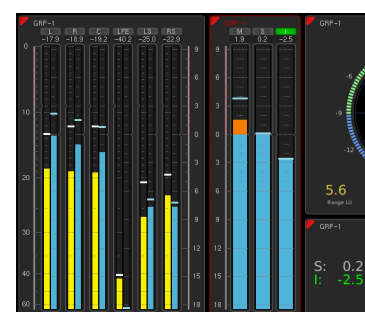


Data Sheet

TouchMonitor TM7 Series



RTW
EYES ON YOUR AUDIO

TouchMonitor TM7 Series



product
design
award

2011



モジュラーソフトウェア・タッチスクリーン・I/O オプション: Analog, AES3, AES3id, 3G SDI, AoIP・柔軟な画面レイアウト・2-ch. PPM/ True Peak・Multichannel・Loudness・LRA・Logging・Chart・Timecode・SPL・RTA・SSA・ISA・Radar・Premium PPM・BLITS

TouchMonitor TM7シリーズは、精度、パフォーマンス、効率性、柔軟性の点で、新しいレベルのプロフェッショナル オーディオ メータリングを実現します。高品質の9インチタッチスクリーン、使いやすいグラフィカル ユーザー インターフェイス、およびいくつかのオーディオ インターフェイスが装備されています。

TouchMonitor TM7 は、アナログ、AES3、AES3id、3G-SDI、AoIP などの様々なオーディオ インターフェイスを使用してオーディオ信号を処理します。アナログとデジタルのオーディオ インターフェイスを混合して使用すると、最大16 (24) の入力チャンネルを同時に表示できます。AoIP インターフェイスは最大 32 チャンネルを提供します。

グラフィカルユーザーインターフェイス

TouchMonitorのグラフィカル ユーザー インターフェイスは、指で触れるだけで制御できます。利用可能な画面スペースを最適に利用するために、インストールメントを拡大縮小したり、ランダムに配置したり、組み合わせたりすることができます。異なる入力チャンネルと構成に割り当てられた同じタイプの複数のインストールメントを同時に表示できます。

包括的な画面上のヘルプ機能により、ユーザーはセットアップの変更を簡単に行うことができます。

ライセンス

完全にモジュール化されたソフトウェアのコンセプトにより、実際に必要な機能のみを購入することができます。これにより、ニーズに最も適したそれぞれのTouchMonitorを構成できます。対応するライセンスを購入してアクティベートするだけで、いつでも新しい機器や機能を備えたソフトウェア モジュールを追加できます。

Gefördert durch:



Bundesministerium
für Wirtschaft
und Technologie

Hardware

共通仕様

- 7" タッチスクリーン 16 : 9 TFT (800 x 480 pixel)
 - 16, 24, 32 チャンネルのオーディオ インターフェイス (アナログ, AES, AES3i, 3G-SDI, AoIPの選択が必要)
 - Connectors: イーサネット, VGA, 2xUSB 2.0, GPIO, (12) 24 V DC
 - 柔軟な構成とオンサイトでの追加が可能な表示サイズ変更可能でモジュール式のソフトウェアアプローチ
 - スケーラブルな機器を備えた非常に柔軟な画面レイアウト オプション
 - 基本の4チャンネルPPM ソフトウェア: ピーク、トゥルーピーク、フェーズ メーター、グローバル キーボード
 - テーブルトップ ユニット、OEM バージョン、または事前設定済みテイラーメイドモデル
 - 19 インチ/3U ラックに取り付けるための取り付けキット。19インチビデオラックも利用可能
- 追加可能ライセンス:
 - 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)
 - ISA - Immersive Sound Analyzer

メインユニット

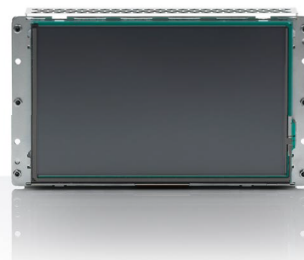
20700

TouchMonitor TM9メインユニットは、可動スタンドと堅牢なアルミフレームのテーブルトップモデルです。パワーサプライ付属。



20700OEM

TouchMonitor TM9 OEMはアルミフレーム無しで、ミキシングコンソール等のフロントパネルへの取り付け用モデルです。パワーサプライ無し。



オーディオインターフェイス (I/O オプション)

各メインユニットへは、工場出荷時にオーディオインターフェイスが取り付けられます。次のページでは、利用可能なオーディオインターフェイスが表示されます。メインユニットに、ニーズに合わせたインターフェイスをお選びいただき同時にオーダーしてください。

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)

HW20717



- 32-channel audio interface with:
- 32 Dante® AoIP network channels (2 x RJ-45, Primary/Secondary)

HW20718



- 32-channel audio interface with:
- 32 Ravenna/AES67/ST 2110 AoIP network channels (2 x RJ-45, Primary/Secondary)

その他のハードウェアオプション

TM7-MA3U (20700OEM用19"/3Uラックマウントアダプター)

19インチ/3U/42HP ラックマウントパネル (ハーフ 19インチ/3U) と 20700OEM を標準の 19インチ サブラックに取り付けるための取り付けキット。

TM7-MADT (20700OEM用テーブルトップアダプター)

テーブルトップ フレーム、堅牢なテーブル スタンド、ハウジング カバー、および 20900OEM をテーブルトップ ユニットに改造するための取り付けパーツを含むキット。

TM7-MAVID (20700OEM用VIDマウンティングアダプター)

ハーフ19インチ/3U プラグインパネルと、20700OEM をビデオラック用の標準 19インチ ラックマウントキャビネットに取り付けるための取り付けキット。

1647831 (19"/3U ラックフレーム)

TM7-MA3U 取り付けキットと組み合わせて、最大 2つの TM7-Mount または 20700OEM を取り付けすることができます。未使用スペースをカバーするブランクパネルが付属しています。

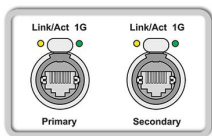


ハードウェア

テイラーメイドモデル

テイラーメイドモデルは、一般的なアプリケーションをあらかじめ設定されし、対応するオーディオインターフェイスが既に装備されています。前述メインユニットと同様に、ソフトウェア モジュール (ライセンス) を追加して拡張できます。マルチチャンネル操作 SW20001、ラウドネス測定と SPL 表示 SW20002、サラウンド サウンド アナライザー SW20004、最大 4 つのオーディオ ベクトルスコープ、マルチスタンダード PPM/VU ムービング コイル エミュレーション SW20006 のライセンスを、下記デバイスの基本構成として推奨します。その他のライセンスは「ソフトウェア」セクションを参照してください。

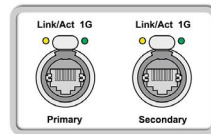
TM7-RAV



7" table-top unit for AoIP network-based post production, TV broadcast and video editing

- 32 Ravenna AoIP network channels (2 x RJ-45, Prim./Sec.)
- Power supply 12 - 24 V DC, 24 VA

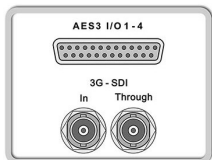
TM7-Dante



7" table-top unit for AoIP network-based post production, TV broadcast and video editing

- 32 Dante® AoIP network channels (2 x RJ-45, Prim./Sec.)
- Power supply 12 - 24 V DC, 24 VA

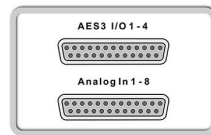
TM7-Video



7" table-top unit for post production, TV broadcast, video editing

- 8-ch. digital inputs and outputs (4 x AES3 In/Out, Sub-D)
- 3G-/HD-/SD-SDI In/Through (2 x BNC)

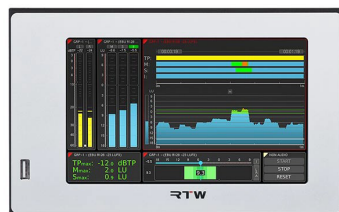
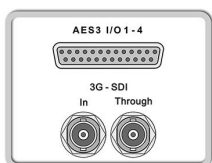
TM7-Studio



7" table-top unit for audio production, post production

- 8-ch. analog inputs (Sub-D)
- 8-ch. digital inputs and outputs (4 x AES3 In/Out, Sub-D)

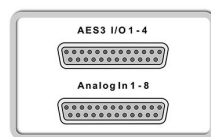
TM7-Rack



7" rack-mount unit for TV broadcast, post production

- 8-ch. digital inputs and outputs (4 x AES3 In/Out, Sub-D)
- 3G-/HD-/SD-SDI In/Through (2 x BNC)

TM7-Mount



7" panel-mount unit for TV broadcast, post production

- 8-ch. analog inputs (Sub-D)
- 8-ch. digital inputs and outputs (4 x AES3 In/Out, Sub-D)

ソフトウェア

スタンダードソフトウェア

すべての TouchMonitor には、基本ソフトウェアパッケージが付属しています。制御機能に加えて、一度に最大 4 グループ、最大 4 つのルーティングチャンネルの信号を処理できます (最大 4 x モノラル、2 x 2 チャンネルステレオ、1 x 2 チャンネル) ステレオおよび最大 2 x モノラル、3.1 は無し)。表示可能なものは次のとおりです: アナログ スケール (DIN5、Nordic、British IIa、British IIb) およびデジタル スケール (0 ~ -60 dB、+3 ~ -60 dB TruePeak、DIN5、Nordic、British IIa、および IIb) を備えた 4 チャンネル PPM、ピークホールド、ピークメモリ、オーバーインジケーター、位相相関メーター、および複数の機器で定義された機能を同時に制御し、プリセットを呼び出すためのグローバルキーボード。統合された GP IO インターフェイスによる外部制御も可能です。マルチチャンネル オプションやその他のソフトウェア モジュールのオプションを追加して機能が拡張されます。

ソフトウェアモジュール (ライセンス)

ソフトウェアモジュールは、メイン ユニットおよび選択したオーディオ インターフェイスの注文と同時、または後でライセンスとして注文できます。本体の注文と合わせて、納品時にライセンスがアクティベートされます。

後でライセンスが必要になった場合は、TM7ユニットの「License」メニューから注文プロセスを開始します。RTWに転送するためのデバイス固有のファイルがユニットによって作成され、このユニットに対してライセンスをアクティベートするためのファイルが返送されます。

SW20001: Multichannel Mode

信号ルーティングを拡張して、4つ以上のチャンネルまたはチャンネルグループを同時に表示できます。

追加フォーマット: 3.1サラウンド、5.0サラウンド、5.1サラウンド、7.1シネマ サラウンド、7.1 DD+サラウンド、およびマルチチャンネル (1つのブロックに2~8チャンネル、3G SDI オプションで最大 4 ブロック)。

SW20002: Loudness and SPL Display

ラウドネス機能を備えた基本的なステレオ PPM を拡張 (EBU R128、ITU-R BS.1770-4/1771-1、ATSC A/85、ARIB、OP-59、AGCOM、CALM、LEQ (M)、TASA、SAWA)、SPL機能、およびラウドネスレンジ インストゥルメント (LRA)。4ch以上の表示の場合、SW20001ライセンスが必要で、Dialnorm が利用可能になります。



SW20003: RTA - Real Time Analyzer

31、61、または 120 バンドで、単一チャンネル、チャンネル ペア、またはグループの周波数範囲のスペクトル分布表示を提供します。

追加の HP HF 帯域も利用可能。4 チャンネルを超える表示には --- SW20001が必須ライセンス ---

SW20004: SSA - Surround Sound Analyzer

主観的なサラウンドサウンドパラメータの相互作用と聴感に対応するすべての関連するテクニカル情報をダイナミックに視覚化するインストゥルメント。

--- SW20001およびSW20002が必須ライセンス ---

SW20005: Radar Display

TC electronic®の高解像度円形ラウドネスレーダーメーター インストゥルメント。

4 チャンネルを超える表示にはライセンス SW20001 が必要です。

--- SW20001が必須ライセンス ---

SW20006: RTW Premium PPM + Vectorscope

ムービングコイル インストゥルメント (PPM、VU、ラウドネス、BBC モード)、およびオーディオ ベクトルスコープ (4インスタンス) を備えた高解像度で最新スケールのマルチスタンダード PPM ディスプレイ。ライセンス SW20001がアクティブ化されている場合、Multi-Correlatorを拡張します。ラウドネスの表示にはライセンス SW20002 が必要です。



ソフトウェア

SW20008: Timecode Reader

SDIエンベデッドまたは LTCタイムコードのデコードおよびタイムコード表示。ラウドネスを再計算するにはライセンス SW20002 が必要です。

SW20013: BLITS

EBU3304、GLITSおよび BLITS定義に基づいた回線テスト信号を生成するツール。受信したBLITS 5.1テスト信号のチャンネル割り当て、レベル、位相と遅延、極性の自動かつ重要な分析。

--- SW20001が必須ライセンス ---

SW20014: Logging Data Server

IP接続またはUSBフラッシュドライブ経由で測定データをエクスポートします。閾値の2段階の定義。RTW LQL PCソフトウェアを使用した高度な画像提示。測定の経過をTouchMonitor上に直接表示するためのチャート インストゥルメント。

--- SW20002が必須ライセンス ---

SW20015: ISA - Immersive Sound Analyzer

2つのレイヤーにわたるイマーシブ サラウンド信号のすべての関連するテクニカルパラメーターと主観的パラメーターの動的相互作用を視覚化します。空間バランスを一目で直感的に評価可能です。

--- SW20001, SW20002, SW20004が必須ライセンス ---

SW20021: TC-RTW

TC electric® 社製のTouchMonitorをRTWユニットに変換して、新機能を備えた今後のライセンスをインストールできるようにするためのライセンス。

--- TC社製TouchMonitor所有のユーザー向け ---



PC Software: LQL - Loudness Quality Logger

Windows® OS 用のロギングコンソール。LQL ライセンス SW20014 が有効になっている複数の TM7、TMR7、および TM9 の IP 接続 (LAN コネクタ) または USB スティックを介して、タイムコードまたはリアルタイム ベースのラウドネスおよびトゥルーピーク データを収集および保存します。さまざまなアラームを生成するための二段階のリミッター定義、ステータスの概要、レポート、およびデータのエクスポート。登録済みユーザーは基本バージョンを無料で利用できます。RTWのWebサイト (サポート/マニュアルおよびソフトウェア)にログインし、メンバーエリアにある「PC Software/LQL - Loudness Quality Logger」をご覧ください。

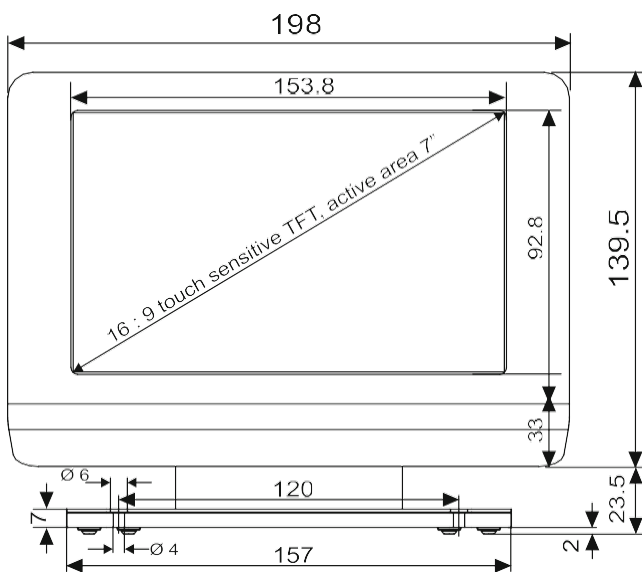
--- SW20014ライセンスがインストールされたTouchMonitorが必要 ---



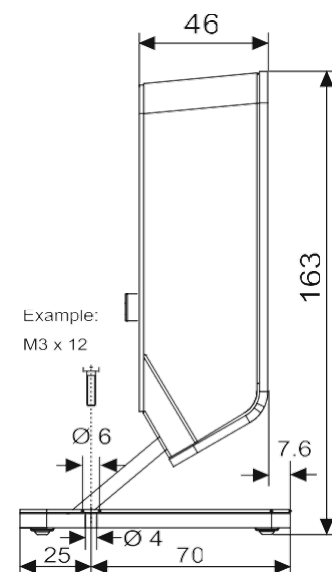
Loudness Radar Meter (ラウドネスレーダーメーター)は、TC Electornic®社の登録商標です。

寸法

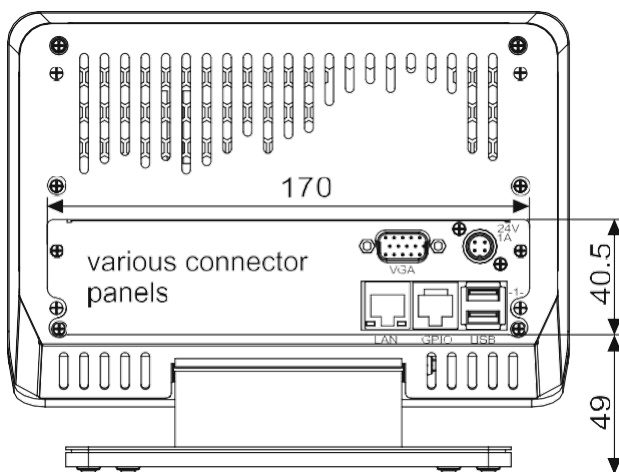
TouchMonitor TM7 20700デスクトップユニット (20700 + HW2071n, also 20700OEM + HW2071n with TM7-MADT, TM7-RAV, TM7-Dante, TM7-Video, TM7-Studio)



1 | Front view (dimensions in mm)

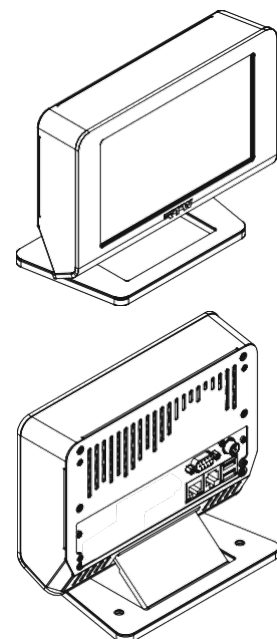


2 | Side view (dimensions in mm)



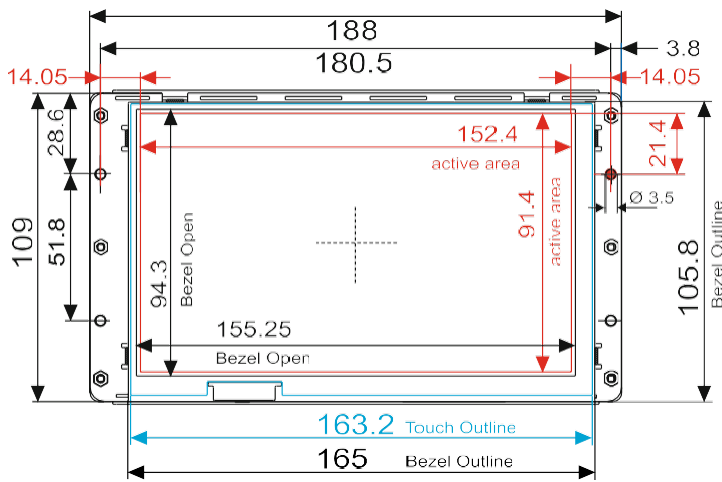
3 | Rear view (dimensions in mm)

Common tolerance: ± 0.5 mm

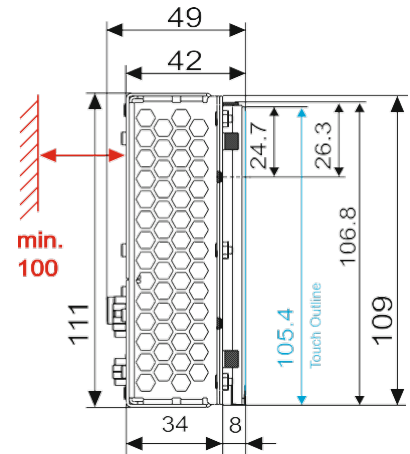


寸法

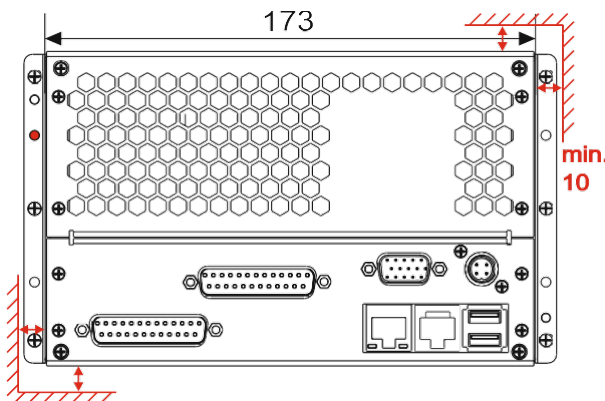
TouchMonitor TM7 207000EMバージョン (207000EM + HW2071n, also TM7-Mount)



1 | Front view (dimensions in mm, tolerance: ± 0.2 mm)

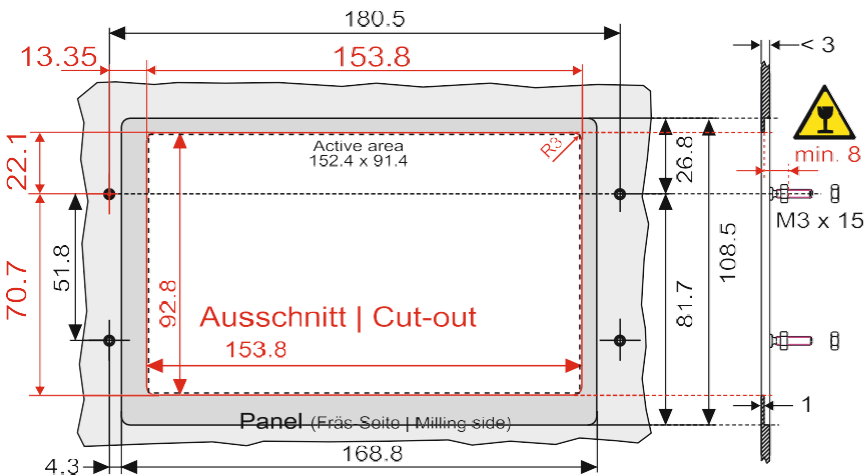
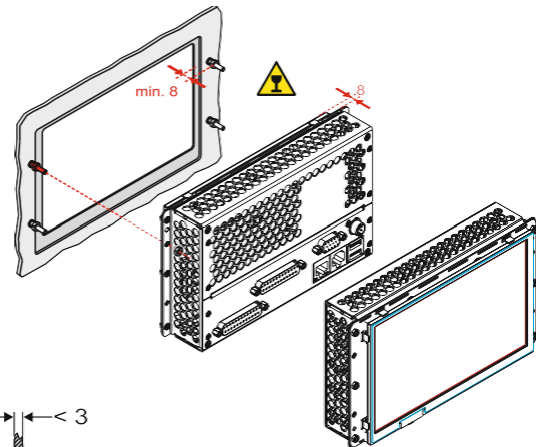


2 | Side view (dimensions in mm, tolerance: ± 0.5 mm)

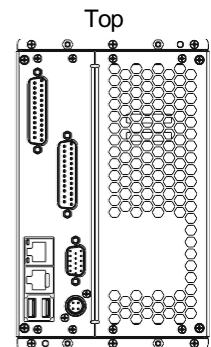


3 | Rear view (dimensions in mm, tolerance: ± 0.5 mm)

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



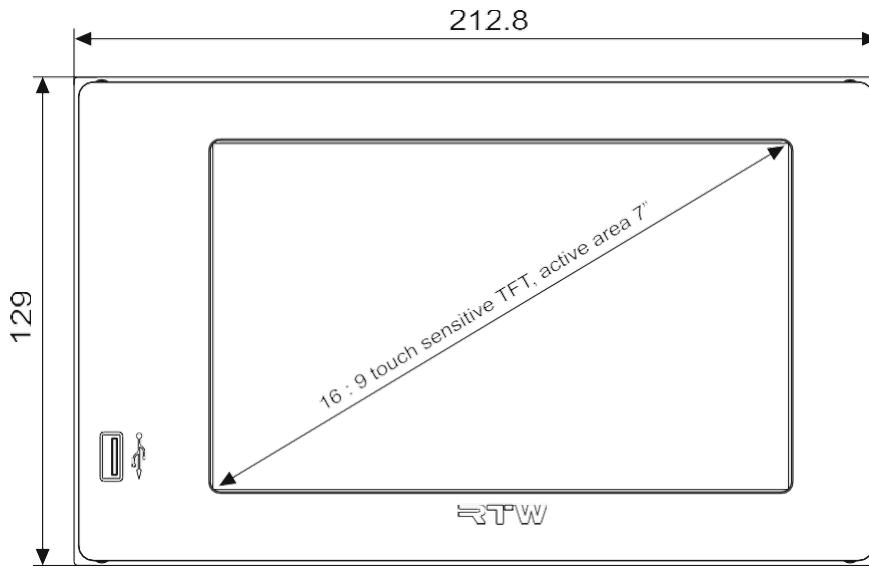
4 | Front panel cut-out (dimensions in mm, tolerance: ± 0.2 mm)



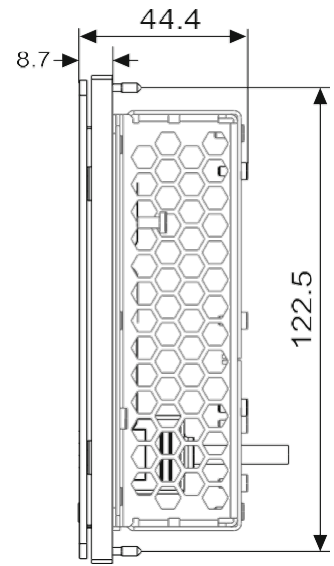
5 | Vertical mounting orientation

寸法

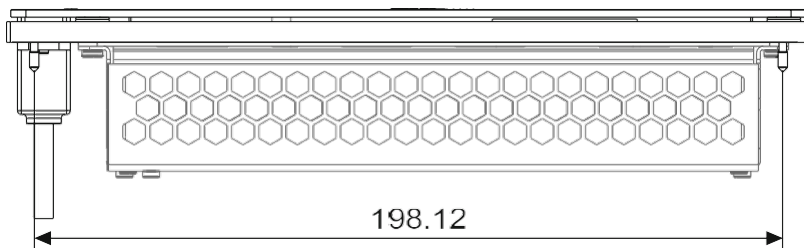
20700OEMを標準ラックに組み込む TM7-MA3U (オプション) マウンティングアダプター



1 | Front view (dimensions in mm)

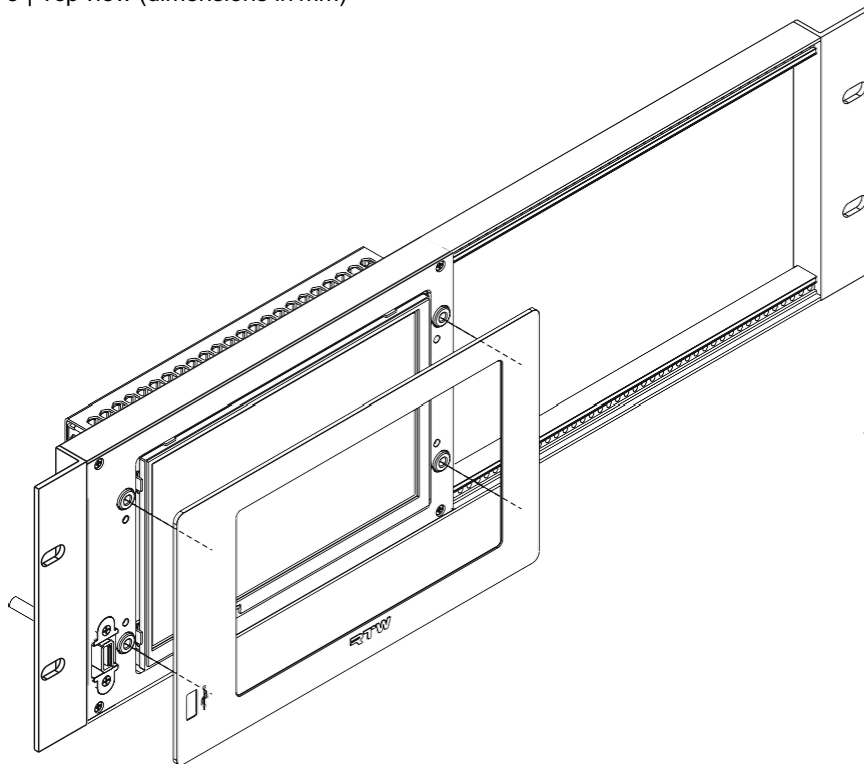


2 | Side view (dimensions in mm)



3 | Top view (dimensions in mm)

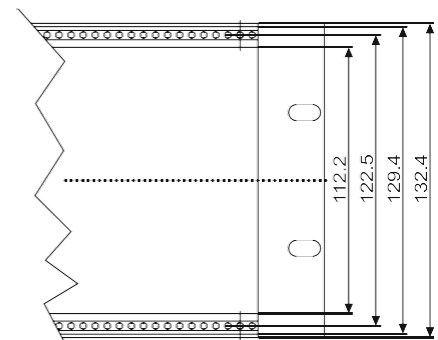
Common tolerance: ± 0.5 mm



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

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

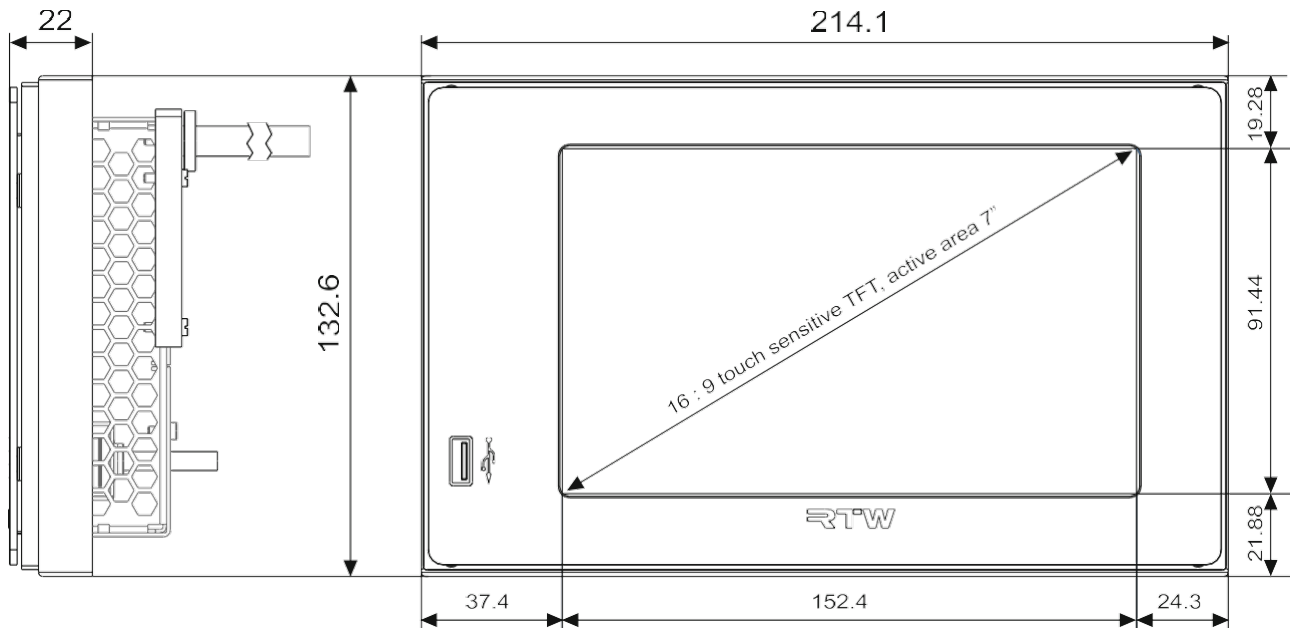
⚠ NOTE - 20700OEM and sub rack are not part of TM7-MA3U delivery



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

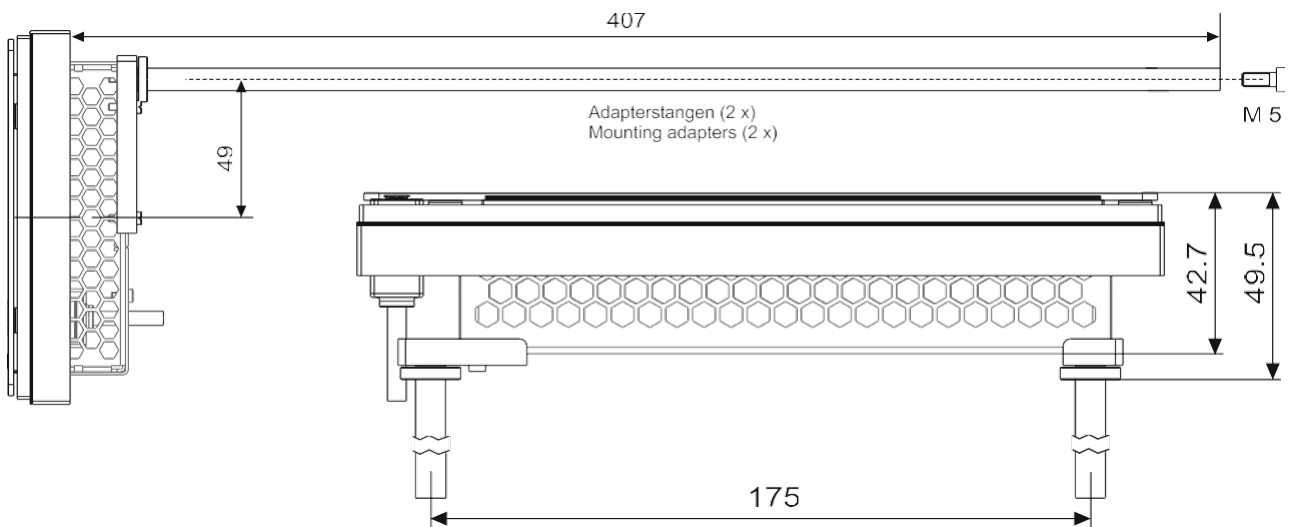
寸法

20700OEMをビデオラック(TM7ラック含む)に組み込む TM7-MAVID (オプション) マウンティングアダプター



1 | Side view (dimensions in mm)

2 | Front view (dimensions in mm)



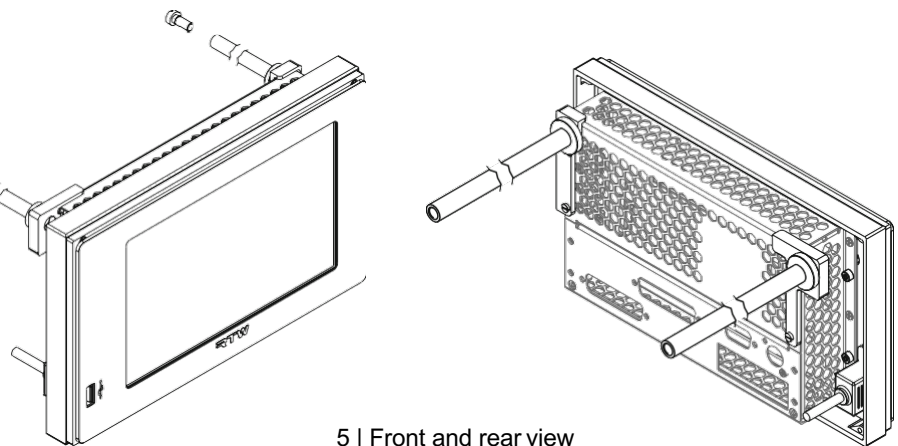
3 | Mounting depth (side view with adapters, dimensions in mm)

4 | Top view (dimensions in mm)

Common tolerance: $\pm 0,5$ mm

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

NOTE - 20700OEM and rack-mount cabinet are not part of TM7-MAVID delivery



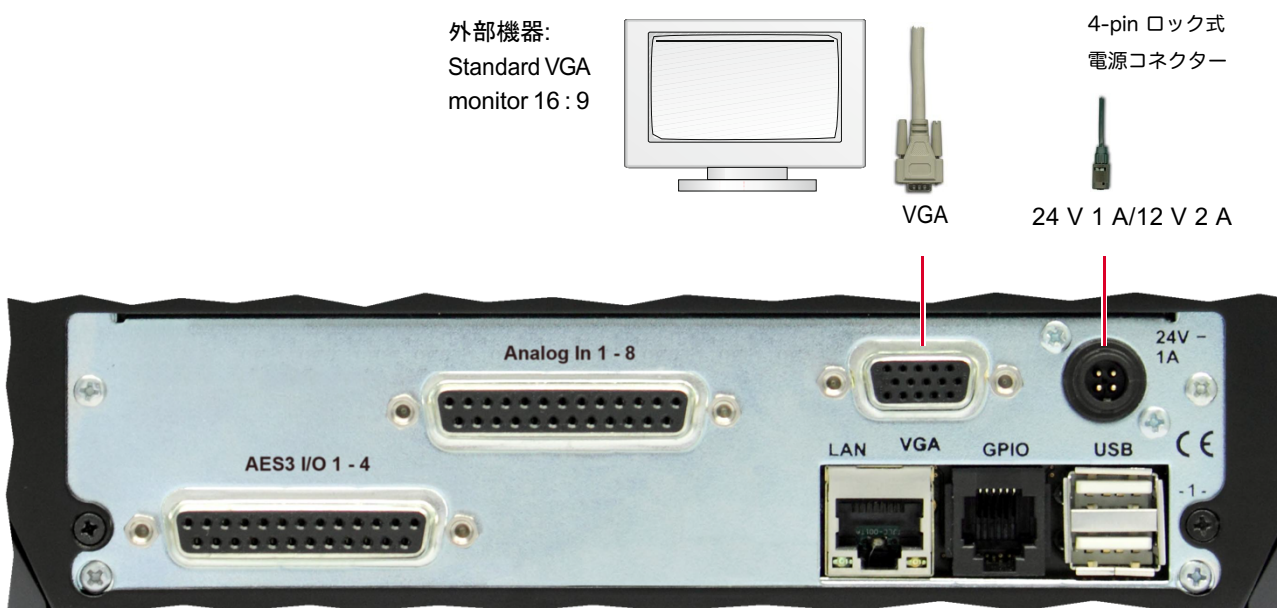
5 | Front and rear view

接続

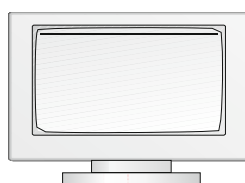
コネクター

⚠ 注意 - 20700OEMを使用する際はTM7-RackまたはTM7-MountとACアダプターが必要です。RTW認定のTouchMonitorアクセサリ 1178-R RTWパワーサプライ (100VAC / 24VDC, 2.7A) を使用することをお勧めします。20700OEMでは、TM7-MA3UやTM7-MAVID、TM7-MADTまたはTM7-RackのマウンティングアダプターとTM7-Mountは別オーダーとなります。
1178-Rパワーサプライは、20700メインユニット、TM7-RAV、TM7-Dante、TM7-Video、TM7-Studioには付属しています。

⚠ NOTE -一部のデバイスには、+12VDC とマークされたDC入力コネクターがある場合があります。これらのユニットは、+12V ~ +24VDC の範囲の公称DC電圧で動作できます。



外部機器:
Standard VGA
monitor 16:9



VGA

4-pin ロック式
電源コネクター

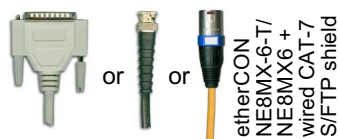


24 V 1 A/12 V 2 A

HW20711 (pictured):	AES3 In/Out 1 - 4 (Sub-D)	Analog In 1 - 8 (Sub-D)	LAN (RJ-45)	GP IO (RJ-12)	USB A 2.0 (Full Speed)
HW20712:	AES3id In/Out 1 - 4 (8 x BNC)	Analog In 1 - 8 (Sub-D)			
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)			
HW20717/718:	Dante®/Ravenna AoIP Link/Act 1G Primary (RJ-45)	Dante®/Ravenna AoIP Link/Act 1G Secondary (RJ-45)			
TM7-Dante/	Dante®/Ravenna AoIP	Dante®/Ravenna AoIP			
TM7-RAV:	Link/Act 1G Primary (RJ-45)	Link/Act 1G Secondary (RJ-45)			
TM7-Video:	3G-SDI In/Through (2 x BNC)	Audio In/Out (Sub-D)			
TM7-Studio:	AES3 In/Out 1 - 4 (Sub-D)	Analog In 1 - 8 (Sub-D)			
TM7-Rack:	3G-SDI In/Through (2 x BNC)	Audio In/Out (Sub-D)			
TM7-Mount:	AES3 In/Out 1 - 4 (Sub-D)	Analog In 1 - 8 (Sub-D)			



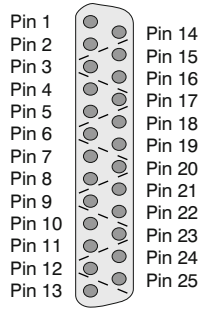
外部機器:
USB flash drive
USB mouse
Wacom® graphics tablet



Pin Assignment

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

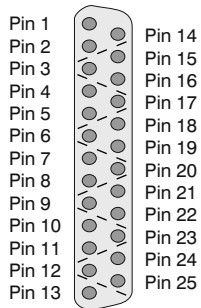
Pin:	Function:
1	Analog input 8 resp. 16 (+, hot)
14	Analog input 8 resp. 16 (-, cold)
2	Shield/chassis
15	Analog input 7 resp. 15 (+, hot)
3	Analog input 7 resp. 15 (-, cold)
16	Shield/chassis
4	Analog input 6 resp. 14 (+, hot)
17	Analog input 6 resp. 14 (-, cold)
5	Shield/chassis
18	Analog input 5 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



(External view of the connector)

AES3 I/O 1 - 4, AES3 I/O 5 - 8, Audio I/O (transf.-bal., 25-pin Sub-D-F)

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 used



(External view of the connector)

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

Link/Act 1G (RJ-45 NE8FBV-C5-LED1-S connector)

RJ-45 AoIP network connection (Primary/Secondary)

NOTE - etherCON NE8MX-6-T/NE8MX6 connector with CAT-7-S/FTP cable and wired shield shall be used!



AES3id In/Out 1 - 4, 3G-SDI (unbal., BNC-F)

Pin: Function:

Pin: Signal
Ring: Shield/chassis



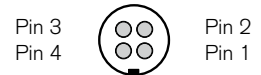
NOTE - The AES3id inputs and the 3G-SDI inputs are permanently terminated with 75 Ω.

24 V - 1 A, 12 V - 2 A

(4-pin locking low voltage connector, Typ Binder 710)

Pin: Function:

1 - 2 +24 V DC/+12 V DC
3 - 4 0 V



(External view of the connector)

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

USB-A

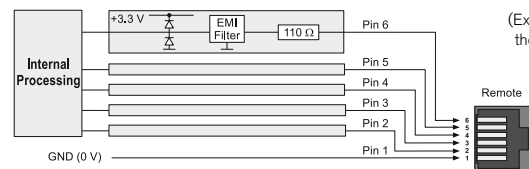
2 Full Speed USB 2.0 connectors for USB sticks (Licence handling, presets, updates) and external mouse or Wacom® tablet.

GP IO (RJ-12 6P6C socket)

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

Pin: Function:

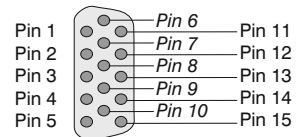
1 GND (0 V)
2 - 6 Function acc. to definition in the menu



VGA (15-pin Sub-D-F)

Pin: Function:

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



(External view of the connector)

NOTE - The VGA cable shall not exceed 15 m length!

LAN

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

仕様

システム

一般

電源仕様 :

+24 V DC (external 2 A max. overcurrent protective device shall be installed!)
Some devices may have a DC input connector marked +12 V DC. These units may be operated with a nominal DC voltage in the range of +12 V to +24 V DC.

電流 :

1 A nominal, 2.5 A power-up current (10 usec.)

消費電力 :

approx. 8.5 W (w/o SDI), approx. 11 W (with SDI)

ディスプレイ :

7" TFT touch screen 16 : 9 (800 x 480 pixel)

コネクタ :

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)

with HW20717: 2 x RJ-45 (Dante® AoIP)

with HW20718: 2 x RJ-45 (Ravenna/AES67/ST 2110 AoIP)

サイズ (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

質量 :

- 20700: approx. 2.7 kg (w/o powersupply)
- 20700OEM: approx. 1.2 kg

動作温度 :

+5° to +40° C

機能 (ライセンス全て有効の場合) :

- 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-RBS.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
- Immersive Sound Analyzer (for 5.1.2, 5.1.4, 7.1.2, 7.1.4) and total Loudness

アナログ入力 :

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

Frequency range:

20 Hz to 22 kHz @ 48 kHz

デジタル入力 :

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

AoIP

HW20717:

32 Dante® AoIP network channels, 2 x RJ-45 connectors (Primary, Secondary)

HW20718:

32 Ravenna/AES67/ST 2110 AoIP network channels, 2 x RJ-45 connectors (Primary, Secondary)



仕様

ベーシック 4-Channel PPM (基本ソフトウェア)

General

Input sources:	analog, digital, 3G-SDI, AoIP, 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:	<ul style="list-style-type: none">• max. of 4 ch. total in max. 4 groups• Peak level• Peak hold• Numerical value of the display
Functions:	<ul style="list-style-type: none">• Gain (+20 dB, +40 dB acc. to standard)• Peak hold on/off• Memory• Reset

Analog Peakmeter

Analog scales:	<ul style="list-style-type: none">• DIN5: +5 .. -50 dB,• Nordic: +12 .. -42 dB,• BR IIa: 7 .. 1, BR IIa 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:	<ul style="list-style-type: none">• TP60: +3 .. -60 dB• Dig60: 0 .. -60 dB• DIN5: +5 .. -50 dB• Nordic: +12 .. -42 dB• BR IIa: 7 .. 1, BR IIa ext: 7 .. 1, BR IIb: +12 .. -12 dB, BR IIb +12 .. -12 dB,

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, 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:	<ul style="list-style-type: none">• red: -1 r to -0.1 r• white: 0 r (-0.1 r to +0.1 r)• green: +0.1 r to +1 r
Attack/release time:	1.0 s/2.5 s

AES3 Status Monitor

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

Global Keyboard

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

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

オプションライセンス SW20001: Multichannel Mode

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: <ul style="list-style-type: none">• 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 presets for 7.1 Cinema Surround: <ul style="list-style-type: none">• SMPTE (L, LC, C, RC, R, LS, RS, LF) presets for 7.1 DD+ Surround: <ul style="list-style-type: none">• 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

オプションライセンス SW20002: Loudness and SPL

Display 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



仕様

<p>Customer Specific Loudness Mode</p> <p>Display:</p> <ul style="list-style-type: none"> • 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 <p>Numerical display:</p> <p>Scales:</p> <p>Loudness scale:</p> <ul style="list-style-type: none"> • 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 <p>Weighting filter:</p> <p>Target Level:</p> <ul style="list-style-type: none"> • -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 <p>Time & Gate Momentary:</p> <ul style="list-style-type: none"> - 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 <p>Time & Gate Short:</p> <ul style="list-style-type: none"> - Integration Time: 3 s; time window adjustable from 1 to 20 s in steps of 1 s <p>Time & Gate Integrated:</p> <ul style="list-style-type: none"> - Silence Gate: <ul style="list-style-type: none"> • -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 <p>Level adjustment for the summation:</p> <ul style="list-style-type: none"> • 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 <p>Tolerance Levels:</p> <ul style="list-style-type: none"> - TP Headroom: -9.0 dB; adjustable from 0 to -20 dB in steps of 0.1 dB - TPOverSensitivity: 0.0 dB; adjustable from 0 to -20 dB in steps of 0.1 dB - M High: +1.0 LU; M tolerance above TargetLevel adjustable from 0 to 10 LU in steps of 0.1 LU - M Low: -1.0 LU; M tolerance below TargetLevel adjustable from 0 to -12 LU in steps of 0.1 LU - S High: +1.0 LU; S tolerance above TargetLevel adjustable from 0 to 10 LU in steps of 0.1 LU - S Low: -1.0 LU; S tolerance below TargetLevel adjustable from 0 to -12 LU in steps of 0.1 LU 	<ul style="list-style-type: none"> - I High: +1.0 LU; I tolerance above TargetLevel adjustable from 0 to 10 LU in steps of 0.1 LU - I Low: -1.0 LU; I tolerance below TargetLevel adjustable from 0 to -12 LU in steps of 0.1 LU <p>Loudness Test Time Control</p> <p>Settings for operating automatic, semi-automatic or manual loudness measurements.</p> <p>Start:</p> <ul style="list-style-type: none"> - 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 <p>Stop:</p> <ul style="list-style-type: none"> - 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 <p>Loudness Range Instrument (LRA)</p> <p>Display:</p> <p>Mode:</p> <p>Scale range:</p> <p>LRA low range:</p> <p>Comfort zone:</p> <p>LRA high range:</p> <p>Colors:</p> <p>SPL Meter Mode</p> <p>Display:</p> <p>Reference point:</p> <p>Weighting:</p> <p>Integration time:</p> <p>オプションライセンス SW20003: RTA - Real Time Analyzer</p> <p>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.</p> <p>Spectrum Analyzer (RTA)</p> <p>Input sources:</p> <p>Frequency range:</p> <p>Number of bands:</p> <p>Weighting filter:</p> <p>Peak hold indicator:</p>
--	--



仕様

Measuring range:	45 dB max.
Scaling:	3, 6, 9 dB
Functions:	<ul style="list-style-type: none">• 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)

オプションライセンス SW20004: SSA - Surround Sound Analyzer

Dynamic display for visualizing the interaction of all surround parameter corresponding to the subjective listening impression
---Precondition: Software licences SW20001, SW20002 are activated.---

Surround-Sound-Analyzer

Display:	<ul style="list-style-type: none">• 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)
----------	---

オプションライセンス SW20005: Radar Display

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:	<ul style="list-style-type: none">• 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

オプションライセンス SW20006: RTW Premium PPM plus Vectorscope

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:	<ul style="list-style-type: none">• Peak level• Peak hold• Numerical value of the display• Digital Over
Functions:	<ul style="list-style-type: none">• Gain (+20 dB, +40 dB acc. to standard)• Peak hold on/off• Memory• Reset

Analog Peakmeter Extension

Analog scales:	<ul style="list-style-type: none">• 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:	<ul style="list-style-type: none">• 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



仕様

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:
- 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 TargetLevel)

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 (300Hz)

オプションライセンス SW20008: TCR - Timecode Reader

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

オプションライセンス 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: 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



仕様

<p>Analyzer</p> <p>Functions:</p> <ul style="list-style-type: none"> • Automatic detection and analysis of incoming BLITS test signals <p>Displays:</p> <ul style="list-style-type: none"> - Course: Channel related for incoming BLITS test signals - State/Alarm: Bars for fast and easy recognition of <ul style="list-style-type: none"> • General signal state • Channel allocation • Level • Phase and Delay • Polarity <p>In cases of error, the bars will be displayed in red</p> <p>- Report: Schedule showing values for <ul style="list-style-type: none"> • 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</p>	<p>Display:</p> <ul style="list-style-type: none"> • Vertical Integrated bargraph switchable • Tolerance levels and its display adjustable • Bargraph: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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) <p>Color:</p> <ul style="list-style-type: none"> • Bargraph: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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
<p>オプションライセンス SW20014: Logging Data Server</p> <p>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</p> <p>--- Precondition: Licence SW20002! ---</p>	
<p>Logging Instrument</p> <p>Functions:</p> <ul style="list-style-type: none"> • 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) <p>Mode: selectable: off, USB, IP</p> <p>Display: Status display in the top line of the instrument placed on the screen: <ul style="list-style-type: none"> • in IP mode: LQL access • in USB mode: Disk space, running processes, storing • if logging functionality is turned off </p> <p>Identification for network: Device name and password definable</p> <p>Key function (USB): <ul style="list-style-type: none"> • USB run: Start logging • USB close: Stops logging and creates a logfile on the USB flash drive </p>	<p>Time Range: Time grid adjustment for the coordinate system and the horizontal bargraphs: <ul style="list-style-type: none"> • 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 </p> <p>Time Range presets:</p> <ul style="list-style-type: none"> - 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 <p>Time Select: <ul style="list-style-type: none"> • 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 </p> <p>Tolerance Levels:</p> <ul style="list-style-type: none"> - 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
<p>Loudness Chart Instrument</p> <p>Functions:</p> <ul style="list-style-type: none"> • 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 	



仕様

オプションライセンス SW20015: ISA - Immersive Sound Analyzer

Dynamic display for visualizing the interaction of all signal parameters of spatial (immersive) surround formats like 5.1.2, 5.1.4, 7.1.2 or 7.1.4 corresponding to the subjective listening impression across two layers (beds)
---Precondition: Software licences SW20001, SW20002, and SW20004 are activated. ---

Immersive Sound Analyzer

- Display:
- Designed for Immersive audio formats based on 5.1 or 7.1 main beds and 2.0 or 4.0 upper beds
 - Graphical display indicating single channel and total program loudness (Total Volume Indicator)
 - Position and width of phantom sound sources (PSI) in Main- and Upper Beds
 - Phase Correlation between adjacent channels
 - Separate correlators for the outer adjacent channels
 - Subjectively perceived acoustic focal point with the Dominance Indicator (DMI) for both Main- and Upper Beds
 - Subjectively perceived acoustic focal point in the complete immersive area with the Immersive Dominance Indicator (IDI)
 - LFE Phase warning (warns in case of negative correlation between any channel and LFE)
 - Allows cross-group measurement of the total loudness of the spatial sound image
 - Formats Supported: 5.1.2, 5.1.4, 7.1.2, 7.1.4

製品構成

TouchMonitor TM7 20700:

- TM7 main unit in a table-top frame
 - selected audio interface (see page 4)
 - Basic software (system/2 x Stereo-PPM)
 - Table-stand, mains adapter, manual
- Order no.: 20700 + HW-No. (page 4)

TouchMonitor TM7 20700OEM:

- TM7 main unit without table-top frame
 - selected audio interface
 - Basic software (system/2 x Stereo-PPM)
 - Manual
- Order no.: 20700OEM + HW-No. (page 4)

TM7-RAV:

- TM7 in table-top frame with audio interface for 32 Ravenna/AES67/ST 2110 AoIP network channels (2 x RJ-45)
 - Power supply: 12 - 24 V DC, 24 VA
 - Basic software (system/2 x Stereo-PPM)
 - Table-stand, mains adapter 24 V, manual
- Order no.: TM7-RAV

TM7-Dante:

- TM7 in table-top frame with audio interface for 32 Dante® AoIP network channels (2 x RJ-45)
 - Power supply: 12 - 24 V DC, 24 VA
 - Basic software (system/2 x Stereo-PPM)
 - Table-stand, mains adapter 24 V, manual
- Order no.: TM7-Dante

TM7-Video:

- TM7 in table-top frame with audio interface for 8-ch. digital inputs and outputs (4 x AES3 In/Out, Sub-D) and 3G-/HD-/SD-SDI In/Through (2 x BNC)
 - Basic software (system/2 x Stereo-PPM)
 - Table-stand, mains adapter, manual
- Order no.: TM7-Video

TM7-Studio:

- TM7 in table-top frame with audio interface for 8-ch. analog inputs (Sub-D) and 8-ch. digital inputs and outputs (4 x AES3 In/Out, Sub-D)
 - Basic software (system/2 x Stereo-PPM)
 - Table-stand, mains adapter, manual
- Order no.: TM7-Studio

TM7-Rack:

- TM7 without table-top frame with audio interface for 8-ch. digital inputs and outputs (4 x AES3 In/Out, Sub-D) and 3G-/HD-/SD-SDI In/Through (2 x BNC)
 - Basic software (system/2 x Stereo-PPM)
 - Manual
- Order no.: TM7-Rack

TM7-Mount:

- TM7 without table-top frame with audio interface for 8-ch. analog inputs (Sub-D) and 8-ch. digital inputs and outputs (4 x AES3 In/Out, Sub-D)
 - Basic software (system/2 x Stereo-PPM)
 - Manual
- Order no.: TM7-Mount

ラックマウントおよびケーシングオプション

- 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 (e. g. RTW 1647831)
- 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.
- 19"/3U rack frame 1647831 for mounting up to 2 TM7-Mount or 20700OEM in conjunction with TM7-MA3U mounting kit. Includes a blank panel to cover unused space.



仕様

オプションソフトウェアライセンス

- 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. *)
--- Precondition: Licences SW20001, SW20002! ---
- 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: Licences SW20001, 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 RTWLQLPC software, Loudness Chart instrument *)
--- Precondition: Licence SW20002! ---

Software licence SW20015: ISA - Immersive Sound Analyzer to understand the balance of immersive surround programmes intuitively and for cross-group Loudness measurement.
--- Precondition: Licences SW20001, SW20002, and SW20004! ---

- 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.

アクセサリ

- 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 7" touch screen 16 : 9 TFT, main unit with table-top frame, table-stand, power supply. Order number: 20700 + ... Additional audio interface required:	TouchMonitor TM7 OEM unit 7" touch screen 16 : 9 TFT, main unit w/o table-top frame, w/o power supply for panel-mounting. Order number: 20700OEM + ... Additional audio interface required:	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 material for remodeling 20700OEM to a table-top unit.
---	--	---	--	--

Audio Interface Selection (I/O)	Max. Channel Count (Hardware)	Inputs Analog (Balanced)	Inputs Digital/Outputs Digital	Audio via Network (AoIP)
additional 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)	---
additional 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)	---
additional 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)	---
additional 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)	---
additional Order Number: HW20717	32-channels Dante™ AoIP	---	---	2 x RJ-45 (Dante® network) (Link/Act 1G, Primary and Secondary)
additional Order Number: HW20718	32-ch. Ravenna/AES67/ST 2110 AoIP	---	---	2 x RJ-45 (Ravenna network) (Link/Act 1G, Primary and Secondary)
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 is required!			
Standard Software:	Basic 4-channel PPM with analog scales (DIN +5, Nordic, British Ila, British Ilb) and digital scales (0 to -60 dB, +3 to -60 dB True Peak, DIN, Nordic, British Ila and Ilb), stereo correlator, gain reduction, global keyboard. Other software modules available as licences.			

Preconfigured Models (Table-top- or panel-mount units with specific audio interface for typical applications. We recommend licences SW20001, SW20002, SW20004, SW20006 as basic configuration.)

TM7-RAV	32-ch. Ravenna/AES67/ST 2110 AoIP	---	---	2 x RJ-45 (Ravenna network) (Link/Act 1G, Primary and Secondary)
TM7-Dante	32-channels Dante™ AoIP	---	---	2 x RJ-45 (Dante® network) (Link/Act 1G, Primary and Secondary)
TM7-Video (Table-top with psu)/ TM7-Rack (Panel-mount w/o psu)	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)	---
TM7-Studio (Table-top with psu)/ TM7-Mount (Panel-mount w/o psu)	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)	---

Licences (Software Modules) Further information on <https://www.rtw.com/en/product-list/audio-monitors/licenses-for-touchmonitor.html>

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*	Radar Display Order Number: SW20005*	Premium PPM plus Vectorscope Order Number: SW20006 . Expands
			Precondition: installed SW20001, Precondition: installed SW20002! SW20001 with Multi-Correlator SW20002!		
Timecode Reader Order Number: SW20008*	BLITS (Analyzer and Generator) Order Number: SW20013*	Logging Data Server Order Number: SW20014*	ISA - Immersive Sound Analyzer Order Number: SW20015	TC-RTW (Conversion Kit) Order Number: SW20021	

Precondition: installed SW20002! Precondition: installed SW20001! Precondition: installed SW20002! Precondition: SW20001, SW20002 Precondition: TM of TC electronic[¶] and SW20004 installed!

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

Dimensions:	W x H x D in mm (approx.)
Table-top units 20700, TM7-Dante, TM7-Video, TM7-Studio:	198 x 139.5 (163) x 46 (95) (with table-stand)
20700OEM, TM7-Mount:	188 x 109 x 45
TM7-Rack:	42HP (213 mm) x 3U (129 mm) x 44.5 mm



"Gefördert vom Bundesministerium für Wirtschaft und Technologie aufgrund eines Beschlusses des Deutschen Bundestages."
Translation: Due to a resolution of the German Parliament, this project is supported by the German Federal Ministry of Economy and Technology.