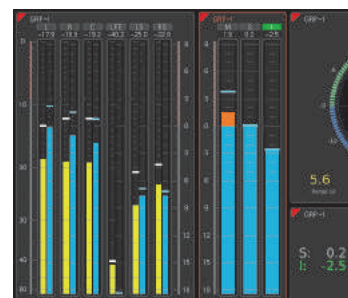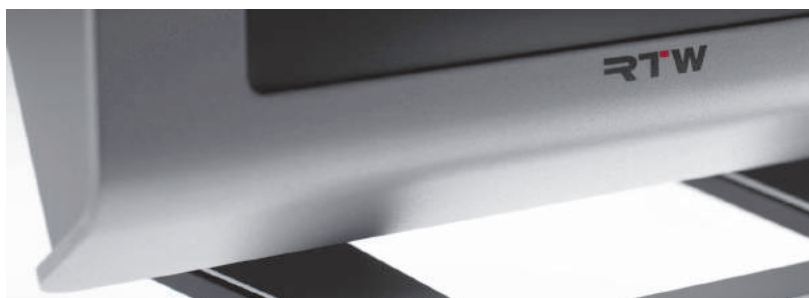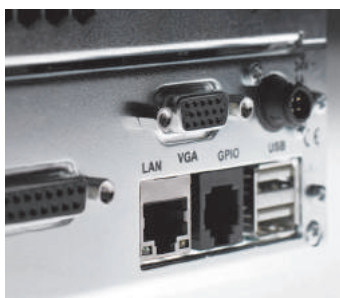Data Sheet
TouchMonitor TM7 Series

RTW

TouchMonitor TM7 Series

Modular Software ▪ Touch Screen ▪ Several I/O Options: Analog, AES3, AES3id, 3G SDI ▪ Highly Flexible Screen Layout ▪ 2-ch. PPM/True Peak ▪ Multichannel ▪ Loudness ▪ LRA ▪ Logging ▪ Chart ▪ Timecode ▪ SPL ▪ RTA ▪ SSA ▪ Radar ▪ Premium PPM ▪ BLITS

The TouchMonitor TM7 range enters a new level of professional audio metering in terms of precision, performance, efficiency and flexibility. The units are equipped with high-grade 7" touch screens, an easy-to-use graphical user interface, and several audio interfaces.

TouchMonitor TM7 handles audio signals using different audio interfaces: analog, AES3, AES3id, and 3G-SDI. The mixed use of the analog and digital audio interfaces allows the display of up to 16 (24) input channels simultaneously.

Graphical User Interface
The graphical user interface used in the Touch-Monitor 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.

Hardware

Common Configuration

- 7" touch screen 16 : 9 TFT (800 x 480 pixel)
- 16- or 24-channel audio interfaces (analog, AES3, AES3id, 3G-SDI, selection required, see below)
- 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 4-channel PPM software: Peak, True Peak, Phase Meter, Global Keyboard
- Available as table-top unit or OEM version
- Mounting kits for mounting into 19"/3U racks resp. 19" video racks available

- Available software licences (see below):
  - Multichannel
  - Loudness (EBU R128, ITU, ATSC A/85, ARIB, OP-59, AGCOM, CALM, LEQ(M), TASA, SAWA) und SPL
  - RTA - Real Time Analyzer
  - SSA - Surround Sound Analyzer
  - Radar Display,
  - Premium PPM plus Vectorscope
  - Timecode Reader (reader and recalculation)
  - BLITS (analyzer and generator)
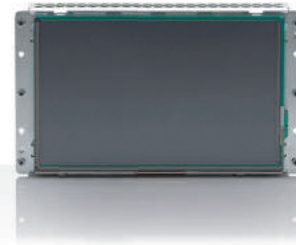 - Logging Data Server (external logging or chart)

Main Units

20700

TouchMonitor TM7 main unit in a sturdy table-top frame with movable table-stand and power supply.

20700OEM

TouchMonitor TM7 main unit without table-top frame, without table-stand and without power supply, for mounting into front panels, e. g. mixing consoles.

20700OEM with Mounting Adapter TM7-MA3U

TouchMonitor TM7 main unit mounted into a 19"/3HE/42TE rack-mount housing without power supply for mounting into 19" sub-racks.

20700OEM with Mounting Adapter TM7-MAVID

TouchMonitor TM7 main unit mounted into a half-19"/3U plug-in module without power suppy for mounting into standard 19" rack-mount cabinets for waveform monitors in video studios.

Hardware (continued)

Audio Interfaces (I/O Options)

Different audio interfaces adapted to the main units are available. Please additionally tell us the order number of the audio interface when ordering a main unit!

HW20711

16-channel audio interface with:
- 8-channel analog inputs (electronically balanced, Sub-D)
- 8-channel digital inputs and outputs (transformer balanced, 110 Ohm, 4 x AES3 In/Out, Sub-D)

HW20712

16-channel audio interface with:
- 8-channel analog inputs (electronically balanced, Sub-D)
- 8-channel digital inputs and outputs (unbalanced, 75 Ohm, 4 x AES3id In, 4 x AES3id Out, 8 x BNC)

HW20714

8-channel audio interface and 3G-SDI interface with:
- 8-channel digital inputs and outputs (transformer balanced, 4 x AES3 In/Out, Sub-D)
- 3G/HD/SD-SDI interface (unbalanced, 75 Ohm, 3G-SDI In, 3G-SDI Through, 2 x BNC)

HW20715

16-channel audio interface with:
- 16-channel digital inputs and outputs (transformer balanced, 110 Ohm, 8 x AES3 In/Out, 2 x Sub-D)

Additional Hardware Options

TM7-MA3U (3U Mounting Adapter for 20700OEM)

Mounting kit including a 19"/3U/42HP rack-mount panel (half-19"/3U) and fastening material for mounting 20700OEM into standard 19" sub-racks.

TM7-MAVID (VID Mounting Adapter for 20700OEM)

Mounting kit including a half-19"/3U plug-in panel and fastening material for mounting 20700OEM into standard 19" rack-mount cabinets for video racks.

TM7-MADT (Table-top Mounting Adapter for 20700OEM)

Mounting kit including a table-top frame, robust swivel-mounted table-stand, housing cover, and mounting material for remodelling 20700OEM to a table-top unit.

Software

Standard Software

Every TouchMonitor comes with a basic software package. Beside the control functions, this software is able to process the signals of up to 4 routed channels in a maximum count of 4 groups at a time (up to 4 x Mono, 2 x 2-channel Stereo, 1 x 2-channel Stereo and up to 2 x Mono; no 3.1). Available for display are: 4-channel PPM with analog scales (DIN5, Nordic, British IIa, British IIb) and digital scales (0 to -60 dB, +3 to -60 dB TruePeak, DIN5, Nordic, British IIa and IIb), peak hold, peak memory, Over indicators, phase correlation meter 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. Optional licences expand the feature set with a multichannel option and other software modules.

Software Modules (Licences)

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

When a licences is needed at a later point in time, the order process is started from the "Licences" menu of the TM7 unit. A device-specific file for forwarding to RTW is created by the unit. RTW will send back a corresponding file with the activated licence for exactly this unit.

SW20001: Multichannel Mode

Expands the signal routing to the simultaneous display of more than 4 channels or channel groups. Additional formats: 3.1 Surround, 5.0 Surround, 5.1 Surround, 7.1 Cinema Surround, 7.1 DD+ Surround, and Multichannel (2 to 8 channels in one block, up to 4 blocks with 3G SDI option).

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). For the display of more than 4 ch. Licence SW20001 is required. Then, Dialnorm is available.

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.
Licence SW20001 is required for the display of more than 4 channels.

SW20004: SSA - Surround Sound Analyzer

Dynamic display for visualizing the interaction of all surround or stereo sound parameter corresponding to the subjective listening impression. Licence SW20001 is required for the display of more than 4 channels.
--- Precondition: Licence SW20002! ---

Software (continued)

SW20005: Radar Display

High resolution circular Loudness display corresponding to the Loudness Radar Meter of TC electronic®.
Licence SW20001 is required for the display of more than 4 channels.
--- Precondition: Licence SW20002! ---

SW20006: RTW Premium PPM + Vectorscope

High resolution Multistandard-PPM display with advanced scales, moving coil instruments (PPM, VU, Loudness, BBC mode), and with Audio Vectorscope (4 instances). Expands licence SW20001 with Multi-Correlator, if activated. Licence SW20002 is required for the display of Loudness.

SW20008: Timecode Reader

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

SW20013: BLITS

Tool to generate line test signals according to EBU 3304, GLITS and BLITS definition. Automatic and significant analysis of channel allocation, level, phase and delay, and polarity of received BLITS 5.1 test signals.
--- Precondition: Licence SW20001! ---

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! ---

SW20021: TC-RTW

Licence to convert TouchMonitor devices of TC electronic® to RTW units to allow the installation of upcoming licences with new product functionalities.
--- Precondition: TouchMonitor devices of TC electronic®! ---

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 connetion 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).
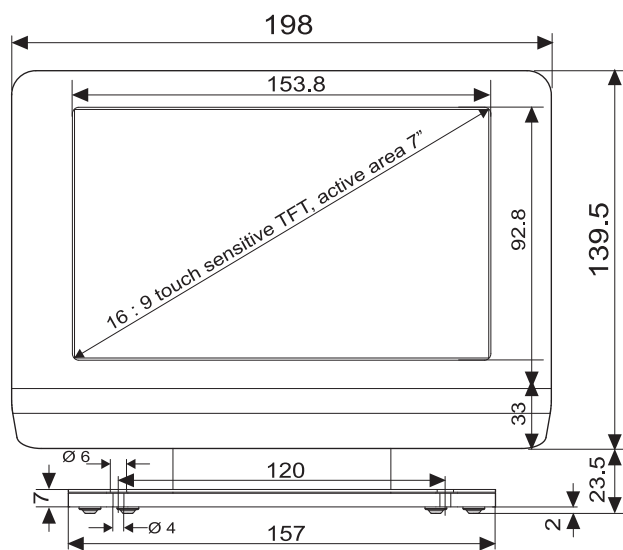--- Precondition: Licence SW20014 must be installed on each connected TouchMonitor ---
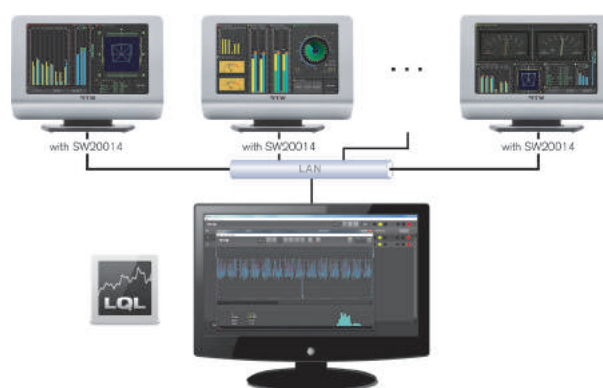
The Loudness Radar Meter is trademark or registerd trademark of TC Electronic A/S, 8240 Risskov, Denmark

Dimensions

TouchMonitor TM7 20700 Table-Top Unit (also 20700OEM with TM7-MADT)

1 | Front view (dimensions in mm)
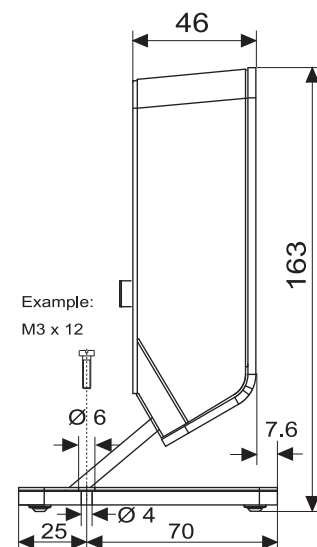
2 | Side view (dimensions in mm)
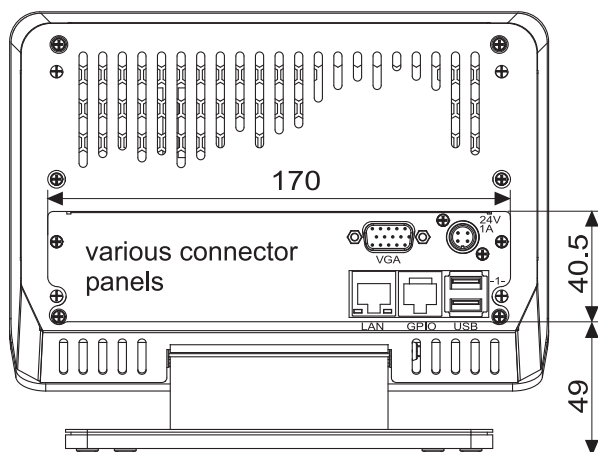
3 | Rear view (dimensions in mm)   Common tolerance: ±0.5 mm
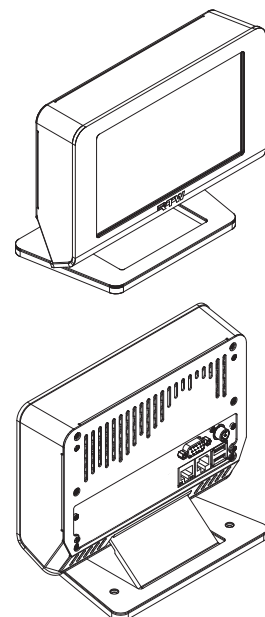
Dimensions (continued)

TouchMonitor TM7 20700OEM OEM Mounting Version
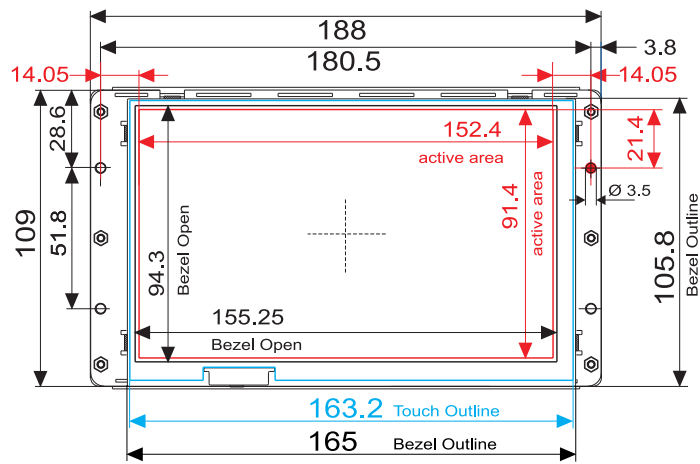
1 | Front view (dimensions in mm, tolerance: ±0.2 mm)
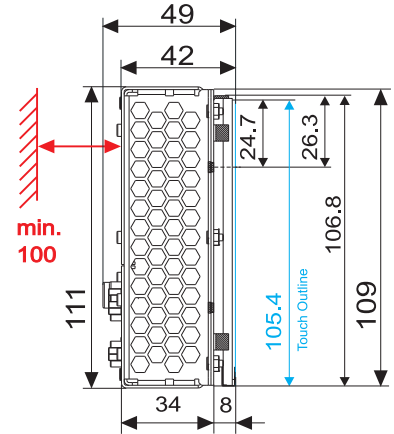
2 | Side view (dimensions in mm, tolerance: ±0.5 mm)
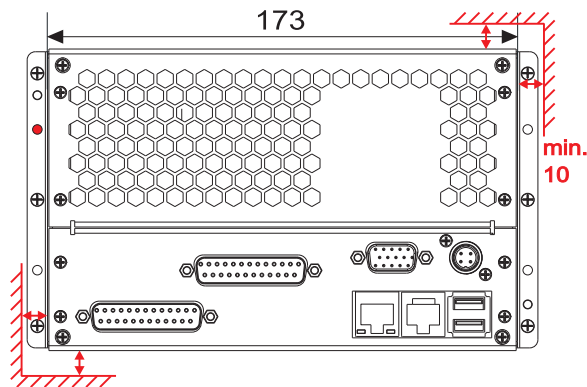
3 | Rear view (dimensions in mm, tolerance: ±0.5 mm)

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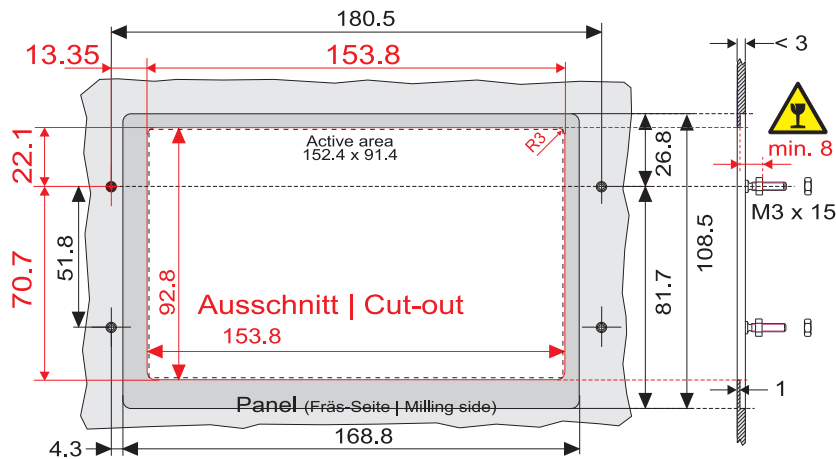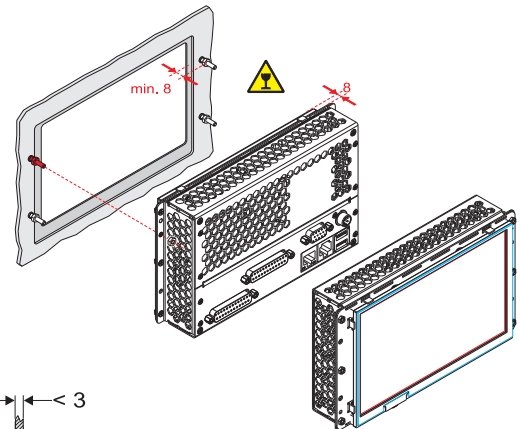
4 | Front panel cut-out (dimensions in mm, tolerance: ±0.2 mm)

5 | Vertical mounting orientation ▶

Optional TM7-MA3U Mounting Adapter for Mounting 20700OEM into Standard Racks

212.8

129

16 : 9 touch sensitive TFT, active area 7"

RTW

1 | Front view (dimensions in mm)

44.4

8.7

122.5

2 | Side view (dimensions in mm)

198.12
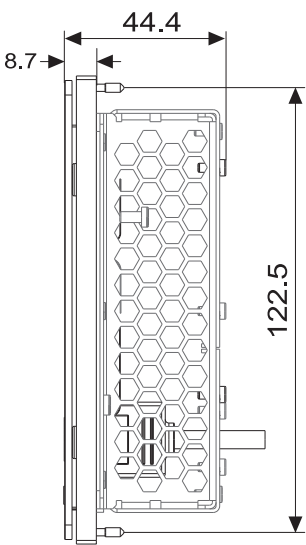
3 | Top view (dimensions in mm)

Common tolerance: ±0.5 mm

Optional TM7-MA3U with 20700OEM fits to standard 19"/3U sub racks (DIN EN 60297-3-101:2004 19"/3U/84HP)

20700OEM and sub rack are not part of TM7-MA3U delivery

RTW

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

112.2
122.5
129.4
132.4
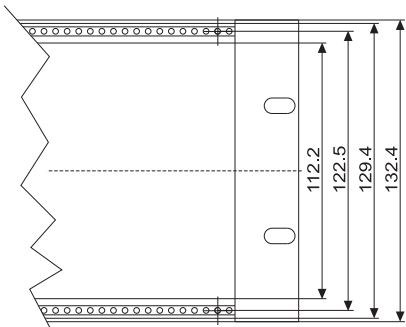
5 | Heights (mm) of standard 19"/3U sub racks

Optional TM7-MAVID Mounting Adapter for Mounting 20700OEM into Video Racks

22

214.1

132.6

19.28

91.44

21.88

16 : 9 touch sensitive TFT, active area 7"

RTW

37.4

152.4

24.3
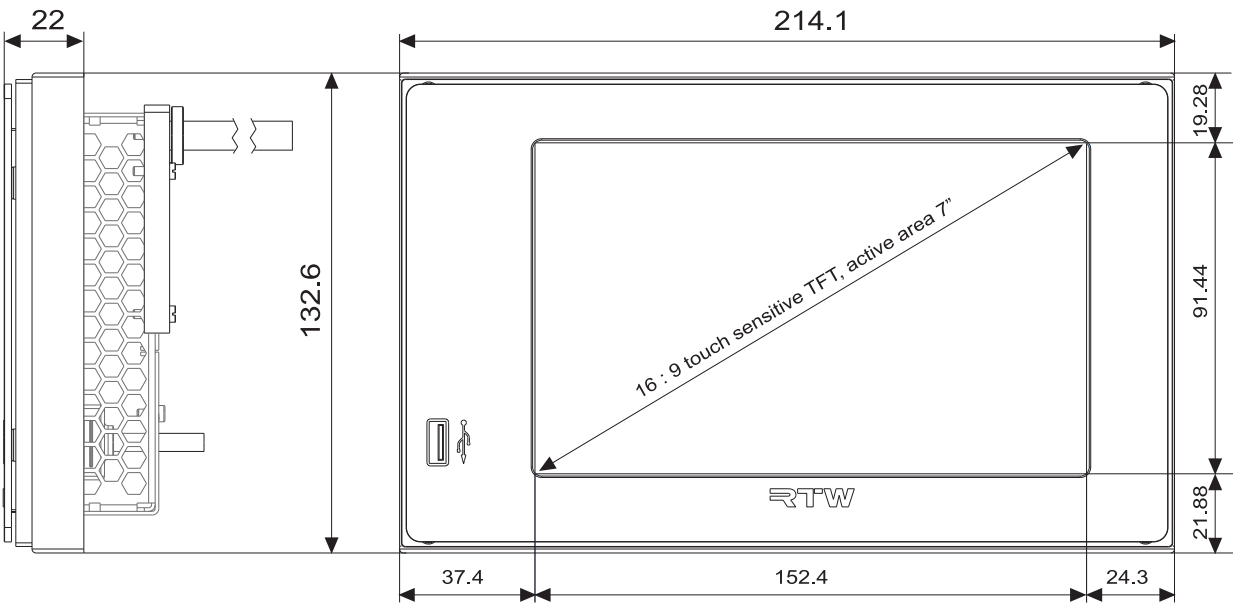
1 | Side view (dimensions in mm)

2 | Front view (dimensions in mm)

407

Adapterstangen (2 x)
Mounting adapters (2 x)

M 5

49

42.7

49.5

175
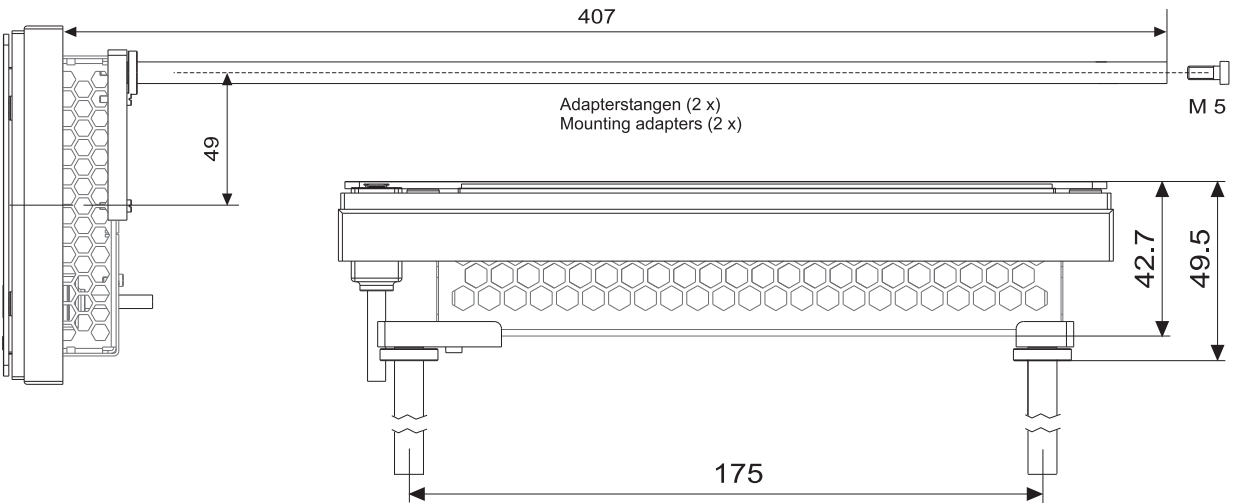
3 | Mounting depth (side view
with adapters, dimensions in mm)

4 | Top view (dimensions in mm)

Common tolerance: ±0,5 mm

Optional TM7-MAVID with
20700OEM fits into standard
19" rack-mount cabinets for
waveform monitors in video
studios

20700OEM and rack-mount
cabinet are not part of
TM7-MAVID delivery
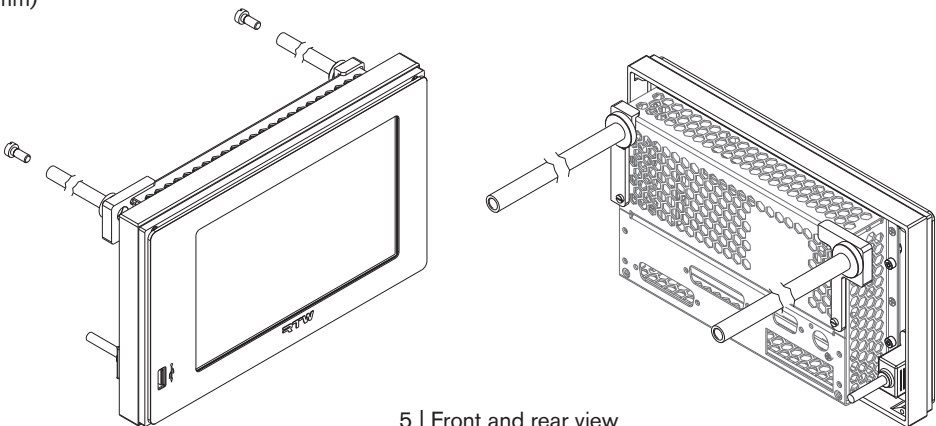
5 | Front and rear view

Connection

Connectors

⚠️ **ATTENTION! - For operating the 20700OEM version 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, 2.71 A) approved for TouchMonitor and available as an accessory. For 20700OEM and its combinations with mounting adapters TM7-MA3U, TM7-MAVID, or TM7-MADT it has to be ordered separately.**
This power supply is already included in the 20700 package.

External:
Standard VGA
monitor 16 : 9

4-pin locking low
voltage connector

VGA   24 V DC, 1 A

HW20711 (pictured):	AES3 In/Out 1 - 4 (Sub-D)	Analog In 1 - 8 (Sub-D)	LAN	GP IO	USB A 2.0
HW20712:	AES3id In/Out 1 - 4 (8 x BNC)	Analog In 1 - 8 (Sub-D)	(RJ-45)	(RJ-12)	(Full Speed)
HW20714:	3G-SDI In/Through (2 x BNC)	Audio In/Out (Sub-D)			
HW20715:	AES3 In/Out 1 - 4 (Sub-D)	AES3 In/Out 5 - 8 (Sub-D)			

or

External:
USB flash drive
USB mouse
Wacom® graphics tablet

Pin Assignment

VGA (15-pin Sub-D-F)

Pin: Function:

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

Pin 1 — Pin 6
Pin 2 — Pin 7
Pin 3 — Pin 8
Pin 4 — Pin 9
Pin 5 — Pin 10
Pin 11
Pin 12
Pin 13
Pin 14
Pin 15

(External view of the connector)
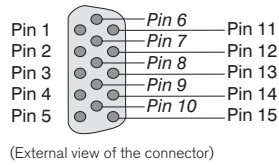
⚠ **NOTE -** The VGA cable shell not exceed 10 to 15 m lenght!

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

Pin: Function:

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!

USB-A

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

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:

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

6 5 4 3 2 1

(External view of the connector)

Internal Processing | +3.3 V | EMI Filter | 110 Ω | Pin 6 | Pin 5 | Pin 4 | Pin 3 | Pin 2 | Pin 1 | Remote

GND (0 V)

AES3id In/Out 1 - 4, 3G-SDI In/Through (unbalanced, BNC-F)

Pin: Function:

Pin: Signal
Ring: Shield/chassis

(External view of the AES3id connector)   (External view of the 3G-SDI connector)
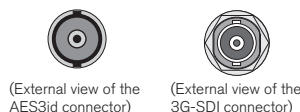
⚠ **NOTE -** The AES3id and 3G-SDI inputs are permanently terminated with 75 Ω.

Analog In 1 -8 (electr. balanced, 25-pin Sub-D-F)

Pin: Function:

Pin	Function
1	Analog input 8 resp. 16 (+, hot)
14	Analog input 8 resp. 16 (–, cold)
2	Shield/chassis
15	Analog input 7 resp. 15 (+, hot)
3	Analog input 7 resp. 15 (–, cold)
16	Shield/chassis
4	Analog input 6 resp. 14 (+, hot)
17	Analog input 6 resp. 14 (–, cold)
5	Shield/chassis
18	Analog input 5 resp. 13 (+, hot)
6	Analog input 5 resp. 13 (–, cold)
19	Shield/chassis
7	Analog input 4 resp. 12 (+, hot)
20	Analog input 4 resp. 12 (–, cold)
8	Shield/chassis
21	Analog input 3 resp. 11 (+, hot)
9	Analog input 3 resp. 11 (–, cold)
22	Shield/chassis
10	Analog input 2 resp. 10 (+, hot)
23	Analog input 2 resp. 10 (–, cold)
11	Shield/chassis
24	Analog input 1 resp. 9 (+, hot)
12	Analog input 1 resp. 9 (–, cold)
25	Shield/chassis
13	not used

Pin 1   Pin 14
Pin 2   Pin 15
Pin 3   Pin 16
Pin 4   Pin 17
Pin 5   Pin 18
Pin 6   Pin 19
Pin 7   Pin 20
Pin 8   Pin 21
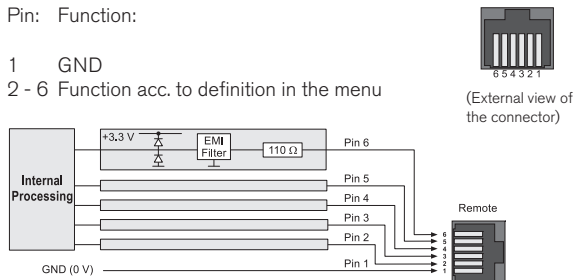Pin 9   Pin 22
Pin 10 Pin 23
Pin 11 Pin 24
Pin 12 Pin 25
Pin 13

(External view of the connector)
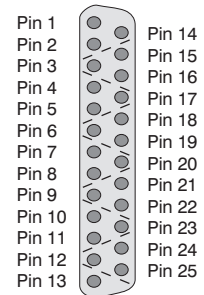
AES3 I/O 1 - 4, AES3 I/O 5 - 8, Audio I/O
(transformer-bal., 25-pin Sub-D-F)

Pin: Function:

Pin	Function
1	Digital output 4 resp. 8 (+, hot)
14	Digital output 4 resp. 8 (–, cold)
2	Shield/chassis
15	Digital output 3 resp. 7 (+, hot)
3	Digital output 3 resp. 7 (–, cold)
16	Shield/chassis
4	Digital output 2 resp. 6 (+, hot)
17	Digital output 2 resp. 6 (–, cold)
5	Shield/chassis
18	Digital output 1 resp. 5 (+, hot)
6	Digital output 1 resp. 5 (–, cold)
19	Shield/chassis
7	Digital input 4 resp. 8 (+, hot)
20	Digital input 4 resp. 8 (–, cold)
8	Shield/chassis
21	Digital input 3 resp. 7 (+, hot)
9	Digital input 3 resp. 7 (–, cold)
22	Shield/chassis
10	Digital input 2 resp. 6 (+, hot)
23	Digital input 2 resp. 6 (–, cold)
11	Shield/chassis
24	Digital input 1 resp. 5 (+, hot)
12	Digital input 1 resp. 5 (–, cold)
25	Shield/chassis
13	not ussed

Pin 1   Pin 14
Pin 2   Pin 15
Pin 3   Pin 16
Pin 4   Pin 17
Pin 5   Pin 18
Pin 6   Pin 19
Pin 7   Pin 20
Pin 8   Pin 21
Pin 9   Pin 22
Pin 10 Pin 23
Pin 11 Pin 24
Pin 12 Pin 25
Pin 13

(External view of the connector)
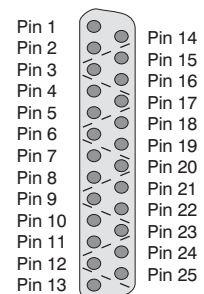
⚠ **NOTE -** The AES3 inputs are permanently terminated with 110 Ω.

LAN

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

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 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:
	▪ USB memory sticks (licence handling, 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)
with HW20711:	2 x 25-pin Sub-D-F (analog and digital)
with HW20712:	1 x 25-pin Sub-D-F (analog), 8 x BNC-F (digital)
with HW20714:	1 x 25-pin Sub-D-F (digital), 2 x BNC-F (3G-SDI In, Through)
with HW20715:	2 x 25-pin Sub-D-F (digital)
Dimensions (W x H x D):	▪ 20700: 198 x 163 x 46 mm
	▪ 20700OEM: 188 x 109 x 45 mm
	- with TM7-MA3U: 42HP x 3U x 44.5 mm
	- with TM7-MAVID: 214.1 x 132.6 x 49.5 mm (429 mm depth with adapter rows), for video rack cabinets with 407 mm depth
Weight:	approx. 2.7 kg (without mains adapter)
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 Surround PPM (3.1, 5.0, 5.1, 7.1 Cinema, 7.1 DD+)
- 2-ch. and multichannel peakmeter
- 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
- Loudness Range instrument (LRA)
- Logging Data Server
- Loudness Chart instrument
- Radar Loudness Meter (TC electronic®)
- SPL meter
- Timecode Reader, Loudness Recalculation
- Moving Coil (BR, VU, Loudness, BBC mode)
- Gain Reduction instrument
- Surround Sound Analyzer (up to 7.1 DD+)
- Stereo Correlator
- 10-fold Multi-Correlator with LFE mode
- 1/3-, 1/6-, 1/12-octave spectrum analyzer
- 2-channel Audio Vectorscope (4 instances)
- Dialnorm
- BLITS analyzer and generator
- AES3 status monitor
- Numerical displays

Analog Inputs

HW20711:	8 analog inputs, Sub-D-F connector, 25-pin
HW20712:	8 analog inputs, Sub-D-F connector, 25-pin
Reference level:	adjustable in the range from 0 dBu to +10 dBu
Maximum input level:	+24 dBu
Impedance:	> 10 kΩ, electronically balanced
Frequence range:	20 Hz to 22 kHz @ 48 kHz

Digital Inputs

HW20711:	4 AES3 inputs (transformer balanced, 110 Ω), Sub-D-F connector, 25-pin, 4 in-and 4 outputs
HW20712:	4 AES3id inputs (unbalanced, 75 Ω), 8 BNC-F connectors, 4 inputs and 4 outputs
HW20714:	4 AES3 inputs (transformer balanced, 110 Ω), Sub-D-F connector, 25-pin, 4 in-and 4 outputs and 3G-SDI interface with 2 x BNC-F connectors In and Through
HW20715:	8 AES3 inputs (transformer balanced, 110 Ω), 2 x Sub-D-F connector, 25-pin, 4 in-and 4 outputs each
Sampling rates:	44.1, 48, 96 kHz, synchronisation to digital input signal

Digital Outputs

HW20711:	4 AES3 outputs, Sub-D-F connector, 25-pin, with 4 inputs and 4 outputs
HW20712:	4 AES3id outputs, 8 BNC-F connectors, 4 inputs and 4 outputs
HW20714:	4 AES3 outputs, Sub-D-F connector, 25-pin with 4 inputs and 4 outputs and 3G-SDI interface with 2 x BNC-F connectors In and Through
HW20715:	8 AES3 outputs, 2 x Sub-D-F connector, 25-pin, 4 in-and 4 outputs each
Sampling rates:	referenced to digital inputs or internal clock

Specifications (continued)

Basic 4-Channel PPM (Standard Software)

General

Input sources:	analog and/or digital, depending on selected audio interface
4-channel Peakmeter:	up to 4 x Mono, 2 x Stereo, 1 x Stereo and up to 2 x Mono (no 3.1)
Display:	• max. of 4 ch. total in max. 4 groups
	• Peak level
	• Peak hold
	• Numerical value of the display
Functions:	• Gain (+20 dB, +40 dB acc. to standard)
	• Peak hold on/off
	• Memory
	• Reset

Analog Peakmeter

Analog scales:	• DIN5: +5 .. -50 dB,
	• Nordic: +12 .. -42 dB,
	• BR IIa: 7 .. 1, BRIIa ext: 7 .. 1,
	• BR IIb: +12 .. −12 dB, BR IIb +12 .. −12 dB,
Integration time:	acc. to standard or 20 ms, 10 ms, 1 ms, 0,1 ms additional 150 ms for British scales
Peak hold indicator:	1, 2, 4, 10, 20, 30 s, manual reset or off

Digital Peakmeter

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, BRIIa ext: 7 .. 1,
	• BR IIb: +12 .. −12 dB, BR IIb +12 .. −12 dB,
Headroom/Headroom Ref:	adjustable 0 to −20 dB in steps of 1 dB
Operation field:	adjustable 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

AES3 Status Monitor

Display:	• 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.

Gain Reduction

(Operation only with connection to Studer® Vista consoles)

Display:	1 bargraph for Stereo and Surround formats, up to 8 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

SW20001: Multichannel Mode (Software Licence)

Expands Basic 4-channel PPM to multichannel and surround functions and display. More than 4 channels and groups can be displayed simultaneously.

Input sources:	analog and/or digital, depending on selected audio interface
Surround Peakmeter:	for 3.1, 5.0, 5.1, 7.1 Cinema, 7.1 DD+ formats
Track layout :	selectable for 5.1 Surround:
	• SMPTE.TV: L, R, C, LF, LS, RS
	• SMPTE.Film: L, LS, C, RS, R, LF
	• DTS: L, R, LS, RS, C, LF
	• L, C, R, LF, LS, RS
	• Film: L, C, R, LS, RS, LF
	preset for 7.1 Cinema Surround:
	• SMPTE (L, LC, C, RC, R, LS, RS, LF)
	preset for 7.1 DD+ Surround:
	• L, C, R, LS, RS, LSR, RSR, LFE
Multichannel Peakmeter:	2 to 8 single channels in one defined block (depending on the audio interface up to 4 blocks)
2-channel Peakmeter:	for different Stereo channel pairs
Single-channel Peakmeter:	for different Mono signals

SW20002: Loudness and SPL Display (Software Licence)

Expands the Basic 4-channel PPM with functions for loudness measurement and for SPL display and summed SPL value calculation
For the display of more than 4 channels software licence SW20001 is required. Then, also the Dialnorm instrument is available.

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

Specifications (continued)

Customer Specific Loudness Mode

Display:	• Bargraphs for each single channel (can be combined with PPM bargraphs) • 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 in the range from −10 to −30 LUFS in steps of 1 LUFS • −24 LKFS; adjustable in the range from −10 to −30 LKFS in steps of 1 LKFS

Time & Gate Momentary:

- Window Time:	adjustable in the range from 200 ms to 1000 ms in steps of 100 ms
- Integration Time:	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; adjustable in the range from −80,0 to −40,0 LUFS in steps of 0.5 LUFS, switchable • −70,0 LKFS; adjustable in the range from −80,0 to −40,0 LKFS in steps of 0.5 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 • +1.5 dB (LS, RS, LSR, RSR), adjustable between −3 and +3 dB in steps of 0.5 dB • Off (LFE), selectable: Off, 0 dB, 10 dB

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. 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

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 in the range from 1 to 20 LU in steps of 1 LU
Comfort zone:	4 LU; adjustable in the range 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. For the display of more than 4 channels software licence SW20001 is required.

Spectrum Analyzer (RTA)

Input sources:	selectable: all channels without LF, all channels, Front, Rear, L/R, 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

Specifications (continued)

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, Linear weighting
	▪ Integration time
	▪ Set reference
	▪ Scaling
	▪ Frequency range
	▪ Bargraph arrangement
	▪ Display-Hold
Integration time (ballistics):	Impulse, Fast, Slow, Peak (10 ms)

SW20004: SSA - Surround Sound Analyzer (Software Licence)

Dynamic display for visualizing the interaction of all surround parameter corresponding to the subjective listening impression
--- Precondition: Software licence SW20002 is activated. ---
For the display of more than 4 channels software licence SW20001 is required.

Surround-Sound-Analyzer

Display:	▪ Graphical display indicating the single channel and total program loudness acc. to selected weighting filter (Total Volume Indicator) acc. to selected weighting filters (e. g. SPL or Loudness)
	▪ Position and width of phantom sound sources (PSI)
	▪ Correlation of adjacent channels in PSI (color) resp. TVI (shape of line): red resp. funnel: negative range, yellow resp. straight line: "0" range, green resp. roof: positive range
	▪ Separate correlators for the outer adjacent channels switchable: red: negative range, white: „0" range, green: positive range
	▪ Dominance indicator (DMI)
	▪ LFE Phase (warning display, if correlation between any channel and LFE is negative)

SW20005: Radar Display (Software Licence)

High resolution circular Loudness display corresponding to the Loudness Radar Meter of TC electronic®.
--- Precondition: Software licence SW20002 is activated. ---
For the display of more than 4 channels software licence SW20001 is required.

Radar Loudness Meter

Display:	▪ Momentary Loudness values (circular)
	▪ History (circular)
	▪ Measuring time (numerical)
	▪ 2 Loudness descriptors (numerical)
	▪ Peak
Mode:	Radar or Statistics
Sliding Loudness:	3 s, 6 s, 10 s, 15 s, 30 s, 1 min, 2 min, 4 min, 8 min
Descriptors:	Off, Program Loudness, Loudness Max, Loudness Range, Sliding Loudness (max. 2 at a time)

Speed:	1, 4, 12, 30 min, 1, 2, 4, 12, 24 h
Resolution:	3 dB, 4 dB, 6 dB, 8 dB, 10 dB, 12 dB, selectable
Low Level:	-30 to -6 LU

SW20006: RTW Premium PPM plus Vectorscope (Software Licence)

High resolution Multistandard-PPM display with advanced scales and with Audio Vectorscope (4 instances available) and Moving Coil instruments (PPM, VU, Loudness, BBC mode). Expands licence SW20001 with Multi-Correlator instrument in multi-channel mode, if activated. For the display of Loudness software licence SW20002 is required.

General

Input sources:	analog and/or digital, depending on selected audio interface
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

Analog Peakmeter Extension

Analog scales:	▪ Zoom10: +10 .. −10,
	▪ Zoom1: +1 .. −1,
	▪ SMPTE24: +24 .. −30,
	▪ SMPTE20: +20 .. −40
	▪ NHK
Integration time:	acc. to standard or 20 ms, 10 ms, 1 ms, 0,1 ms
Peak hold indicator:	1, 2, 4, 10, 20, 30 s, manual reset or off

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 from 0 to −20 dB in steps of 1 dB
Operation field:	adjustable 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

Specifications (continued)

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
- 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

Audio Vectorscope (4 instances available)

in Surround mode (if available):
- Display modes:	▪ 2-channel ▪ 4-channel (fixed: L-R above, LS-RS below)
- Inputs:	in 2-channel mode selectable, selection depends on selected format; e. g. for 5.1: L/R, LS/RS, L/C, C/R, L/LS, R/RS
- AGC:	fast/slow

in 2-channel Stereo mode
- Inputs:	L-R
- AGC:	fast/slow
- Grid:	L/R or M/S

Multi-Correlator

in Surround mode (if available):
	▪ for each channel pair of 3.1, 5.0, 5.1, 7.1 formats ▪ LFE mode with 5.1, 7.1 formats to display the correlation between each single channel and LFE channel

- Display:	red: negative range, white: "0" range, green: positive range
- Filter:	low pass filter switchable (300 Hz)

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

SW20013: BLITS (Software Licence)

Tool to generate line test signals according to EBU 3304, GLITS and BLITS definition. Automatic and significant analysis of channel allocation, level, phase and delay, and polarity of received BLITS 5.1 test signals.
--- Precondition: Software licence SW20001 is activated. ---

Generator
Functions:	▪ Line test signal generators for BLITS, GLITS, EBU 3304 ▪ Optional intro from stored WAV file
Display:	Channel related course of outgoing generator sequence
Signal level:	-18 dBFS nominal
Level offset:	0 dB; adjustable from -12 to +12 dB in steps of 1 dB
Outputs:	digital using the output routing

Analyzer

Functions:
- Automatic detection and analysis of incoming BLITS test signals

Displays:
- Course: Channel related for incoming BLITS test signals
- State/Alarm: Bars for fast and easy recognition of
  - General signal state
  - Channel allocation
  - Level
  - Phase and Delay
  - Polarity

  In cases of error, the bars will be displayed in red
- Report: Schedule showing values for
  - incoming channels
  - channel allocation
  - measured level in dBFS
  - detected differences in dB
  - Phase and Delay in deg and ms
  - Polarity

  Values showing differences or errors will be displayed in red

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

Display:
- Vertical Integrated bargraph switchable
- Tolerance levels and its display adjustable
- Bargraph:
  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 horzontal 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)

Color:
- 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)
- 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

Time Range: Time grid adjustment for the coordinate system and the horizontal bargraphs:
- Increase or decrease of the preset time period in steps of one unit or ten units
- Magnification of the measured course to the available width of the instrument's window

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:
- Selection of current time period (marker)
- Increase or decrease of the marker in step sizes corresponding to the current time grid
- Shift of the marker and magnification of the content

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)

Items of Delivery
TouchMonitor TM7 20700:
- TM7 main unit in a table-top frame
- selected audio interface
- Basic software (system/Stereo-PPM)
- Table-stand, mains adapter, manual
Order no.: 20700 (+ HW-No.)

TouchMonitor TM7 20700OEM:
- TM7 main unit without table-top frame
- selected audio interface
- Basic software (system/Stereo-PPM)
- Manual
Order no.: 20700OEM (+ HW-No.)

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 20700OEM 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 20700OEM 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 20700OEM to a table-top unit.

Optional Software Licences
- Software licence **SW20001: Multichannel Mode** for the display of multi-channel modes

- 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 **SW20004: SSA - Surround Sound Analyzer** to understand the balance of surround programmes intuitively. ***)**
--- Precondition: Licence SW20002! ---

- Software licence **SW20005: Radar Display** for the display of the Loudness-Radar-Meter of TC electronic®. ***)**
--- Precondition: Licence SW20002! ---

- Software licence **SW20006: RTW Premium PPM + Vektorskop** for the display of further PPM-scales, Moving Coil instruments and audio vectorscope. Expands licence SW20001 with Multi-Correlator.

- Software licence **SW20008: Timecode Reader** for the display of SDI embedded or LTC timecodes, recalculation
--- Precondition: Licence SW20002! ---

- Software licence **SW20013: BLITS** to use BLITS analyzer and BLITS, GLITS, EBU 3304 line test signals.
--- Precondition: Licence SW20001! ---

- Software licence **SW20014: Logging Data Server** for the export of measured data via IP or USB flash drive, two-stage definition of thresholds, advanced graphical presentation with RTW LQL PC software, Loudness Chart instrument ***)**
--- Precondition: Licence SW20002! ---

- Software licence **SW20021: TC-RTW** for the conversion of TC electronic® TouchMonitor devices to RTW units. Allows the installation of upcoming licences with new product functionalities on these devices.
--- Precondition: TouchMonitor devices of TC electronic®! ---

*) Licence SW20001 is required for the display of more than 4 channels.

Optional 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)

- Snake cable **1167** (4 m, 25-pin Sub-D-M connector to 4 x XLR-M and 4 x XLR-F connectors, for digital inputs and outputs)

- Snake cable **1186** (4 m, 25-pin Sub-D-M connector to 8 x XLR-F connectors, for analog inputs)

Product Line-up

TouchMonitor TM7 table-top unit	TouchMonitor TM7 OEM unit	3U Mounting Adapter **TM7-MA3U**	VID Mounting Adapter **TM7-MAVID**	Table-top Mounting Adapter **TM7-MADT**
7" touch screen 16 : 9 TFT, main unit with table-top frame, table-stand, power supply Order number: **20700**	7" touch screen 16 : 9 TFT, main unit without table-top frame for panel-mounting Order number: **20700OEM**	Mounting kit including a 19"/3U/42HP rack-mount panel (half-19"/3U) and fastening material for mounting 20700OEM into standard 19" sub-racks.	Mounting kit including a half-19"/3U plug-in panel and fastening material for mounting 20700OEM into standard 19" rack-mount cabinets for video racks.	Mounting kit including a table-top frame, robust swivel-mounted table-stand, housing cover, and material for remodelling 20700OEM to a table-top unit.

Audio Interface Selection (I/O Options)	max. Channel Count (Hardware)	Inputs Analog (balanced)	Inputs Digital/Outputs Digital	
add. Order Number: **HW20711**	8-channel analog In, 8-channel digital In, 8-channel digital Out	1 x 25-pin Sub-D	1 x 25-pin Sub-D (4 x AES3 in, 4 x AES3 Out)	
add. Order Number: **HW20712**	8-channel analog In, 8-channel digital In, 8-channel digital Out	1 x 25-pin Sub-D	8 x BNC (4 x AES3id In, 4 x AES3id Out)	
add. Order Number: **HW20714**	3G-SDI In, 3G-SDI Through, 8-channel digital In, 8-channel digital Out	---	2 x BNC (3G-SDI In/Through), 1 x 25-pin Sub-D (4 x AES3 In, 4 x AES3 Out)	
add. Order Number: **HW20715**	16-channel digital In, 16-channel digital Out	---	2 x 25-pin Sub-D (8 x AES3 in, 8 x AES3 Out)	

Standard-Hardware:	Table-top unit with easy-to-use graphical interface, Ethernet, 2 x USB, GPIO, VGA Out, table-stand, mains adapter. Audio Interface Selection required! OEM unit with easy-to-use graphical interface, Ethernet, 2 x USB, GPIO, VGA-Out. Audio Interface Selection required!
Standard-Software:	Basic 4-channel PPM with analog scales (DIN +5, Nordic, British IIa, British IIb) and digital scales (0 to -60 dB, +3 to -60 dB True Peak, DIN, Nordic, British IIa and IIb), stereo correlator, gain reduction, global keyboard. Other software modules available as licences.

Licences (Software Modules) Further informationen on https://www.rtw.com/en/products/audio-monitors/touchmonitor-tm7.html --> Options

Multichannel Mode Order Number: **SW20001**	Loudness and SPL Display Order Number: **SW20002 *)**	RTA - Real Time Analyzer Order Number: **SW20003 *)**	SSA - Surround Sound Analyzer Order Number: **SW20004 *)** Precondition: installed SW20002!	Radar Display Order Number: **SW20005 *)** Precondition: installed SW20002!	Premium PPM plus Vectorscope Order Number: **SW20006**. Expands SW20001 with Multi-Correlator
Timecode Reader Order Number: **SW20008 *)** Precondition: installed SW20002!	BLITS (Analyzer and Generator) Order Number: **SW20013 *)** Precondition: installed SW20001!	Logging Data Server Order Number: **SW20014 *)** Precondition: installed SW20002!	TC-RTW (Conversion Kit) Order Number: **SW20021** Precondition: TM of TC electronic®!		

*) Licence SW20001 is required for the display of more than 2 channels.

Dimensions:	W x H x D in mm (approx.)
TM7 Table-top Unit 20700:	198 x 139.5 (163) x 46 (95) (with table-stand)
TM7 OEM Version 20700OEM:	188 x 109 x 45
20700 OEM with TM7-MA3U:	42HP (213 mm) x 3U (129 mm) x 44.5 mm
20700OEM with TM7-MAVID:	214.1 x 132.6 x 49.5 (429) mm

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