnification of the content</li> </ul>
Tolerance Levels:	
- TP Headroom:	-9.0 dB; adjustable from 0 to -20 dB in steps of 0.1 dB
- TP Over Sensitivity:	0.0 dB; adjustable from 0 to -20 dB in steps of 0.1 dB
- M High:	+1.0 LU; M tolerance above Target Level adjustable from 0 to 10 LU in steps of 0.1 LU
- M Low:	-1.0 LU; M tolerance below Target Level adjustable from 0 to -12 LU in steps of 0.1 LU
- S High:	+1.0 LU; S tolerance above Target Level adjustable from 0 to 10 LU in steps of 0.1 LU
- S Low:	-1.0 LU; S tolerance below Target Level adjustable from 0 to -12 LU in steps of 0.1 LU
- I High:	+1.0 LU; I tolerance above Target Level adjustable from 0 to 10 LU in steps of 0.1 LU
- I Low:	-1.0 LU; I tolerance below Target Level adjustable from 0 to -12 LU in steps of 0.1 LU

### Items of Delivery

TouchMonitor TMR7:	<ul style="list-style-type: none"> <li>TMR7 unit in a table-top frame</li> <li>XLR audio interface</li> <li>Basic software (system/4-ch. PPM)</li> <li>Table-stand, mains adapter, manual</li> </ul> <p><b>Order no.: TMR7</b></p>
TouchMonitor TMR7OEM:	<ul style="list-style-type: none"> <li>TMR7 unit without table-top frame, for panel-mounting</li> <li>XLR audio interface</li> <li>Basic software (system/4-ch. PPM)</li> <li>Manual</li> </ul> <p><b>Order no.: TMR7OEM</b></p>

### Additional Hardware Options

- 3U mounting adapter **TM7-MA3U**, mounting kit including a 19"/3U/42HP rack-mount panel (half-19"/3U) and fastening material for mounting TMR7OEM into standard 19" sub-racks
- VID mounting adapter **TM7-MAVID**, mounting kit including a half-19"/3U plug-in panel and fastening material for mounting TMR7OEM into standard 19" rack-mount cabinets for video racks
- Table-top mounting adapter **TM7-MADT**, mounting kit including a table-top frame, robust swivel-mounted table-stand, housing cover, and mounting material for remodelling TMR7OEM to a table-top unit.

### Optional Software Licences for TMR7 and TMR7OEM

- Software licence **SW20002: Loudness and SPL Display** for Loudness, SPL and LRA measurements.
- Software licence **SW20003: RTA - Real Time Analyzer** for the display of the spectral frequency distribution.
- Software licence **SW20006: RTW Premium PPM (Moving Coil)** for the display of further PPM-scales, Moving Coil instruments and up to 4 audio vectorscope.
- Software licence **SW20008: Timecode Reader** for the display of SDI embedded or LTC timecodes.  
--- Precondition: Licence SW20002! ---
- Software licence **SW20014: Logging Data Server** for the export of measured data via IP or USB flash drive, advanced graphical presentation and two-stage definition of thresholds. Communication with RTW LQL PC software, Loudness Chart instrument  
--- Precondition: Licence SW20002! ---

### Accessory

- Wide voltage power supply **1178-R** (100 - 240 V AC/24 V DC 2,7 A, table-top unit with corresponding mains cable for different power systems)

# Product Line-up

## TouchMonitor TMR7 table-top unit

7" touch screen 16 : 9 TFT, main unit with table-top frame, table-stand, power supply. Audio interface included!

Order number: **TMR7**

## TouchMonitor TMR7 OEM unit

7" touch screen 16 : 9 TFT, main unit w/o table-top frame, w/o power supply for panel-mounting. Audio interface included!

Order number: **TMR7OEM**

Audio Interface (I/O)	Max. Channel Count (Hardware)	Inputs Digital (balanced)	Outputs Digital
integrated	4-channel digital In and 4-channel digital Out	2 x XLR-F (2 x AES3 in)	2 x XLR-M (2 x AES3 out)

**Standard Hardware:** Table-top unit with easy-to-use graphical interface, integrated audio interface, Ethernet, 2 x USB, GPIO, VGA Out, table-stand, mains adapter.  
OEM-unit for panel-mounting with easy-to-use graphical interface, integrated audio interface, Ethernet, 2 x USB, GPIO, VGA Out.

**Standard Software:** Basic PPM for up to 4 channels with digital scales (0 to -60 dB, +3 to -60 dB True Peak, DIN, Nordic, British Ila and I Ib), audio vectorscope, phase meter, gain reduction, global keyboard. Other software modules available as licences.

## Additional Hardware Options

### 3U Mounting Adapter **TM7-MA3U**

Mounting kit including a 19"/3U/42HP rack-mount panel (half-19"/3U) and fastening material for mounting TMR7OEM into standard 19" sub-racks.  
Order number: **TM7-MA3U**

### VID Mounting Adapter **TM7-MAVID**

Mounting kit including a half-19"/3U plug-in panel and fastening material for mounting TMR7OEM into standard 19" rack-mount cabinets for video racks.  
Order number: **TM7-MAVID**

### Table-top Mounting Adapter **TM7-MADT**

Mounting kit including a table-top frame, robust swivel-mounted table-stand, housing cover, and material for remodelling TMR7OEM to a table-top unit.  
Order number: **TM7-MADT**

**Licences (Software Modules)** Further information on <http://www.rtw.de/en/produkte/audio-monitore/touchmonitor-tmr7.html> --> Options

Loudness and SPL Display Order Number: <b>SW20002</b>	RTA - Real Time Analyzer Order Number: <b>SW20003</b>	Premium PPM (with Moving Coil and second Audio Vectorscope) Order Number: <b>SW20006</b>	Timecode Reader Order Number: <b>SW20008</b> Precondition: installed SW20002!	Logging Data Server (with Chart) Order Number: <b>SW20014</b> Precondition: installed SW20002!
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**Dimensions:** W x H x D in mm (with table-stand)

TMR7 (table-top unit): 198 x 139.5 (163) x 46 (95)

TMR7OEM (panel-mount unit): 188 x 109 x 45



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