Data Sheet

SurroundMonitor 10600-PLUS

GENERAL DESCRIPTION

The RTW SurroundMonitor 10600-PLUS contains in a 176,5 x 125,5 x 61,5 mm table-top case a digital 6-channel surround display unit with Peak Program Meter, ITU BS.1771 Loudness Meter and Surround Sound Analyzer especially for digital multi-channel and surround applications.

- 6-channel multi-standard peakmeter
- ITU BS.1771 Loudness Meter
- Loudness/Leq display
- Surround Sound Analyzer
- Audio Vectorscope
- 10-fold Correlator
- Real Time Analyzer
- Dialnorm Meter
- AES/EBU Status display
- Stop Watch

The RTW SurroundMonitor 10600-PLUS features three AES-3 digital inputs. Comprehensive menus allow a user defined configuration of the instrument to meet with the requirements of the application. This settings may be saved to or recalled from memory as User Presets.

6-Ch. Peakmeter • ITU BS.1771 Loudness • Loudness/Leq • Surround Sound Analyzer • 10-fold Correlator • RTA

Vectorscope • Dialnorm • AES/EBU Status • Stop Watch

TECHNICAL SPECIFICATIONS

General

Supply voltage:	+24 V DC
Current drain nominal:	290 mA (power-up current is much higher)
Operating temperature range:	0° to +45° celsius
Weight:	approx. 750 g
Connectors:	2 x 25-pin Sub-D-F 1 x 15-pin Sub-D (Remote) 1 x 15-pin Sub-D (VGA) 1 x 4-pin low voltage connector Binder 710 (DC)
Dimensions:	176,5 x 125,5 x 61,5 mm (without table stand)

Digital Inputs

Digital inputs:	3 (Stereo), AES3, transformer balanced
Input impedance:	110 Ω or Hi-Z
Sample rate:	32 kHz to 96 kHz

Digital Outputs

Digital output:	3 (Stereo), AES3, input signal looped through, unbuffered

Display

Display:	VGA color TFT, 640 x 480 pixel, 132 x 99 mm
Colors:	8
Reversal direction:	12 o'clock
Viewing angle:	horizontal 60° typ., vertical 60° typ.
Contrast:	250 at reversal direction

Program Meter: Digital Peakmeter (PPM)

Level display:	up to 6 channels, peak hold indicator switchable, vertical display orientation
Viewing area:	50 x 98 mm (W x H)
Bargraph length:	90 mm
Display modes:	5.1 surround, 3.1 surround, 1 x Stereo, 2 x Stereo, 3 x Stereo, 2-channel, 4-channel, 6-channel
Peak value memory:	maximum peak level, peak hold
Numeric level display:	selectable, shown on the lower left side of the display
Correlator spot indicator:	switchable, in 6-ch. mode for up to 3 channel pairs (at the bottom of each bargraph pair on the left)

Loudness meter:

Loudness meter:	additional spot indicator displayed on the bargraphs of the level display, RTW mode or A-, C-, RLB, CCIR-2k weighting, RMS
Scales digital:	Dig60dB: –60 to 0 dB FS, Dig20dB: –20 to 0 dB FS, Dig+18..–2 dB (+18 dB = 0 dB FS), Dig+18..–18dB (+18 dB = 0 dB FS), Dig+20..–40dB (+20 dB = 0 dB FS), ARD+9..–60dB (+9 dB = 0 dB FS)
Scales quasi analog:	qARD+9..–60dB, qDIN+10, qDIN+5, qNordic, qBR IIa, qBR IIb, qZoom +/–10 dB), qZoom +/–1 dB)
Headroom:	–5 to –20 dB, adjustable in steps of 1 dB
Integration time (Attack):	Scales digital: Sample, 0.1 ms, 1 ms, 10 ms; Scales quasi analog: according to standard or sample, 0.1 ms, 1 ms
Fall back time:	according to selected standard (1.5 s/20 dB for DIN)

Gain:	• Scales digital: +40 dB;
	• Scales quasi analog:
	  +20 dB (qDIN scales, qZoom scales),
	  +40 dB (qBritish, qNordic)

High pass filter:	OFF, 5 Hz, 10 Hz, 20 Hz
Peak hold indicator:	integration time same as level display or 1 sample (selectable)

Total Loudness Meter (PPM)

Display:	in surround mode for channels 1 to 6
Calibration:	SPL reference 72 to 80 dB (single channel)
Total loudness/SPL:	70 to 98 dB (without LF channel)
Weighting filters:	linear, A, C, RLB, CCIR-2k, RTW loudness, all RMS (fast or slow)
Leq:	range 70 to 98 dB (with weighting as selected above)

Digital Errors (PPM)

Digital Over indicator:	red spot indicators above each bargraph
Threshold:	FS, FS-1LSB, FS-2LSB, –0.1, –0.5, –1.0, –2.0 or –3.0 dB FS
Attack time:	1 to 15 samples
Word width:	16 to 24 bit

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Mute indicator:	red spot indicators below each bargraph
Threshold:	all bits digital „0"
Attack time:	50, 100, 200, 300 ms
Threshold level:	5 to 80 samples, adjustable in steps of 5 samples

Program Meter: ITU BS.1771 Loudness Meter

ITU BS.1771 Loudness display:	• bargraphs vertical for up to 6 channels
	• M bargraph (Momentary - summation of momentary loudness values of all channels for a short span of time)
	• I bargraph (Integrated - Loudness value of an adjustable dynamic time frame, summation of Momentary values)
	• L bargraph (Longterm - Loudness value infinite or with manual control)
Weighting filter:	RLB (K)
Viewing area:	50 x 98 mm (W x H)
Bargraph length:	90 mm
Display modes:	Surround 5.1, 2-Channel Stereo
Peak value memory:	max. Loudness-value/max. peak
Numeric level display:	switchable, displayed in the lower left area of the display (Multi Instrument 2) showing a combination of two of M, I, L Loudness values
Correlator spot indicator:	displayed with the Stereo channel pair (at the bottom of the bargraph pair on the left)
Scale:	Loudness scale according to ITU BS.1771: –21 to +9 dB LU or –31 to 0 LKFS
Reference value for 0 dB LU:	–24 dB FS, selectable in steps of 1 dB in the range of –25 dB FS to –10 dB FS
Offset for LKFS scale:	0 or –3 dB
Headroom:	0 to +9
Integration time for Momentary:	125 ms (IEC), 250 ms (IRT), 500 ms, 750 ms, 1 s (IEC), 1.5 s, 2 s
Integration time for Integrated:	20 s, time frame selectable between 1 s and 20 s
Threshold for adoption of M values into the I and L reading:	–20, selectable between 0 and –39, Off
Alarm threshold:	+8, selectable between 0 and +9
Alarm period:	1 s, selectable between 1 s and 9 s, Off
Level adjustment for the summation of the Stereo signal L + R:	0.0 dB, selectable between –3 dB and +3 dB in steps of 0.5 dB
Level adjustment for the summation of the Center-Signal L + R:	0.0 dB, only for 5.1 Surround signals selectable between –3 dB and +3 dB in steps of 0.5 dB
Level adjustment for the summation of the Signal LS + RS:	1.5 dB, only for 5.1 Surround signals selectable between –3 dB and +3 dB in steps of 0.5 dB
Inclusion and Level adjustment for summation of LFE-Signal:	off (not included), 0.0 dB (included), +10.0 dB (included and adjusted), only for 5.1 Surround signals selectable

Digital Errors (ITU BS.1771)

Digital Over indicator:	red spot indicators above each bargraph
Threshold:	FS, FS-1LSB, FS-2LSB, –0.1, –0.5, –1.0, –2.0 or –3.0 dB FS
Attack time:	1 to 15 samples
Word width:	16 to 24 bit
Mute indicator:	red spot indicators below each bargraph
Threshold:	all bits digital „0"
Attack time:	50, 100, 200, 300 ms
Threshold level:	5 to 80 samples, adjustable in steps of 5 samples

Surround Sound Analyzer

Surround mode:	3/1, 3/2 or 5.1, display of LF channel in Program Meter only
Function:	weighted loudness display:
	• PPM mode: A, C, Leq(M) CCIR-2k, ITU RLB, RTW loudness
	• ITU BS.1771 mode: RLB
Indicators:	• graphics display indicating the single channel and total program loudness (Total Volume Indicator - TVI),
	• switchable displays of position and width of phantom sources (Phantom Source Indicator - PSI)
	• switchable displays of correlation of adjacent channels,
	• position of dominant sound event (Dominance Vector - DMI)
	• switchable low pass filter with additional correlator for the LS/RS channels

Multifold Phase Meter (Multi Correlator)

in surround mode:	10 phase meters for all channel pairs	
in 6-channel mode:	up to 3 phase meters for up to 3 ch. pairs	
Display mode:	spot indicator or bargraph	
Display length:	50 mm width	
Scale range:	–1 r to +1 r	
Standard color setting:	red:	–1 r to –0.1 r
	yellow:	0 r
	green:	0.1 r to +1 r
Colors:	selectable	
Attack time:	fast: 1.0 s, slow 2.5 s	
Negative peak correlation memory:	included in Peak Memory	
Memory accuracy:	better 0.1 r	
Weighting filter:	300 Hz first order low pass (switchable) for LS/RS phase meter in 5.1 surround mode	

Audio Vectorscope (Lissajous)

Viewing area:	45 x 45 mm (W x H)
Display colors:	8
AGC:	auto
Modes:	x/y or M/S
Time of persistence:	fast, medium, slow

Real Time Analyzer

Bands:	31, 1/3 octave
Frequency range:	20 Hz to 20 kHz (IEC-225 ANSI class 2)
Measuring/display range:	selectable: 15 dB, 30 dB, 45 dB
Integration time:	fast/medium/slow, RMS or Peak
Peak hold indicator:	switchable

AES/EBU status display

Visible area:	72 x 18 mm or 72 x 80 (W x H)
Status information:	locked, decoded AES/EBU status, parity, validity

Controls and Display Elements

Keys:	MODE 1 (SET), MODE 2 (SET), FUNC 1, FUNC 2, CHAN, SELECT

ITEMS DELIVERED

SurroundMonitor 10600-PLUS:
• SurroundMonitor RAL 7024 graphite grey
• Table stand RAL 7024 graphite grey
• Mains adapter
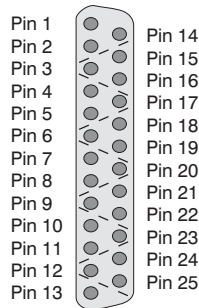• Operating manual
Order number: 10600-PLUS

RTW

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CONNECTION

Input and Output connector (25-pin Sub-D-F)

Pin: Function:

21   in- resp. output digital 3 (+, hot)
9   in- resp. output digital 3 (-, cold)
22   shield/chassis
10   in- resp. output digital 2 (+, hot)
23   in- resp. output digital 2 (-, cold)
11   shield/chassis
24   in- resp. output digital 1 (+, hot)
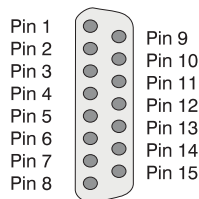12   in- resp. output digital 1 (-, cold)
25   shield/chassis

Note: The incoming AES-3 signals are passive looped through from the input connector to the output connector.

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

(External view of the connector)

Remote connector (15-pin Sub-D-F)

Pin: Function:

1   common potential for ext. switches - Gnd
9   external function selection: „FUNC 1"
2   external function selection: „FUNC 2"
3   external function selection: „CHAN"
6   external function selection: „MODE 1/SET"
7   external function selection: „MODE 2/SET"
8   external function selection: „SELECT"

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

(External view of the connector

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

Pin: Function:

1   R | Video signal
2   G |
3   B |
4   don't wire, for future use
5   GND
6   GND
7   GND
8   GND
9   don't wire, for future use
10   GND
11   don't wire, for future use
12   don't wire, for future use
13   H-sync
14   V-sync
15   don't wire, for future use

Pin 1 ... Pin 6 ... Pin 11
Pin 2 ... Pin 7 ... Pin 12
Pin 3 ... Pin 8 ... Pin 13
Pin 4 ... Pin 9 ... Pin 14
Pin 5 ... Pin 10 ... Pin 15
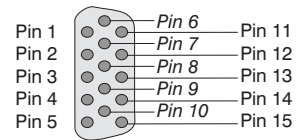
(External view of the connector)

Note: The connecting VGA cable has to be of 10 to 15 **maximum** length!

Power supply connector (4-pin low voltage type Binder 710)
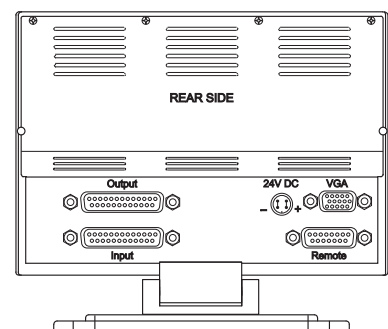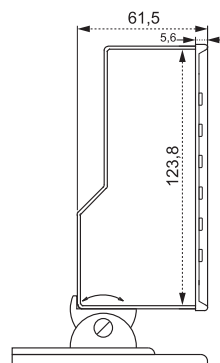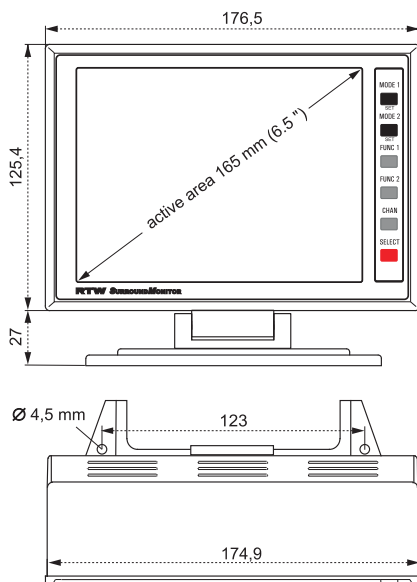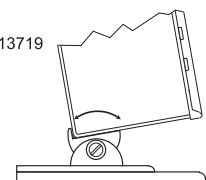
Pin: Function:

1-2   +24 V
3-4   0 V

COLORS

Case: Graphite grey RAL 7024,
Scale: silver with black labelling

DIMENSIONS

Abmessungen in mm/Dimensions in mm

Tischfuß/Table stand 13719
(Ersatzteil/Spare part)

RTW

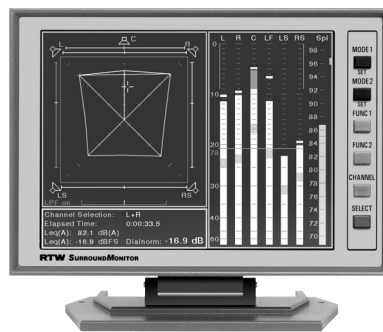## SurroundMonitor 10600-PLUS

ACCESSORY COMBINATION
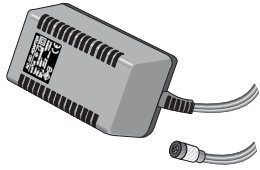
Wide voltage power supply **1171-R**
90 - 240 V AC/24 DC, 630 mA
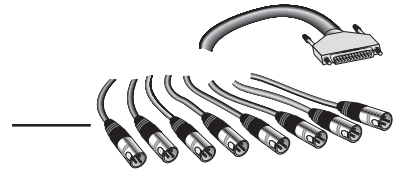• Euro plug
• Locking 4-pin low voltage connector
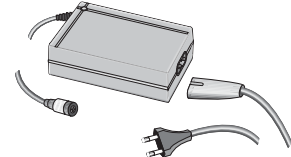
Wide voltage power supply **1175-R**
100 - 240 V AC/24 DC, 2.7 A
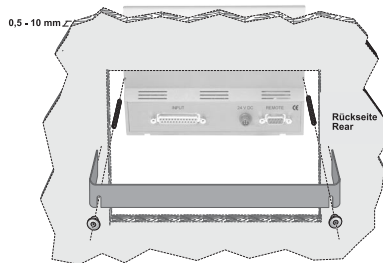• Corresponding power cable
• Locking 4-pin low voltage connector

8-pair snake cable **1186**, 4 m
• Distributes 25-pin Sub-D connector to 8 XLR-F cable connectors
• For connecting to "Input" connector

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Table-top unit

8-pair snake cable **1163**, 4 m
• Distributes 25-pin Sub-D connector to 8 XLR-M cable connectors
• For connecting to "Output" connector

Panel mounting kit **13713** for front panel installation
• Required panel cutout:
  174,9 x 123,8 mm (B x H)
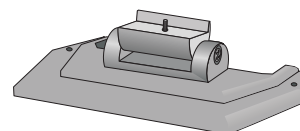• Panel thickness: 0.5 to 10 mm
(Instrument not included)

Table stand **13719**
(Spare part!)

Subject to changes without prior notice 02/2010