Preliminary

Data Sheet
TouchControl 5

RTW
EYES ON YOUR AUDIO

TouchControl 5

Modular Software ▪ Touch Screen ▪ Flexible Screen Layout ▪ Pushable Rotary Knob ▪ Dante® AoIP I/O ▪ 32 Channels ▪ SPL Onscreen Fader ▪ PPM/TruePeak ▪ Multichannel ▪ Loudness ▪ LRA ▪ Premium Metering ▪ Monitor Control ▪ Bass Management

TouchControl 5 is a compact AoIP (Audio over IP) based monitor controller, using the monitor control engine of the well-known SurroundControl. It supports the AoIP standards Dante® and AES67 and can be powered over ethernet.
It features instant control over a high channel count: up to 32 audio channels can be controlled with one single knob. Beside others, it provides a high-quality microphone input, speaker output, headphone output and features e. g. mute/solo, metering, SPL measurement and talkback.

Graphical User Interface

The TouchControl 5's graphical user interface is controlled simply by the touch of your finger and the pushable rotary knob. Instruments can be scaled, randomly positioned and combined for optimum utilization of the available screen space. With its IP address and the comprehensive WebApp, TouchControl 5 can be adapted to your individual needs within the Dante® AoIP network.

Licenses

The modular software concept means that only those features have to be purchased that are actually required. This lets you define the functionality of an individual TouchControl 5 that suits your needs best. At any time, software modules with new instruments and functions can be added simply by purchasing and activating the corresponding licences.

Hardware

Common Configuration

- 5" capacitive touch screen 16 : 9 TFT (1280 x 720 pixel) with multitouch functionality **1**
- 32-channel audio over IP interface for Dante® audio networks (RJ-45 ethernet) **4**
- Power supply via ethernet connection (PoE - power over ethernet, IEEE802.3af compliant) **4**
- Integrated Microphone for SPL measurement & talkback **2**
- Studio-grade 48 V phantom powered high-quality microphone input (XLR) **5**
- Powerful headphone output e. g. for monitoring a user-defined downmix (6.3 mm Stereo jack) **6**
- Analog 2-channel stereo loudspeaker output (Line Out - 3.5 mm Stereo jack) **7**
- Freely scalable, modular software approach for flexible configuration and easy on-site upgrades
- Control via touch screen and pushable rotary knob **1** **3**
- Freely scalable and positionable applications and instruments

- Up to 31 presets selectable
- Device configuration via IP address and WebApp within the Dante® network (web-based interface)
- Basic 4-channel software: Basic TruePeak meter and on-screen fader (slider) for up to 4 channels, Talkback application
- Selectable software licenses (see also further down):
  - Multichannel: Extension to 32 displayable channels
  - Loudness & SPL: Loudness and SPL value calculation acc. to all common standards
  - Premium Metering: Multiformat-PPM and TP meter, Moving Coil instruments
  - Monitor Control: Control/monitor the loudspeaker configuration: Solo, Cut, Swap, Phase, DIM, Mute a. o.
  - Bass Management & ImmersivePlus: control of full-range speakers or systems with partial-range speakers and sub woofers, immersive formats like 7.1.4

Software

Standard Software

TouchControl 5 comes with a basic software package. Beside the control functions, this software is able to process the signals of up to 4 of the available AoIP channels simultaneously (inputs and outputs, up to 4 x Mono, 2 x 2-channel Stereo, 1 x 2-channel Stereo with up to 2 x Mono).
Available for display are up to 4 TruePeak meter with digital scale (+3 to -60 dB) and up to 4 on-screen faders for volume control in parallel to the pushable rotary knob. A talkback application is also included. Multichannel display, monitor control and further software modules are available as licenses. The device is configured using the assigned IP address via a web-based interface (WebApp) and a web browser that can be activated within the Dante® AoIP network.

Software Modules (Licenses)

Software modules can be ordered as licenses either together with the order of the hardware device or at a later point in time. Together with the order of the device the license will be activated at delivery.
When a license is needed at a later point in time, a device-specific file for forwarding to RTW's web shop is created by the unit. RTW will send back a corresponding file with the activated license for exactly this device.

SW32001: Multichannel

Expands the maximum number of audio channels from 4 to 32.

SW32002: Loudness & SPL

Expands the basic software 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 channels License SW32001 is required.

SW32006: Premium Metering

Expands the basic metering with multiformat PPMs and TP meter, Moving Coil instruments (PPM, VU, Loudness, BBC modes) and additional scales. For the display of more than 4 ch. License SW32001 is required.

SW32010: Monitor Control

Full-fledged mono to extensive surround control and monitoring of the volume level with numerical display, SPL value calculation or direct measurement with internal microphone. For the display of more than 4 channels License SW32001 is required.

SW32020: Bass Management & ImmersivePlus

Expands the Monitor Control license with Immersive formats, Bass Management for the loudspeaker outputs and arrangement and activation of additional loudspeakers for immersive sound formats.
--- Precondition: Lisences SW32001 and SW32010! ---

Software (continued)

Web-based Interface

The TouchControl 5 is a network based device, and therefore setup is done via the Dante® AoIP network using a standard web-browser. Using the web-based interface (WebApp) you can configure general settings, manage presets and licenses, and much more. You can also control access to the device and limit operation to certain functions to prevent unintentional use.
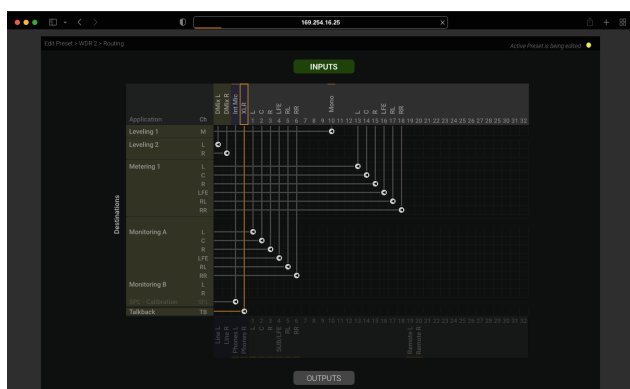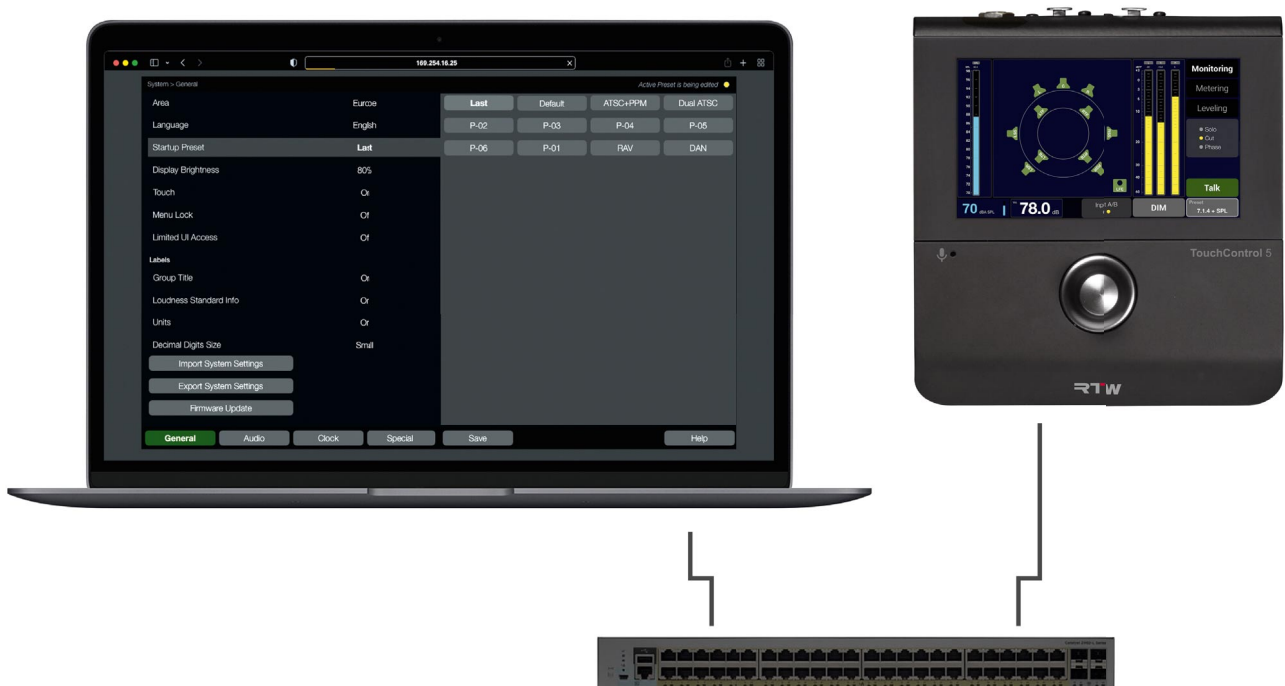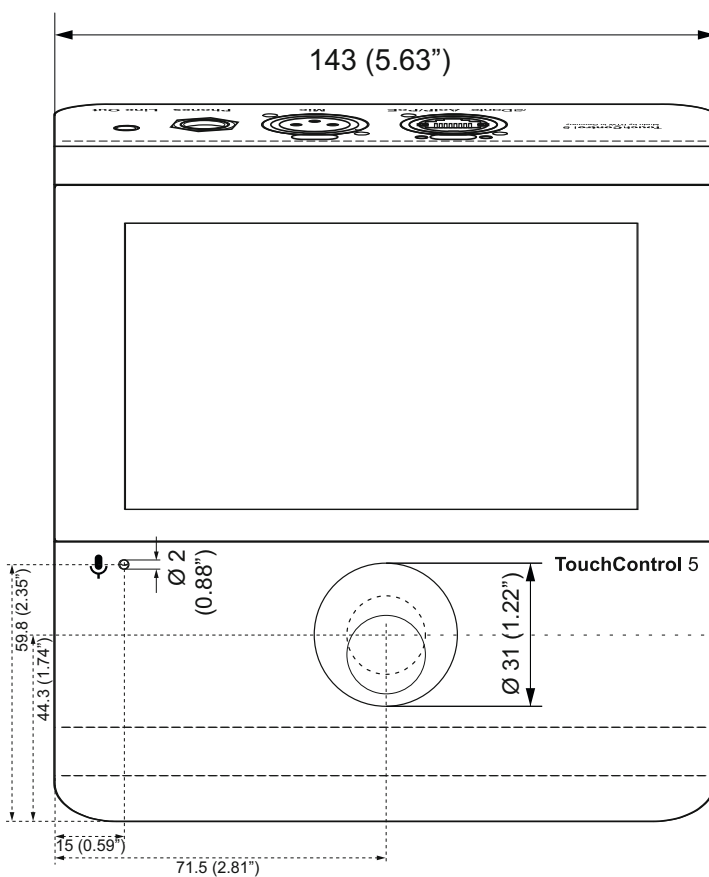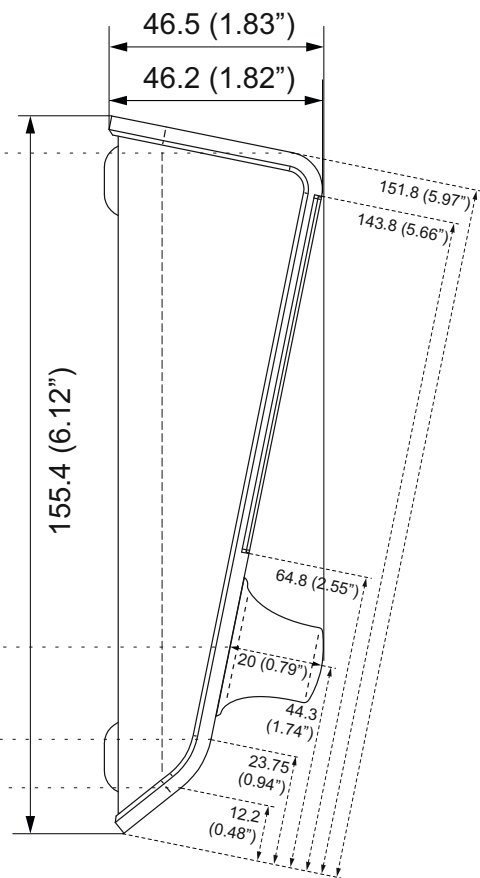
Dimensions

TouchControl 5 Desk-top Unit (320517ND)
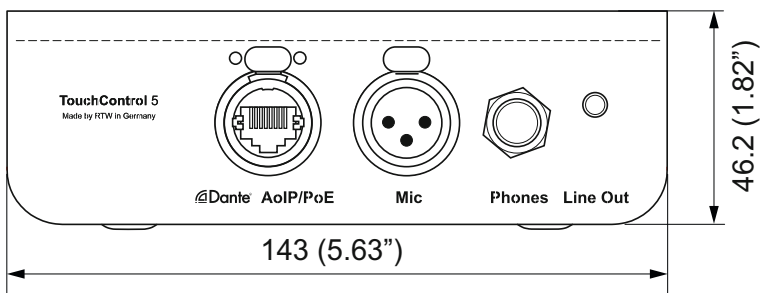
1 | Rear view | dimensions in mm (inch)

2 | Front view/top view | dimensions in mm (inch)

3 | Side view | dimensions in mm (inch)

Connections

Connectors

⚠️ **NOTE - The power supply of the TouchControl 5 is done via the network connection and the Dante® AoIP network without any additional cable, if this network has the Power over Ethernet functionality (PoE - IEEE 802.3af-compliant) ❶.**
If your switch does not provide Power Over Ethernet, an IEEE 802.3af-compliant ethernet power injector such as the RTW 14554-xx is required for power supply ❷.
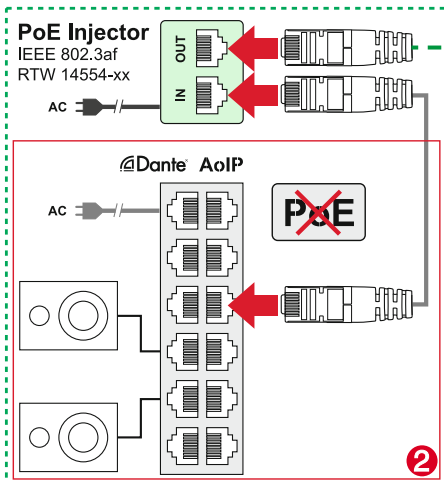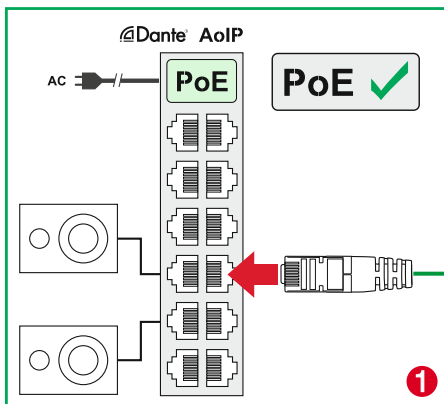
Dante® AoIP/PoE
(Use plug type etherCON NE8MX-6-T/ NE8MX6 + wired CAT-7 S/FTP shield) *)

Mic
(Use XLR-M plug)

Phones
(Use 6.3 mm jack)

Line Out
(Use 3.5 mm jack)

max. 30 m

PoE Injector
IEEE 802.3af
RTW 14554-xx

*) TouchControl 5 is certified with CAT 7 cables, but CAT 5E, CAT 6 or CAT 7 can be used.
Maximum cable length: 30 m

Specifications

System

General

Power requirements:	Power over Ethernet (PoE - IEEE 802.3af-compliant)
Power consumption:	12 W maximum
Display:	5" capacitive touch display 16 : 9 wit multitouch funtion (1280 x 720 pixel)
Connectors:	1 x RJ-45: LAN/Ethernet built-in socket NE8FD type for Dante® audio over IP and power supply (PoE - IEEE 802.3af-compliant)
	1 x 3-pin XLR-F (microphone input, switchable phantom powered 48 V - Mic), 3 kOhm
	1 x 1/4 inch Stereo jack (6.3 mm headphone output - Phones)
	1 x 3,5 mm Stereio jack (analog loudspeaker output - Line Out)
Dimensions (W x H x D):	143 x 46.5 x 155.4 mm
Weight:	approx. 830 g
Operating temperature:	+5° to +35° C

Functions (Availability depends on activated licenses)

- Operation with touch sensitive display and pushable rotary knob
- Instruments and controls can freely be scaled and positioned
- Monitor Control
- Integrated microphone for SPL measurment and talkback
- Studio-grade 48 V phantom powered high-quality microphone input (XLR)
- Powerful 1/4 inch Headphone output with the option of monitoring a user-defined downmix (6.3 mm Stereo jack)
- Analog 3.5mm speaker output with the option of monitoring a user defined downmix (3.5 mm Stereo jack)
- Simple TP meter for level metering of up to 4 channels with the basic software
- Level metering of up to 32 channels with the use of the Multichannel license in different configurations (multi-format PPM, TP meter for Mono, Stereo, Surround or Multi-channel)
- Multiformat PPM and TP meter
- 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)
- SPL meter
- Test signal generator
- Moving Coil (BR, VU, Loudness, BBC mode)

- Spot Correlator in the Stereo bargraph display
- Numerical displays
- On-screen fader and simple TP Meter for the simultaneous control of up to 32 Dante® input channels (up to 4 with the basic software)
- Bass Management for up to 2 LFE channels
- Immersive-Setups (5.1.2, 5.1.4, 7.1.2, 7.1.4, 9.1.2, 9.1.4, 22.2) with the use of the Bass Management license
- Up to 31 presets selectable (30 user-definable, 1 write-protected with standard settings)
- Configuration of the device via IP address and WebApp in the Dante® network

Digital Inputs

Inputs:	32 Dante® audio over IP inputs (network channels) via RJ-45 built-in socket NE8FD type
Sample rates:	44.1, 48, 88.2, 96 kHz
Word width:	16, 24, 32 bit

Digital Outputs

Outputs:	32 Dante® audio over IP outputs (network channels) via RJ-45 built-in socket NE8FD type
Sample rates:	referenced to digital inputs or internal clock

Basic Software

The applications "Leveling" (with on-screen fader), "Metering" (with simple TP meter) and "Talkback" are basic functions generally supplied with the device. This allows the selection, control and measurement of up to 4 inputs and 4 outputs and talkback.
For the display of more than 4 channels the Multichannel license SW32001 is required.
For Loudness and SPL measurements the Loudness & SPL license SW32002 is required.
For expanding the function range of the Metering application the Premium Metering license SW32006 is required.

Functions:

- Digital fader for the level control of up to 4 channels (up to 32 channel with activated license SW32001: Multichannel)
- Up to 4 faders simultaneously possible
- Change of the different levels of selected faders by the use of the rotary knob
- Simple TruePeak meter with fixed labeling and scale
- Spot Correlator in Stereo mode
- Application for the use of the internal or external microphone for talkback

Specifications (continued)

Digital fader

Fader range:	**0 dB *)**; adjustable from -infinity to +6 dB in steps of 1 dB

TP-Meter

- Display:	Up to 4 x Mono, 2 x 2-ch. Stereo, 1 x 2-ch. Stereo and up to 2 x Mono (further formats with activated license SW32001: Multichannel)
- Scale:	**TP60: +3..-60 dB** (further scales and functions with activated license SW32006: Premium Metering)

Talkback

Function:	• Instrument for using the internal or external microphone for Talkback • Adjustment via input/output routing • With enabled Speakers application (with SW32010) DIM is active
Talkback source:	Internal microphone, external microphone (XLR) or any Dante® audio channel
External source:	
- Talkback level trim:	**0 dB**; adjustable in the range from −24 to +12 dB in steps of 1 dB (inputs of other applications inside the preset can be influenced)

*) Default values are in **bold**.

Optional License SW32001: Multichannel

Expands the number of audio channels to Multichannel and Surround formats.

Input sources:	32 Dante® AoIP network channels, Mic In, Internal Mic
Output destinations:	32 Dante® channels, Headphone Out, Line Out
Formats:	Mono, Stereo, Surround, Multichannel
- Mono:	several single channel signals selectable
- Stereo:	several 2-channel Stereo pair selectable
- Surround:	**5.1**; 3.0, 3.1, 5.0, 5.1, 7.1 Cinema, 7.1 DD+ selectable
- Multichannel:	**8**; 1 to 32 single channels in one instrument selectable

Optional License SW32002: Loudness & SPL

Expands the basic software with functions for Loudness measurement, Loudness Range display and for SPL display and summed SPL value calculation. Up to 4 instances are possible
For the display of more than 4 channels software license SW32001: Multichannel is required.

Bargraph display:	Loudness sum of the channels (PPM or Monitoring with respective license) in selectable combination of the values: • M bargraph (Momentary - summation of momentary loudness values of all channels for a short span of time) • S bargraph (Shortterm - 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 dispaly:	**S, I, I-Time**; M, S, I, LRA, TPmax, Mmax, Smax, I-Time values selectable

Area-dependent settings

- Europe:	EBU R128
- United Kingdom:	EBU R128
- North/South America:	ITU 1771
- Offtralia:	OP-59
- Asia:	ARIB

Standard-dependent settings:

In the defined loudness standards, specific parameters are fixed that cannot be changed or can only be changed in part. The setting ranges for changeable parameters (**¹)**) can be looked up under the corresponding designation in the "Customer-specific Loudness Mode" section.

EBU-R128

Scales:	**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
Weighting filter:	ITU BS.1770 (k)
Target Level: ¹)	**−23 LUFS**
Momentary:	400 ms
Shortterm:	3 s
Integrated Silence Gate:	−70,0 LUFS
Integrated Relative Gate:	−10 LU
Tolerances	
- Over: ¹)	**−1 dBTP**
- Headroom: ¹)	**−9 dB**
- M, S, I high: ¹)	**+1 LU**
- M, S, I low: ¹)	**−1 LU**

ITU-BS.1771

Scales:	ITU+9: +9..-18 LU, **ITU0: 0..-30 LKFS**
Weighting filter:	ITU BS.1770 (k)
Target Level: ¹)	**−24 LKFS**
Momentary:	400 ms
Shortterm: ¹)	**3 s**
Integrated Silence Gate:	−70,0 LKFS, switchable
Integrated Relative Gate:	−10 LU, switchable
Tolerances	
- Over: ¹)	**−2 dBTP**
- Headroom: ¹)	**−9 dB**
- M, S, I high: ¹)	**+2 LU**
- M, S, I low: ¹)	**−2 LU**

ATSC-A/85, CALM Act, OP-59

Scales:	ITU+9: +9..-18 LU, **ATSC0: 0..-60 LKFS**, ATSC0a: 0..-30 LKFS
Weighting filter:	ITU BS.1770 (k)
Target Level: ¹)	**−24 LKFS**
Momentary:	400 ms
Shortterm: ¹)	**3 s**
Integrated Silence Gate:	−70,0 LKFS, switchable
Integrated Relative Gate:	−10 LU, switchable
Tolerances	
- Over: ¹)	**−2 dBTP**
- Headroom: ¹)	**−9 dB**
- M, S, I high: ¹)	**+2 LU**
- M, S, I low: ¹)	**−2 LU**

ARIB

Scale:	ATSC0: 0..-60 LKFS
Weighting filter:	ITU BS.1770 (k)
Target Level: ¹)	**−24 LKFS**
Momentary:	400 ms
Shortterm:	3 s
Integrated Silence Gate:	−70,0 LKFS, switchable

Specifications (continued)

Integrated Relative Gate:	−10 LU, switchable
Tolerances	
- Over: [1]	**−1 dBTP**
- Headroom: [1]	**−9 dB**
- M, S, I high: [1]	**0 LU**
- M, S, I low: [1]	**0 LU**

AGCOM

Scales:	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, ITU0: 0..-30 LKFS, **ATSC0: 0..-60 LKFS**, ATSC0a: 0..-30 LKFS
Weighting filter:	ITU BS.1770 (k)
Target Level: [1]	**−24 LKFS**
Momentary:	400 ms
Shortterm: [1]	**3 s**
Integrated Silence Gate:	−70,0 LKFS
Integrated Relative Gate:	−10 LU
Tolerances	
- Over: [1]	**−2 dBTP**
- Headroom: [1]	**−9 dB**
- M, S, I high: [1]	+2 LU
- M, S, I low: [1]	**−2 LU**

Streaming

Scales:	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, ITU0: 0..-30 LKFS, ATSC0: 0..-60 LKFS, ATSC0a: 0..-30 LKFS
Weighting filter:	ITU BS.1770 (k)
Target Level: [1]	**−15 LUFS**
Momentary:	400 ms
Shortterm:	3 s
Integrated Silence Gate:	−70,0 LUFS
Integrated Relative Gate:	−8 LU
Tolerances	
- Over: [1]	**−5 dBTP**
- Headroom: [1]	**−9 dB**
- M, S, I high: [1]	**+0,5 LU**
- M, S, I low: [1]	**−0,5 LU**

LEQ(M)

Scales:	**TASA**, SAWA
Weighting filter:	linear, A (Leq(A)), C, CCIR Leq(M), ITU BS.1770 (k)
Reference level:	**78 dB**; adjustable in the range from 68 to 88 dB in steps of 1 dB
Integration time:	IEC 1000 ms slow
Shortterm:	3 s
Integrated Silence Gate:	Off
Integrated Relative Gate:	Off
Tolerances	
- Over: [1]	**−2 dBTP**
- Headroom: [1]	**−9 dB**
- M, S, I high: [1]	**+1 LU**
- M, S, I low: [1]	**−1 LU**

TASA

Scales:	TASA
Weighting filter:	linear, A (Leq(A)), C, CCIR Leq(M), ITU BS.1770 (k)
Reference level:	85 dB
Integration time:	IEC 1000 ms slow
Shortterm:	3 s
Integrated Silence Gate:	Off
Integrated Relative Gate:	Off

Tolerances	
- Over: [1]	-2 dBTP
- Headroom: [1]	-9 dB
- M, S, I high: [1]	+1 LU
- M, S, I low: [1]	-1 LU

SAWA

Scales:	SAWA
Weighting filter:	linear, A (Leq(A)), C, CCIR Leq(M), ITU BS.1770 (k)
Reference level:	82 dB
Integration time:	IEC 1000 ms slow
Shortterm:	3 s
Integrated Silence Gate:	Off
Integrated Relative Gate:	Off
Tolerances	
- Over: [1]	**−2 dBTP**
- Headroom: [1]	**−9 dB**
- M, S, I high: [1]	**+1 LU**
- M, S, I low: [1]	**−1 LU**

[1] Setting range see "Customer-specific Loudness Mode"

For more standards, see the corresponding article on our blog page on the Internet: rtw.com/en/standards (https://rtw.com/index.php?id=1609)

Customer-specific Loudness Mode (Custom)

Scales: [2]	Loudness scales:
	▪ 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: [2]	▪ **−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
Momentary: [2]	
- Window Time (SQR):	**400 ms**; adjustable in the range from 200 ms to 1000 ms in steps of 100 ms
- Integration Time (IIR):	IEC 125 ms Fast, 250 ms (IRT), 500 ms, 750 ms, IEC 1000 ms Slow, 1500 ms, 2000 ms selectable
Shortterm: [2]	
- Integration Time:	**3 s**; time window adjustable from 1 to 20 s in steps of 1 s
Integrated: [2]	
- 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 form −80.0 to −40.0 LKFS in steps of 0.5 LKFS, switchable
- Relative Gate:	**−10.0 LU**; adjustable in the range from −40.0 to 0 LU in steps of 0.5 LU, switchable
Level adjustment for the summation: [2]	▪ **0.0 dB** (L, R, C); adjustable between −6 and +6 dB in steps of 0.5 dB
	▪ +1.5 dB (LS, RS, LSR, RSR), adjustable between −6 and +6 dB in steps of 0.5 dB
	▪ Off (LFE); Off, 0 dB, 10 dB selectable

[2] Limited availability of settings depending on the Loudness standard used

Tolerances (different presets depending on the Loudness standard used):

- **TP Over Sensitivity:** **−1,0 dBTP**; adjustable in the range from 0 to −4 dBTP in steps of 0.1 dBTP
- **TP Headroom:** **−9.0 dB**; adjustable in the range from 0 to −20 dB in steps of 0.1 dB
- **M High:** **+1.0 LU**; M tolerance above Target Level, adjustable in the range from 0 to 10 LU in steps of 0.1 LU
- **M Low:** **−1.0 LU**; M tolerance below Target Level, adjustable in the range from 0 to −12 LU in steps of 0.1 LU
- **S High:** **+1.0 LU**; S tolerance above Target Level, adjustable in the range from 0 to 10 LU in steps of 0.1 LU
- **S Low:** **−1.0 LU**; S tolerance below Target Level, adjustable in the range from 0 to −12 LU in steps of 0.1 LU
- **I High:** **+1.0 LU**; I tolerance above Target Level, adjustable in the range from 0 to 10 LU in steps of 0.1 LU
- **I Low:** **−1.0 LU**; I tolerance below Target Level, adjustable in the range 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.
- **Level for gate:** **−70,0 LUFS/LKFS**; adjustable in the range from −85 to −10 LUFS/LKFS in steps of 0.5 LUFS/LKFS

Stop:
- **Functions:** **manual control only**, autostop with gate, autostop with gate and time.
- **Level for gate:** **−70,0 LUFS/LKFS**; adjustable in the range from −85 to −10 LUFS/LKFS in steps of 0.5 LUFS/LKFS
- **Time for gate:** **1 s;** adjustable in the range from 1 to 15 s in steps of 1 s

Loudness Range Instrument (LRA)

Display:	Graphical display of the Loudness Range of the I measurement
Mode:	**LRA Bar**; LRA Bar, MagicLRA, MagicLRA + I, MagicLRA + I + Num selectable
Bar appearance:	**solid** or segment selectable
Section colors:	**Blend**; Individual, Blend, Swap selectable
Scale range:	**10 LU**; 6 LU, 10 LU, 20 LU, 30 LU selectable
LRA low range:	**2 LU**; adjustable in the range from 0 to 30 LU in steps of 0.5 LU
Comfort zone:	**4 LU**; adjustable in the range from 0 to 30 LU in steps of 0.5 LU
LRA high range:	depends on the selected scale range and the spread of the comfort zone
Colors:	selectable for each range, 32 predefined colors

SPL Meter

Display:	Bargraph for summation of channels
Weighting:	A (Leq(A)); Linear, A (Leq(A)), C, CCIR (Leq(M)), ITU BS.1770 (k) selectable
Integration time:	Fast; Fast (125 ms), Slow (1 s) selectable
Reference level:	−21 dBFS (997 Hz sine wave, defines reference point); adjustable in the range from −25 to −9 dBFS in steps of 1 dB
Reference point:	78 dB(A); adjustable in the range from 68 to 88 dB(A) in steps of 1 dB
Scale range:	includes 32 dB
Scale:	▪ 68 to 100 dB(A) in steps of 2 dB with reference point 78 dB(A) ▪ Changes when changing the reference point ▪ Changing the reference point does not change the reference level

Optional License SW32006: Premium Metering

Expands the basic software with multiformat PPMs and TP meters, Moving Coil instruments, additional scales and advanced settings.

General

Input sources:	up to 32 Dante® AoIP network channels
Display type:	**Bargraph** or Moving Coil instrument selectable
Display:	▪ Peak level ▪ Peakhold (depending on type) ▪ Numerical value of the display ▪ Digital Over
Functions:	▪ Gain (+20 dB, +40 dB acc. to standard), ▪ Peakhold on/off (depending on type) ▪ Memory ▪ Reset (Memory/Peakhold)

Digital Peakmeter (PPM)/TP Meter

Display type:	Bargraph, variously combinable with loudness display when Loudness & SPL license SW32002 is activated
Orientation:	**vertical** or horizontal selectable
Display:	32 selectable colors for each of the different display sections (background, peakhold, headroom, operation field, normal range)
Word width:	24 bit
Digital Scales:	▪ TP60: +3 .. −60 dB (default) ▪ TP20: +3 .. −20 dB ▪ Dig60: 0 .. −60 dB (Attack: Sample) ▪ Dig40: +20 .. −40 dB (Attack: Sample) ▪ Dig20: 0 .. −20 dB (Attack: Sample) ▪ Dig0: +18 .. 0 dB (Attack: Sample) ▪ Dig18: +18 .. −18 dB (Attack: Sample) ▪ ARD9: +9 .. −60 dB (Attack: 10 ms) ▪ DIN5: +5 .. -50 dB (Attack: 10 ms) ▪ DIN10: +10 .. -50 dB (Attack: 10 ms) ▪ Nordic: +12 .. -42 dB (Attack: 10 ms) ▪ BR IIa: 7 .. 1 (Attack: 20 ms) ▪ BR IIa ext: 7..1 (Attack: 20 ms) ▪ BR IIb: +12 .. -12 dB (Attack: 20 ms) ▪ BRIIb ext: +12..-12 dB (Attack: 20 ms) ▪ Zoom10: +10 .. −10 (Attack: 10 ms) ▪ Zoom1: +1 .. −1 (Attack: 10 ms)
Scale marker:	**off**; switchable in the range from −30 to 0 dB in steps of 0.5 dB or off

Headroom:	▪ **−9 dB**; adjustable in the range from 0 to −20 dB in steps of 1 dB (not available for Dig40, Dig0, Dig18, ARD9)
	▪ fixed with reference 997 Hz for:
	  - Dig40:+20..-40dB: 0 dB fixed at −20 dBFS, Headroom up to +20 dB at 0 dBFS
	  - Dig0:+18..0dB: 0 dB fixed at −18 dBFS, Headroom up to +18 dB at 0 dBFS
	  - Dig18:+18..-18dB: 0 dB fixed at −18 dBFS, Headroom up to +18 dB at 0 dBFS
	  - ARD9:+9..-60dB: 0 dB fixed at −9 dBFS, Headroom up to +9 dB at 0 dBFS

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

Specifications (continued)

Integration time (Attack):	acc. to corresponding standard or (partly) selectable: Sample, 20 ms, 10 ms, 1 ms, 0,1 ms, British BRII scales also 150 ms
Gain:	+20 dB, +40 dB acc. to standard
High-pass filter:	**off**; 5 Hz, 10 Hz, 20 Hz or off selectable (not for TP scales)
Peakhold display:	**off**; 1 s, 2 s, 4 s, 10 s, 20 s, 30 s, manual reset or off selectable
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 TruePeak	
- Threshold:	adjustable

Moving Coil Instruments
(only available in Stereo mode)
For the use of the Loudness functionality the activation of the Loudness & SPL license SW32002 is required

Display type:	PPM (L/R, M/S), VU, Loudness, PPM + Loudness (L/R; M, S or I), selectable
PPM:	
- Channel arrangement:	Dual, Dual + M/S horizontal, Dual + M/S vertical, Stereo horizontal, Stereo vertical
- Scales:	▪ BR IIa: 7. .1 (default)
	▪ BR IIb: +12. .-12 dB
- Integration time:	**10 ms**; Sample, 0,1 ms, 1 ms, 10 ms, 20 ms, 150 ms selectable
- Headroom Ref:	**−10 dB**; adjustable in the range 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, off selectable
- BR Peak Threshold:	**6**
	▪ BR IIa: adjustable in the range from 4 to 7 dB in steps of 0.25
	▪ BR IIb: adjustable in the range from 0 to 12 dB in steps of 1 dB
VU:	
- Channel arrangement:	Stereo horizontal, Stereo vertical
- Scale:	VU (−20 to + 3 dB)
- Lead:	0 dB; adjustable in the range from 0 to 12 dB in steps of 1 dB
- Peak indicator:	off; Peak, TruePeak, off selectable
Loudness:	
- Channel arrangement:	Dual, Stereo horizontal, Stereo vertical
- Scales:	acc. to Loudness settings
- Integration time:	acc. to standard
- Peak indicator:	off, no selection
PPM + Loudness:	
- Channel 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 (center of the scale represents the Target Level of the selected Loudness standard)
Numerical display:	switchable in all modes

Optional License SW32010: Monitor Control

Full Mono to extensive Surround control and monitoring of volume level with numerical display, SPL value calculation or direct measurement with internal microphone.
For the display of more than 4 channels software license SW32001: Multi-channel is required.
For Loudness and SPL measurements the Loudness & SPL license SW32002 is required.

Functions:	▪ Instrument for monitoring Mono to Surround signals
	▪ Multifunctional rotary knob for controlling the volume level and other functions
	▪ Definable loudspeaker functions Solo, Cut, Swap (5.1 only), Phase
	▪ DIM and MUTE function
	▪ Numerical display
	▪ Calculation of the SPL value of the electrical signal
	▪ Measured SPL value via internal or external microphone
	▪ 2 switchable inputs A/B
	▪ 2 switchable loudspeaker sets A/B
	▪ Downmix instrument (coupled with A-input)
	▪ B outputs same as A or Stereo or off
	▪ Instrument for switching between loudspeakers and headphones (Phones output can be routed to the outputs or a Dante® connection)
Display:	▪ Button with toggle function for the selection of the loudspeaker modes Solo, Cut, Swap or Phase
	▪ Stylized circular speaker representation acc. to the selected audio format (ITU circle)
	▪ Control of the selected speaker function by single or multiple tapping of the corresponding speaker symbols (toggle or multiple)
	▪ Color indication of the loudspeaker state (green: active, red: inactive, outline: phase inverted)
	▪ Switchable SPL or Loudness display
	▪ Buttons for input A/B, output A/B, Mono, Dim, Mute, LF-Boost, Surr-Att, Phones, Downmix
	▪ Listening volume display

Speakers

Modes:	**Stereo**; Mono, Stereo, Surround (with SW32001), Immersive (with SW32020) selectable
- Surround formats:	**5.1**; 3.0, 3.1, 5.0, 5.1, 7.1 Cinema, 7.1 DD+ selectable (if license SW32001 is activated)
- Immersive formats:	**5.1.4**; 5.1.2, 5.1.4, 7.1.2, 7.1.4, 9.1.2, 9.1.4, 22.2 selectable (if license SW32020 is activated)
Loudness type:	**none**; EBU R128, ITU-R BS.1770-4/1771-1, ATSC A/85, ARIB, OP-59, AGCOM, CALM, LEQ(M), TASA, SAWA or none selectable
LF-Boost:	on or **off**, increases the level of the LF output by +10 dB
Sur att.:	on or **off**, decreases the level of the surround channels by −3 dB

Specifications (continued)

Individual Loudspeaker Settings

The loudspeakers available in the network can be assigned to two sets (A, B) and individually adjusted for the respective listening situation.

Name:	max. 3 characters
Type:	full range or non-full range
Gain:	**0 dB**; adjustable in the range from −24 to +12 dB in steps of 0.5 dB
Delay:	**0 ms**; adjustable in the range from 0 to 200 ms in steps of 1 sample
Polarity:	**+** or **−**

Equalizer (EQ)

Band 1
- Type: **Peak**; High Pass, Low Shelf, Peak selectable
- Frequency: **75 Hz**; adjustable in the range from 20 Hz to 20 kHz
- Bandwidth: **0.7**; adjustable in the range from 0 to 10 in steps of 0.1
- Gain: **0 dB**; adjustable in the range from −18 to +18 dB in steps of 0.1 dB

Band 2
- Type: **Peak**; Peak, Band Pass, All Pass 2nd, All Pass 4th, Notch selectable
- Frequency: **250 Hz**; adjustable in the range from 20 Hz to 20 kHz
- Bandwidth: **0.7**; adjustable in the range from 0 to 10 in steps of 0.1
- Gain: **0 dB**; adjustable in the range from −18 to +18 dB in steps of 0.1 dB

Band 3
- Type: **Peak**; Peak, Band Pass, All Pass 2nd, All Pass 4th, Notch selectable
- Frequency: **1000 Hz**; adjustable in the range from 20 Hz to 20 kHz
- Bandwidth: **0.7**; adjustable in the range from 0 to 10 in steps of 0.1
- Gain: **0 dB**; adjustable in the range from −18 to +18 dB in steps of 0.1 dB

Band 4
- Type: **Peak**; High Pass, Low Shelf, Peak selectable
- Frequency: **2500 Hz**; adjustable in the range from 20 Hz to 20 kHz
- Bandwidth: **0.7**; adjustable in the range from 0 to 10 in steps of 0.1
- Gain: **0 dB**; adjustable in the range from −18 to +18 dB in steps of 0.1 dB

Loudspeaker Calibration

Gain:	**0 dB**; adjustable in the range from −24 to +12 dB in steps of 0.5 dB
Delay:	**0 ms**; adjustable in the range from 0 to 200 ms in steps of 1 sample
Delay unit:	**Time**; Time, Distance Metric, Distance Imperial selectable
Test tone generator:	Coherent pink noise

SPL calibration meter
- Input: Internal microphone or external microphone via XLR connector
- Phantom supply: On or **off**
- Sensitivity: **15 mV/dB**; adjustable in the range from 1.0 bis 50.0 mV/dB in steps of 0.1 mV/dB

Weighting filter:	A or **C** selectable
Response:	**Slow**; Fast (125 ms), Slow (1 s) selectable

Pushable Rotary Knob

Function:	• Volume control with definable listening level (individual, initial, maximum)
	• Pushing and holding the rotary knob for more then 1 s stores the currently set listening level
	• Preset function: quick double push resets the volume to the user defined value

Volume:
- user-defined: **78 dB(A)**; adjustable in the range from 10 to 100 dB(A) in steps of 0.5 dB or off
- at power on: **78 dB(A)**; adjustable in the range from 10 to 100 dB(A) in steps of 0.5 dB or off
- maximum: **100 dB(A)**; adjustable in the range from 60 to 100 dB(A) in steps of 0.5 dB or off

Unit:	absolute dB(A), relative dB
- Reference relative:	shows the selected reference level for the SPL Meter: e. g. 78 dB(A)

Loudspeaker Selection Modes

Functions:	• Button for switching through the Solo, Cut, Swap (5.1 only), Phase modes
	• Definable behavior when tapping the loudspeaker symbols in the circular display
Symbol behavior:	• Radio button style (alternate enable/disable)
	• Adding mode (select several, reset each by tapping again)
	• Add with reset by pressing the rotary knob
Modes:	**Solo**; Solo, Cut, Swap (5.1 only), Phase successively selectable

Solo mode
- Function:
  - Solo in place (green), all other speakers muted (red)
  - Solo mixed to defined loudspeaker
  - Double tapping on a loudspeaker symbol solos the corresponding whole channel group
- Target loudspeaker: **Channel** (Solo in place); channel, L, R, L+R, Center selectable, signal is always Mono

Cut mode
- Function:
  - Cut mutes the selected loudspeaker (red), all other loudspeaker are kept active (green)
  - Double tapping on a loudspeaker symbol mutes the corresponding whole channel group

Swap mode (side or channel exchange)
(only available for the 5.1 Surround format)
- Function:
  - Swap swaps the signals of certain channels
  - when swapping sides, all other channels remain unaffected
  - when swapping channels, all other channels are muted
- Side swap:
  - L < > R: L and R are swapped, labeling is L(R) and R(L)
  - LS < > RS: LS and RS are swapped, labeling is LS(RS) and RS(LS)
- Channel swap:
  - C > LR: Center channel is switched to L and R, labeling is L(C) and R(C)
  - LF > LR: LFE channel is switched to L and R, labeling is L(LF) and R(LF)
  - S > LR: LS and RS channels are switched to L and R, labeling is L(LS) and R(LS)

Specifications (continued)

- **<All>**: L and R are switched, LS and RS are switched, C and LFE remain unaffected, labeling is L(R) and R(L), LS(RS) and RS(LS)

Phase mode
- Function:
  - Phase switches the polarity of the selected channels
  - Loudspeaker symbol changes to a green outline
  - Channel labeling is marked with ^

DIM (Mute all)

Function:
- Button to reduce the monitoring volume by a predefined value or "Mute all"
- Can be used as momentary or latch/hold switch

DIM level:
- **−20 dB**; adjustable in the range from −80 to 0 dB in steps of 1 dB or Mute
- Temporarily adjustable by touching and holding the DIM button and turning the rotary knob

DIM Phones output: **Off** or On

Mute

Function:
- Button for muting the loudspeakers
- Can be used as momentary or latch/hold switch

Mute Phones output: **Off** or On

Mono

Function:
- Button to output the signal in a mono-summed format
- Output of a defined loudspeaker (depending on the selected Speakers mode)

Target loudspeaker: **L+R**; Center, L, R, L+R, All w/o LFE/Sub selectable, signal is always Mono

Downmix (5.1, 7.1 only)

Functions:
- Downmix instrument is connected upstream of the A inputs
- Downmix output signal (L/R and/or Mono) can be routed into the Dante® network
- Switching between current speaker setup and L-R monitoring
- Display and/or monitoring
- 3-channel TP Meter (for L/R and M Downmix)
- available for the surround formats 5.1, 7.1

Downmix rules:
- LS/RS summed to L/R
- LSR/RSR summed to L/R
- CS summed to L/R
- Front summed to L/R
- all other loudspeakers summed to L/R

Individual settings of channel levels and panning via mix matrix

Channel level for Downmix
(available channels depending on the selected Speakers mode)
- Channel Gain: **−3 dB**; adjustable in the range from −12 to 0 dB in steps of 0.5 dB

Mono Downmix sum: **−3 dB**; adjustable in the range from −12 to 0 dB in steps of 0.5 dB

Phones

Function:
- Instrument for switching between loudspeakers and headphones
- Phones output can be routed to the outputs or a Dante® connection

Trim: **0 dB**; adjustable in the range from −12 to 0 dB in steps of 0.5 dB

Optional License SW32020 Bass Management & ImmersivePlus

Expands the Monitor Control license with Custom and Immersive channel formats and Bass-Management.

--- Precondition: Software licenses SW32001, SW32010 are activated ---

Functions:
- Expansion with Immersive formats: 5.1.2, 5.1.4, 7.1.2, 7.1.4, 7.1.6, 9.1.2, 9.1.4, 22.2, custom
- Arrangement of maximum 32 loudspeakers
- Available for A outputs
- Allows to operate full range and small speakers in the same system and supports two LFE channels
- LF-Boost function switchable
- Surr-Att function switchable
- HP filter for all bass managed speakers and All-pass filter for others
- Dual-SUB loudspeaker mode (LFE1 to SUB1, LFE2 to SUB2)
- For formats without an LFE, an additional SUB output channel is added

Bass-Management

Enabled: **Yes**; Yes, No
Filter type: **Linkwitz-Riley**
Slope: **12 dB/octave** (2nd order)
Crossover frequency: **125 Hz**; adjustable in the range from 63 to 250 Hz
Sub-pad: **0**; adjustable from −24 to 0 dB in steps of 1 dB

Specifications (continued)

Optional Ethernet Power Injector 14554-xx

This IEEE 802.3af-compliant power injector is required when the Dante® AoIP network provides insufficient or no power over Ethernet (PoE).

Manufacturer:	Phihong Technology Co., Ltd., No. 568, Fusing 3rd RD., Gueishan District, Taoyuan City, Taiwan
Model:	POE15M-1AFE - Single Port Power over Ethernet (PSE), Gigabit-compatible
Standard:	IEEE 802.3af
Input:	100 - 240 V AC, 800 mA, 50 - 60 Hz
Output:	56 V DC, 275 mA, 15.4 W
Performance class:	0
PD power range:	0.44 to 12.94 W
PSE power usage:	maximum: 15.4 W
Certificates:	CE, UKCA, UL (Canada, US), FCC, IC, LPS, CAN ICES-3(B)/NMB-3(B)
Territorial coverage:	North America, Canada, Europe, Great Britain, Australia/New Zealand

Items of Delivery

TouchControl 5 Basic:

- TouchControl 5 in a desk-top housing
- User-configurable device with 5" touch display and 32-channel Dante® AoIP interface
- Basic version with 4 simultaneously usable audio channels
- Basic software (system/Mono, Stereo, 2 x Stereo PPM/on-screen fader)
- Quick start guide
- **Order no.: 320517ND**

TouchControl 5 Monitor Controller:

- TouchControl 5 in a desk-top housing
- User-configurable Monitor Controller device 320517ND with 5" touch display and 32-channel Dante® AoIP interface for Mono up to 22.2 formats.
- Basic software (system/Mono, Stereo, 2 x Stereo PPM/on-screen fader)
- Activated licenses for multichannel operation (SW32001) and Monitor Control (SW32010).
- Quick start guide
- **Order no.: 320517ND + SW32001 + SW32010**

Optional Software Licenses

According to demand, the software licenses expand the functionality of TouchContro 5 and can directly be ordered when purchasing a device or purchased via our online shop at a later point of time: rtw.com/en/shop.

- Software license **SW32001: Multichannel** for multichannel expansion

- Software license **SW32002: Loudness & SPL** for the expansion with Loudness, SPL and LRA. [3]

- Software license **SW32006: Premium Metering** for the expansion of the basic metering with multiformat PPMs and TP meters, Moving Coil isntruments and additional scales.

- Software license **SW32010: Monitor Control** monitoring and controlling the loudspeaker configurations (Solo, Cut, Swap, Phase, DIM, Mute, a. o.) [3] [4]

- Software license **SW32020: Bass Management and ImmersivePlus** for the expansion of the Monitor Control license with the Bass Management application for operating full-range loudspeakers and loudspeaker systems with a maximum of two sub woofers and the possibility to add further output loudspeakers to the predefined Surround and Immersive formats for monitoring.
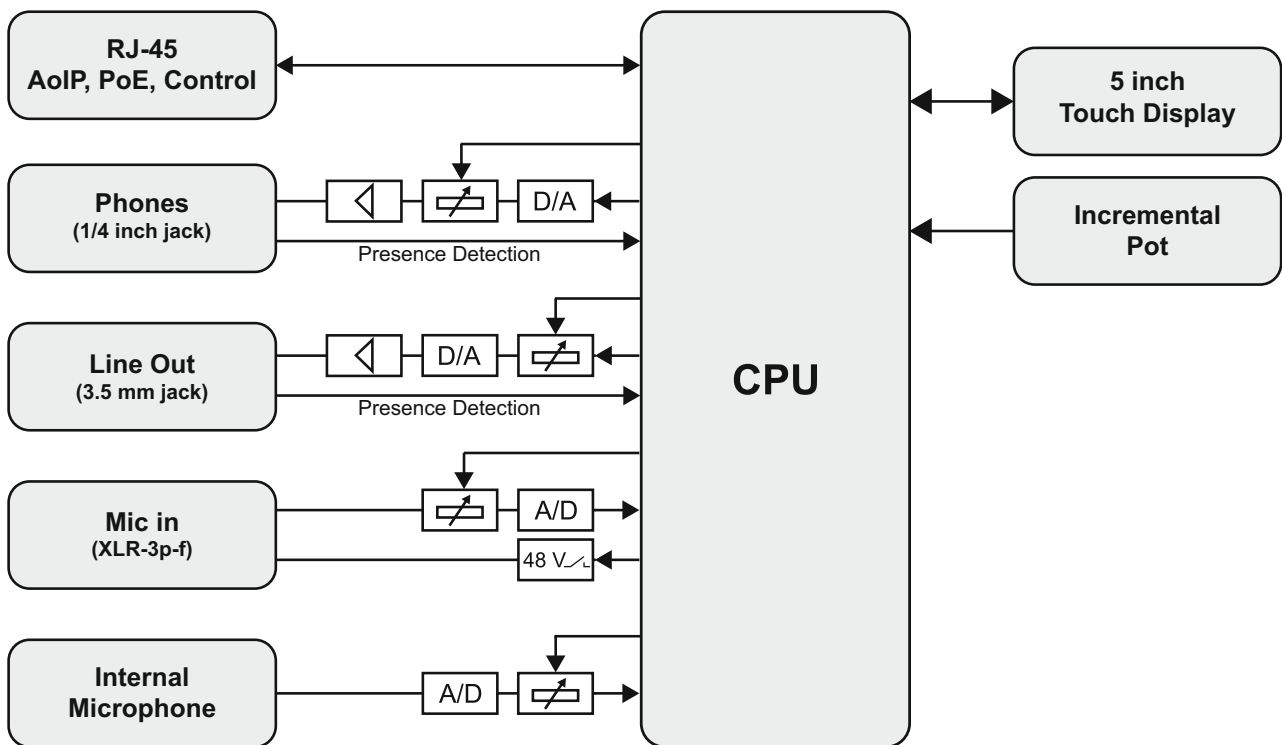 --- Precondition: Licenses SW32001 and SW32010! ---

[3] --- For the display of more than 4 channels software license SW32001: Multichannel is required. ---

[4] --- For Loudness and SPL measurements software license SW32002: Loudness & SPL is required. ---

Optional Accessories

- Ethernet Power Injector **14554**, PoE table-top device with corresponding mains cable for different regions:
  - Europe: **14554-EU** (mains cable for Europe or similar)
  - USA: **14554-US** (mains cable for USA or similar)
  - Australia: **14554-AU** (mains cable for Australia or similar)
  - UK: **14554-GB** (mains cable for United Kingdom or similar)
  - International: **14554-IN** (includes all cables)
- Metal mounting plate **1166** for mounting with 3/8" holds (e. g. gooseneck, mic stand)

Block Diagram

RJ-45 **AoIP, PoE, Control**	
Phones **(1/4 inch jack)**	Presence Detection · D/A
Line Out **(3.5 mm jack)**	Presence Detection · D/A
Mic in **(XLR-3p-f)**	A/D · 48 V
Internal **Microphone**	A/D

CPU

5 inch
Touch Display

Incremental
Pot

RTW
EYES ON YOUR AUDIO