Data Sheet
TMR7-Radio | TMR7-Mount

RTW

EYES ON YOUR AUDIO

TMR7-Radio | TMR7-Mount

Touch Screen ▪ **AES3 I/O via XLR** ▪ **Highly Flexible Screen-Layout** ▪ **2 x 2-ch. PPM/True Peak** ▪ **2 Audio Vectorscopes**
Loudness acc. to all relevant standards ▪ **LRA** ▪ **SPL-Meter** ▪ **RTA** ▪ **Moving Coil** ▪ **Loudness Chart**

The four audio inputs provided by the two AES3 XLR ports are flexibly configurable for mono or stereo 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 offers even more functional options for flexible integration of TMR7-Radio or TMR7-Mount into individual studio environments.

Graphical User Interface
The graphical user interface used in the TMR7-Radio resp. TMR7-Mount 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.

Software
With the integrated software package, TMR7-Radio resp. TMR7-Mount is fully equipped and ready for use. Its comprehensive set of frequently used instruments provides all relevant loudness and audio metering tools to meet the demands of a wide variety of applications.

Hardware

Configuration

- Resisitive 7" touch screen 16 : 9 TFT (800 x 480 pixel)
- 4-channel audio interfaces (2 x AES3 inputs via XLR-F and 2 x AES3 outputs via XLR-M)
- Connectors for Ethernet, 2 x USB 2.0, GPIO, 24 V DC
- Integrated software package
- Highly flexible screen layout options with scalable instruments

Completely equipped with
- Peak, TruePeak and Correlation measurement
- Dual Audio Vectorscope
- RTA - Real Time Analyzer
- Moving Coil emulation
- CalmAct, ITU, EBU Loudness and SPL display
- Loudness Range
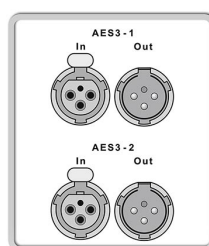- Loudness Chart

Completely Configured Models

TMR7-Radio

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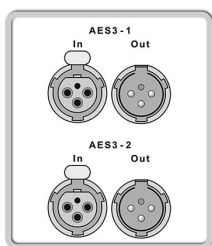
TMR7-Mount

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

Software

Integrated Software Package

With the integrated software package, TMR7-Radio and TMR7-Mount are fully equipped. It provides a wide range of RTW's approved loudness and audio metering tools to meet the demands of a wide variety of applications. Beside the signal processing and the control functions this software includes the following instruments:

PPM instrument for up to 2 x 2 channels with digital scales (0 to -60 dB, +3 to -60 dB TruePeak, DIN5, Nordic, British IIa and IIb), Peak-Hold, Peak-Memory, Over indicator, numerical display.

Moving Coil instrument with PPM display (British), VU display, Loudness display, and combined PPM and Loudness display (BBC mode).

Loudness Sum instrument for displaying the summed loudness values M, S, and I of a loudness measurement acc. to EBU R128, ITU BS.1770-4/1771-1, ARIB, ATSC A/85, OP-59, AGCOM, CALM on bargraphs. Additional SPL meter.

Loudness Num instrument for the numerical display of all relevant values of a Loudness measurement: M, S, I, LRA, TPmax, Mmax, Smax.

LRA instrument (Loudness-Range) with MagicLRA mode for a graphical representation of loudness variances with additional display of the I value.

Loudness Chart instrument for displaying and analyzing the course of one value of a loudness measurement directly on TMR7Smart's display.

2-ch. Audio Vectorscope for displaying the phase relationship between a selectable channel pair (Lissajous display). Two entities with 2 channels each are possible (Dual mode).

Stereo Correlator for displaying the phase relationship between the two channels of a stereo signal and thus its mono compatibility.

RTA instrument (Real Time Analyzer) for displaying the spectral content of the selected input channel(s) using 31, 61 or 120 filter bands. Additional HP HF band available.

AES Status monitor for displaying various parameters of AES3 digital audio signals in plain text.

Global Keyboard with definable on-screen keys for simultaneous control of defined functions in multiple instruments, and for preset recall. It also allows external control vial GP IO interface.

Presets

TMR7-Radio and TMR7-Mount both come with a USB flash drive including **five predefined presets** representing typical applications and standards. Using these presets, you can start working with TMR7-Radio or TMR7-Mount right out of the box, but you also can adapt them to your individual needs. Fixed to the system is the not editable preset **Default** to secure basic display functionality.
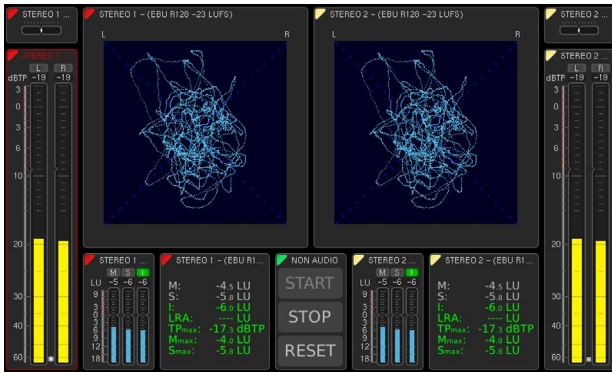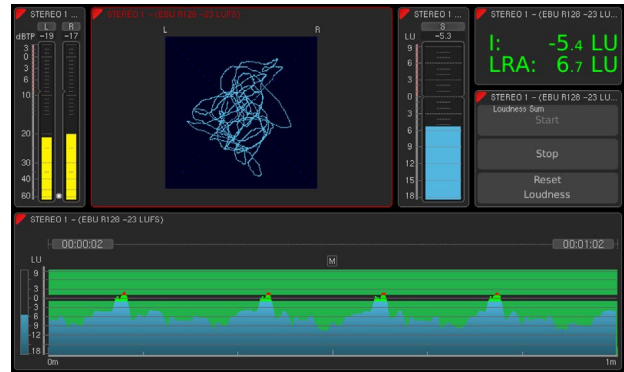
Default

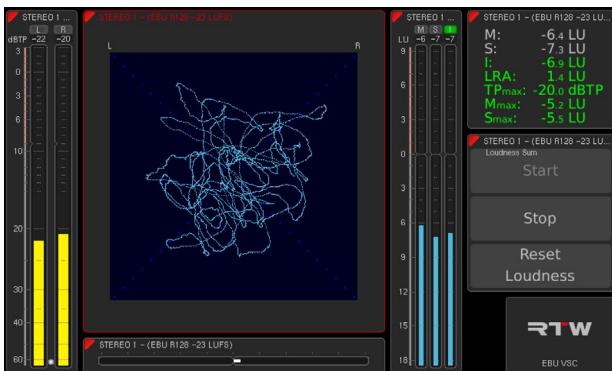## ATSC Chart (with Loudness standard ATSC A/85)
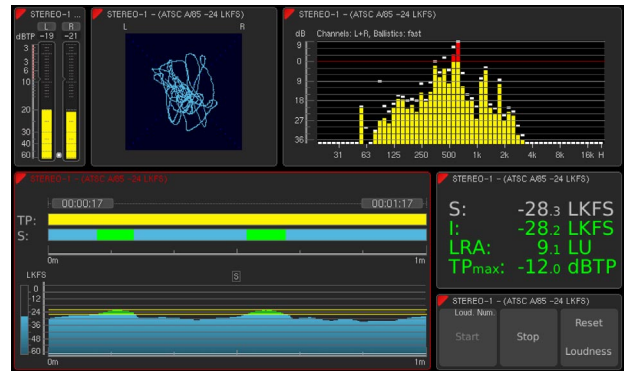
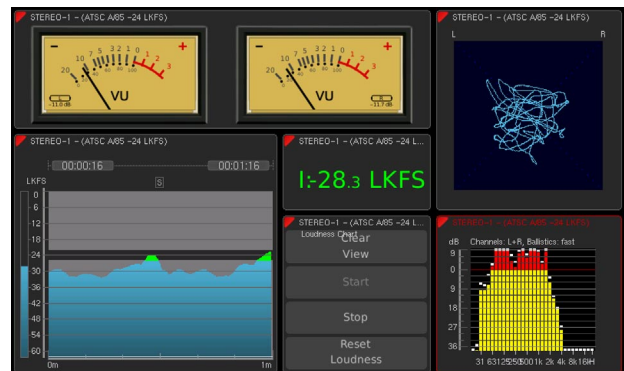## Dual Stereo EBU (with Loudness standard DBU R128)

EBU Chart (with Loudness standard DBU R128)

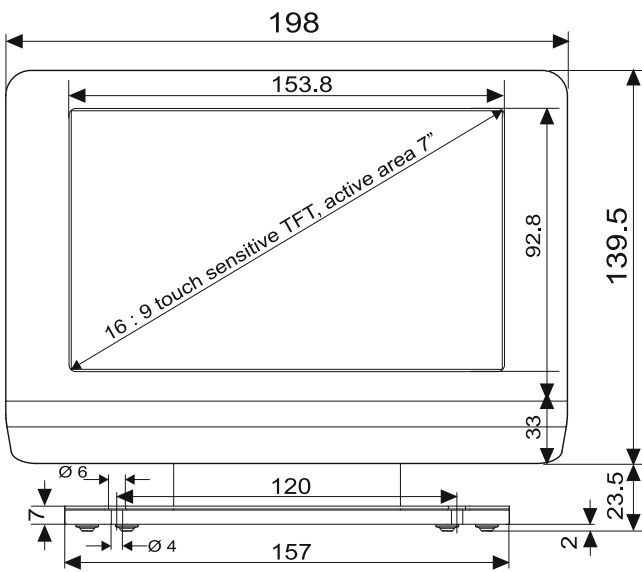## EBU VSC (with Loudness standard DBU R128)

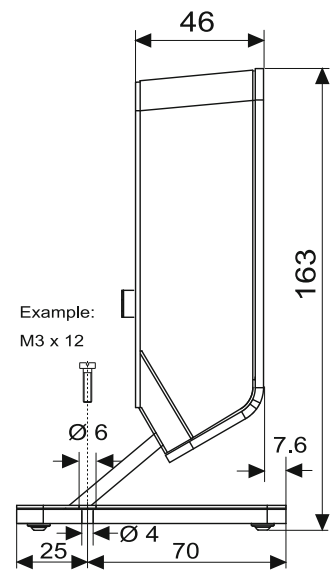## Stereo ATSC (with Loudness standard ATSC A/85)

Dimensions

TMR7-Radio Table-top unit

1 | Front view (dimensions in mm)

2 | Side view (dimensions in mm)
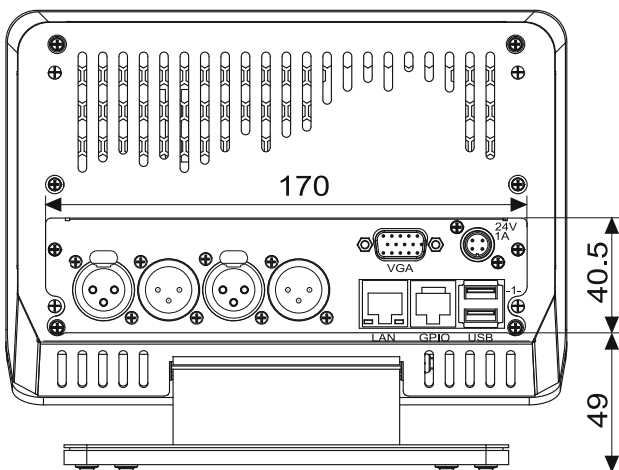
3 | Rear view (dimensions in mm)
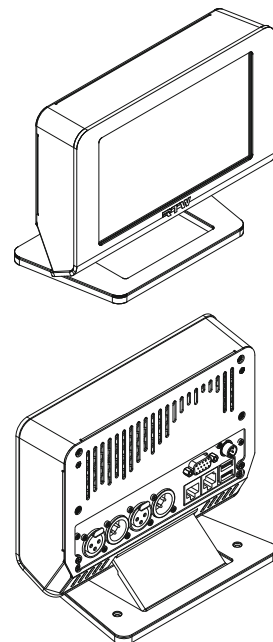
TouchMonitor TMR7-Mount panel-mount unit
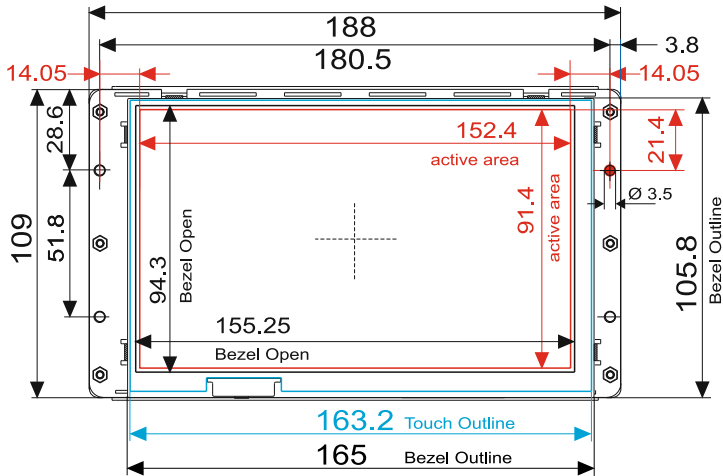
1 | Front view (dimensions in mm, tolerance: ±0.2 mm)
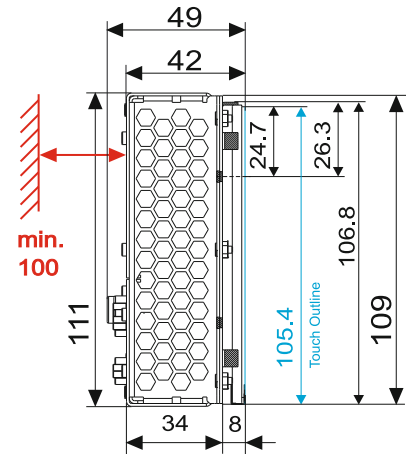
2 | Side view (dimensions in mm, tolerance: ±0.5 mm)
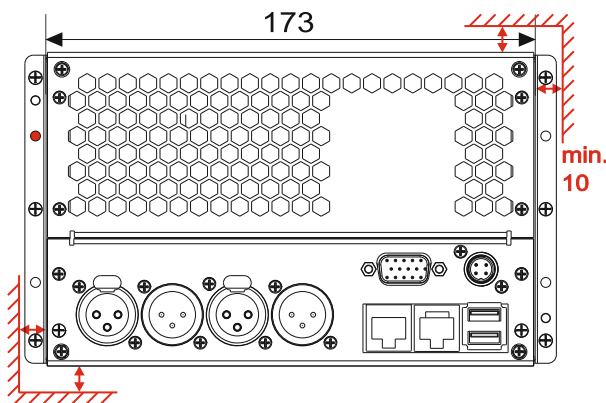
3 | Rear view (dimensions in mm, tolerance: ±0.5 mm)

For adequate ventilation a minimum space is required: min. 10 mm at all sides and min. 100 mm on the rear side!
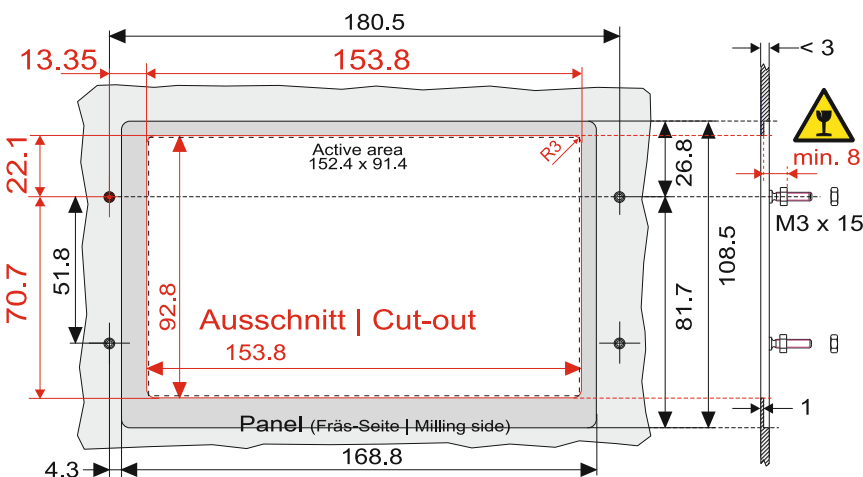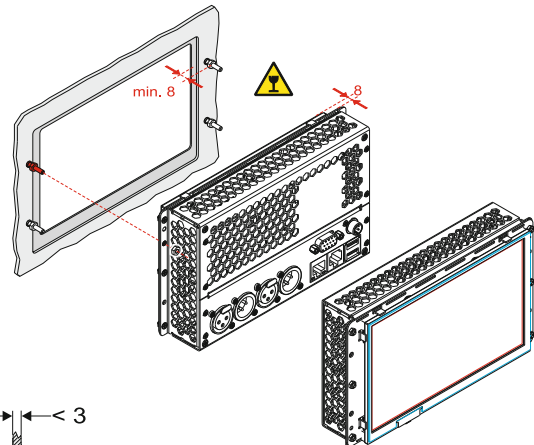
4 | Front panel cut-out (dimensions in mm, tolerance: ±0.2 mm)
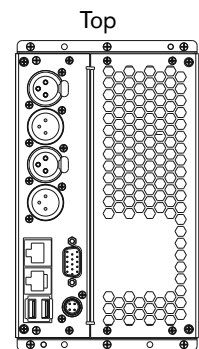
5 | Vertical mounting orientation

Connection

Connectors

⚠️ **ATTENTION! - For operating the TMR7-Mount, 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-Radio table-top package.

4-pin locking low
voltage connector

VGA is
not used   24 V DC, 1 A

AES3 In 1 | AES3 Out 1 | AES3 In 2 | AES3 Out 2 | LAN | GP IO | USB A 2.0
(XLR-F) | (XLR-M) | (XLR-F) | (XLR-M) | (RJ-45) | (RJ-12) | (Full Speed)

External:
USB mouse
USB flash drive
Wacom® graphics tablet
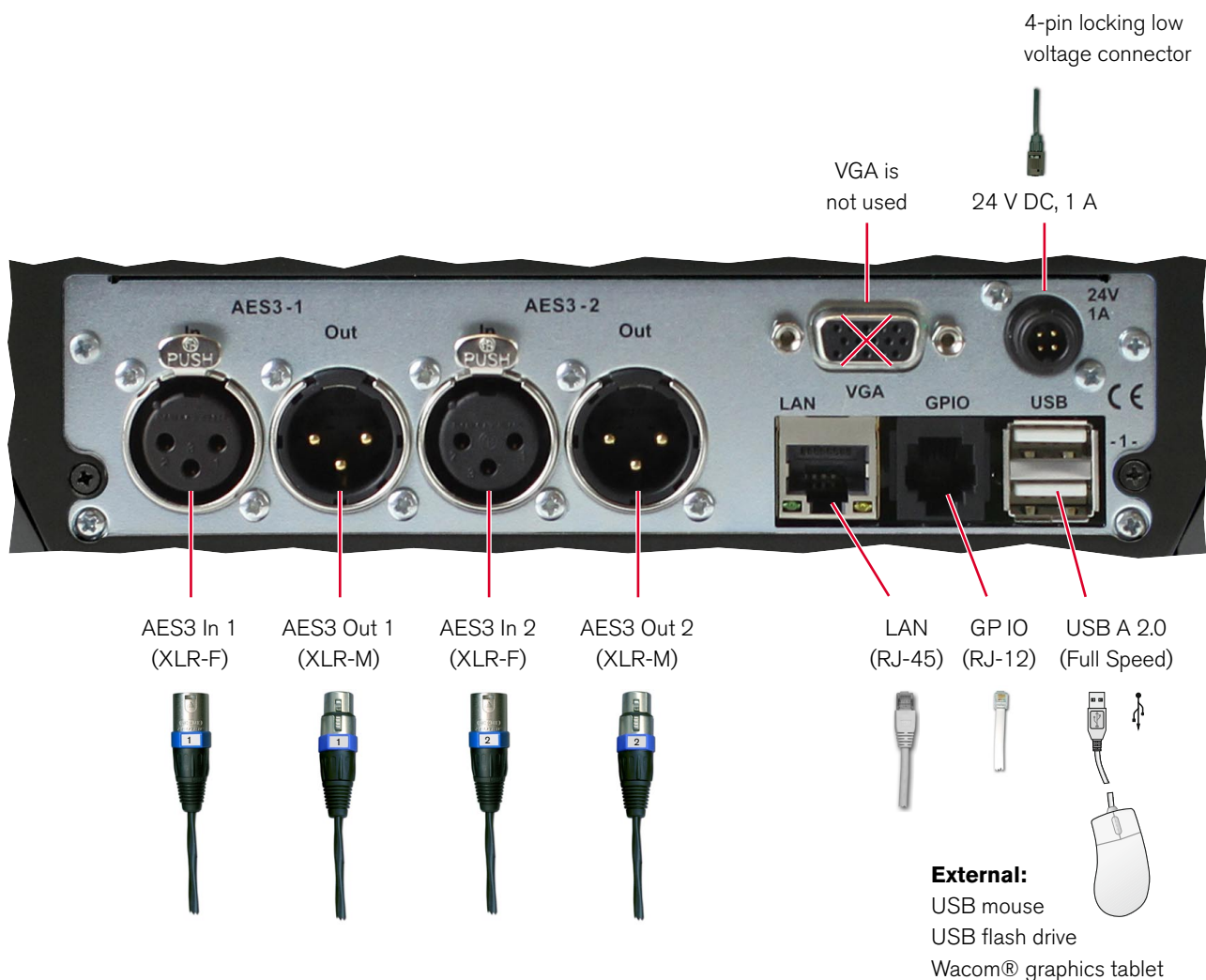
Pin Assignment

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

Pin: Function:

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

Pin 2   Pin 1

Pin 3
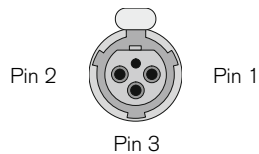
(External view of the connector)

⚠ **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

Pin 1   Pin 2

Pin 3
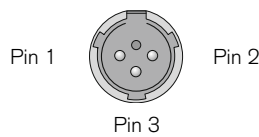
(External view of the connector)

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

Pin 3   Pin 2
Pin 4   Pin 1
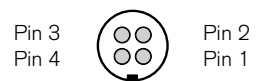
(External view of the connector)

⚠ **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

6 5 4 3 2 1

(External view of the connector)

Block diagram of the GPIO interface
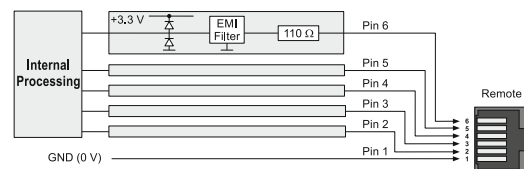
USB-A

2 Full Speed USB 2.0 interfaces for connecting USB flash drives (for updates, presets, et. al.), external mouse or Wacom® graphics 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 µsec.)
Power dissipation:	approx. 8,5 W (w/o SDI), approx. 11 W (with SDI)
Display:	7" TFT touch screen 16 : 9 (800 x 480 pixel)
Connectors:	1 x 4-pin locking low voltage connector type Binder 710 (DC)

2 x USB A; USB 2.0 Full Speed connectors for:
- USB flash drives (preset export and import, software updates)
- external computer mouse for operating
- external Wacom® graphics tablet

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):	198 x 139.5 (163) x 46 (95) mm (with table-stand)
Weight:	approx. 2.7 kg (without mains adapter)
Operating temperature:	+5° to +40° C

Functions

- 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.)
- Loudness-Meter: ITU-R BS.1770-4/1771-1, EBU R128, ATSC A/85, ARIB, OP-59, AGCOM, CALM, LEQ(M), TASA, SAWA
- Loudness Chart instrument
- Loudness Test Time Control
- Loudness Range instrument (LRA)
- SPL meter
- Moving Coil (BR, VU, Loudness, BBC mode)
- Stereo Correlator
- 1/3-, 1/6-, 1/12-octave spectrum analyzer
- 2-channel Audio Vectorscope (2 instances)
- AES3 status monitor
- Numerical displays
- Up to 5 presets can be defined

Digital Inputs

Inputs:	2 AES3 inputs (transformer balanced, 110 Ω), 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

Integrated Software

Digital Peakmeter

Input sources:	digital via XLR audio interface (AES3)
4-channel Peakmeter:	2-ch. Stereo, 2 x 2-ch. Stereo, single channel
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

Word width:	24 bit
Digital scales:	

- TP60: +3 .. −60 dB
- Dig60: 0 .. −60 dB
- DIN5: +5 .. -50 dB
- Nordic: +12 .. -42 dB
- BR IIa: 7 .. 1
- BR IIb: +12 .. −12 dB

Headroom/Headroom Ref:	acc. to standard, 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

Stereo Correlator

Display:	Bargraph, additional spot indicator between PPM bargraphs
Scale range:	-1 r to 0 to +1 r
Standard color setting:	• 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

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.

Specifications (continued)

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:	▪ channel data are displayed as plain text, hex or binary
	▪ Channel selectable
	▪ Audio bit activity
	▪ Hardware status

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

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.

Display:	▪ 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)
	▪ adjustable tolerance range for M, S, I
Numerical display:	▪ for M, S, I values (labelling adjustable)
	▪ for LRA, TPmax, Mmax, Smax, I-time values
Scales: *)	Loudness scale:
	▪ EBU+9: +9 .. −18 LU
	▪ EBU+3: +3 .. −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
Weighting filter:	K filter acc. to ITU BS.1770
Target Level: *)	▪ −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
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:	▪ −70.0 LUFS, switchable
	▪ −70.0 LKFS, switchable
- Relative Gate:	−10.0 LU, switchable
Level adjustment for the summation: *)	0.0 dB, adjustable between −3 and +3 dB in steps of 0.5 dB

*) Depending on the used loudness standard not all 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

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

Specifications (continued)

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)

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)

Moving Coil Instrument

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:	−10 dB; adjustable from 0 to −20 dB in steps of 1 dB
- S mode:	only available, if M/S type is selected: M3, M6
- 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
VU:	
- Ch. arrangement:	Stereo horizontal, Stereo vertical
- Scale 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 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
- Scales:	▪ PPM: see above ▪ Loudness: +9 to −9 LU fixed (mid of scale corresponds to Target Level)
Numerical display:	switchable

Specifications (continued)

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 timescale 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	

Items of Delivery

TMR7-Radio:	• TMR7 unit in a table-top frame
	• XLR audio interface
	• Integrated software (system/4-ch. digital, PPM, True Peak, Moving Coil, Correlator, dual Audio Vectorscope, RTA, Loudness Sum, Loudness Num, Loudness Range (LRA), SPL, Chart, Global Keyboard, GPI)
	• Table-stand, mains adapter, manual
	Order no.: TMR7-Radio
TMR7-Mount:	• TMR7 unit without table-top frame, for panel-mounting
	• XLR audio interface
	• Integrated software (system/4-ch. digital, PPM, True Peak, Moving Coil, Correlator, dual Audio Vectorscope, RTA, Loudness Sum, Loudness Num, Loudness Range (LRA), SPL, Chart, Global Keyboard, GPI)
	• Manual
	Order no.: TMR7-Mount

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)

Overview

TMR7-Radio table-top unit
7" touch screen 16 : 9 TFT, table-top frame, table-stand, power supply.
Order number: **TMR7-Radio**

TMR7-Mount panel-mount unit
7" touch screen 16 : 9 TFT, w/o table-top frame, w/o power supply for panel-mounting.
Order number: **TMR7-Mount**

each with
- integrated audio interface and Ethernet, 2 x USB, GPIO, 24 V DC connectors
- integrated software package with precise signal processing, functions for control, comprehensve range of RTW's approved loudness and audio metering tools, and flexible display options

Audio Interfaces (I/O Options)	max. Channel Count (Hardware)	Inputs Digital (balanced)	Outputs Digital (Input signals looped through)
integrated	4-channel digital In, 4-channel digital Out	2 x XLR-F (2 x AES3 In)	2 x XLR-M (2 x AES3 Out)

Instruments (can freely be scaled and positioned)

PPM	Moving Coil	Loudness Sum	Loudness Num	Loudness-Range (LRA)	Loudness Chart
2 x 2 channels, digital scales (Dig60, TP60, DIN5, Nordic, British IIa, British IIb), Peak Hold, Peak Memory, Over indicator, numerical display	(needle instrument emulation) PPM (British), VU, Loudness, BBC mode	Loudness measurement acc. to EBU R128, ITU BS.1770-4/ 1771-1, ARIB, ATSC A/85, OP-59, AGCOM, CALM, LEQ(M), TASA, SAWA, summed Loudness values M, S, I, SPL meter	Numerical display of all relevant values of a Loudness measurement: M, S, I, LRA, TPmax, Mmax, Smax	Graphical representation of loudness variances, MagicLRA mode with additional display of the I value	Graphical display of the course over time of a loudness measurement for analyzing

Audio Vectorscope	Stereo Correlator	Real Time Analyzer (RTA)	AES Status Monitor	Global Keyboard
2-ch. display of the phase relationship of a selectable channel pair (Lissajous display). Two entities are possible (Dual mode)	Display of the phase relationship between the two channels of a stereo signal (mono compatibility)	Display of the spectral content of the selected input channel(s) using 31, 61 or 120 filter bands. Additional HP HF band available	Display of various parameters of AES3 digital audio signals in plain text	Global Keyboard: simultaneous control of defined functions in multiple instruments, and for preset recall, or external control vial GP IO interface

Dimensions:	W x H x D in mm (with table-stand)
TMR7-Radio (table-top unit):	198 x 139.5 (163) x 46 (95)
TMR7-Mount (panel-mount unit):	188 x 109 x 45

RTW
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