



General Description

The Rane RA 30 Realtime Analyzer is a single rack space unit providing 30 bands of realtime frequency/amplitude information in a 5-LED per band format. The RA 30 serves three functions:

- Realtime Analyzer with Pink Noise generator
- SPL Meter
- Stereo VU Meter with Peak Hold

In RTA (Real Time Analyzer) mode, the RA 30 is used to visually judge the character of the Pink Noise signal (or any sound) received by the measurement microphone. A Pink Noise generator is built into the RA 30 with an on/off switch. The operator may now adjust an external ½-octave equalizer for optimum response of a sound system based on the readings presented by the LED display.

Broadband signals applied to either the Mic or Line Inputs of the RA 30 are divided into ¹/3-octave increments by IEC 61260 Class 2 filters. The outputs of the filters are displayed on the front panel to visually indicate the amplitude of each band, in user-selectable 1, 3 or 6 dB per LED scales. A Normalize button sets the 0 dB reference to the maximum band level.

In SPL (Sound Pressure Level) meter mode, the display is read horizontally and calibrated to a 1 dB resolution. The calibrated mic included with the RA 30 must be used, with the Gain control in the detented 'CAL' position. A- or C-weighting filters are user selectable. This mode accurately displays SPL readings from a minimum of 51 dBA to a maximum of 120 dBA. The Cal Mic Input auto ranges for maximized operation.

Stereo VU meter mode is automatically enabled when the Line input source is selected. It has a 1.5 dB resolution, and can

be calibrated to accommodate +4 dBu or -10 dBV signals. Two horizontal rows of yellow LEDs indicate the VU level. The top row corresponds to the Left Input, and the bottom row corresponds to the Right Input. Levels above +3 dB on the VU scale switch to the red LED rows.

The VU meter incorporates an instantaneous Peak Hold function with a 2-second hold time. Peak Hold is enabled or disabled by pressing the NORM button. The peak value is displayed with a single LED for each channel. If the held peak value is greater than +12 dB on the VU scale, the +12 dB LEDs stay illuminated. In this case, the Input gain can be decreased until the peak value is not "stuck" at +12 dB. For a calibrated peak measurement, the input gain can be set to minimum, which sets the 0 dB mark on the VU scale to +16 dBu.

The Rane MIC 2 condenser microphone is a professional quality back-electret condenser microphone with an omnidirectional pickup pattern. This microphone is supplied with each RA 30, and connects to the front panel Mic Input jack *only*. The tapered aluminum mic housing fits most mic stand clips (one is included), and comes complete with a 25 foot (7.6 meter) cable to facilitate distant placement of the mic from the analyzer. These factory tested mics are flat to within 1 dB from 20 Hz to 16 kHz. An Aux Mic Input is provided on the rear panel, facilitating the use of other microphones.

The rear panel of the RA 30 includes a Pink Noise Output jack, Aux Mic Input (XLR), stereo Line Inputs (1/4" balanced, can operate in mono by using the left input only), and a recessed Pink Noise Level adjustment.

Features

- RTA, SPL Meter, and Stereo VU Meter in one rack space
- 30 IEC Class 2 Filter Bands from 25 Hz to 20 kHz
- 5-color LED display per band
- Digital Pink Noise generator
- Flat-response Microphone and clip with 25-foot cable

Rane MIC 2 (included)

- + $\pm 6/3/1$ dB Selectable RTA Scale with Normalize function
- Aux Microphone Input, Stereo or Mono Line Inputs
- A- & C-weighting switch in SPL mode
- · Peak Hold function in stereo VU mode
- Analyzer Sensitivity and Pink Noise Level controls



RA 30

REALTIME ANALYZER



Parameter	Specification	Limit	Units	Conditions/Comments
Cal Mic Input: Type	Active Unbalanced			3-pin XLR-Female type, pin 2(+)
Impedance	2k	1%	Ω	1 kHz
T Power Voltage	2	5%	VDC	Pin 2 of connector, 1 mA max
T Power Source Resist.	2.21k	1%	Ω	DC resistance
Line Inputs: Type	Active Balanced/Unbalanced	Right I	nput tied t	o Left Input when unplugged (Mono)
Connector	1⁄4" TRS	0		Tip=(+); Ring =(-); sleeve ch. gnd.
Impedance (Stereo/Mono)	10k / 5k	2%	Ω	each leg, 1kHz
	21		dBu	Input Gain centered, 1 kHz sine
Aux Mic Input: Type	Active Balanced/Unbalanced			3-pin XLR-Female type, pin 2(+)
Impedance	1k	1%	Ω	each leg, 1 kHz
	-16, 1 kHz sine		dBu	Trim = min; Input Gain = center
Overload	-20	±1	dBu	I II I I I I I I I I I I I I I I I I I
Input Gain Control: Range	-12 to $+12$	1	dB	
Center Gain	0	±0.5	dB	
	-50	max	dBFS	
Line Input: VU mode	-31	max	dBu	both channels 1 kHz sine
Line Input: RTA mode	-37	max	dBu	both channels 1 kHz sine
Aux Mic Input	-68	max	dBu	Trim - min: 1 kHz sine
Overload	-4	min	dBES	
Line Input: VII mode	17	min	dBu	both channels 1 kHz sine
Line Input: PTA mode	17	min	dBu	both channels 1 kHz sine
Aux Mic Input	20	min	dBu	Trim - mint 1 kHz sine
Dink Naisa Outputt Tuna	Active Unhelenced	111111	ubu	1/11111 = 11111111111111111111111111111
In Noise Output: Type	Active Onbaranced	10/	0	74 I KS
Ll		1%0	1D	
	$O_{\rm II}$ to +4		abu	1/ 1D
Pink Noise: Type	Pseudorandom (average)			¹ /2 dB error
	10/	typ.	sec.	
	4.9	typ.	25.11	
Real Time Analyzer: Type	30 bands, rms averaging		25 Hz to	20 kHz, ¹ / ₃ -octave centers
Scale	$\pm 1, \pm 3, \pm 6$ dB per row			User selectable
Range (max/min)	40 (100 @ Gain -12)		dB SPL	Pink noise source, Cal Mic Input
Filters	$\frac{1}{2} \frac{1}{2} \frac{1}$			IFC 61260 Class 2
Averaging Time Constant	Variable			TEC 01200 Class 2
VII motor Tuno				
0 dP point			JD.,	Insut Cain act to contor
	4			Input Gain set to center
	-10			
D	10			Input Gain set to minimum
	-31.5 to +12			re: 0 dB point
	1.5 per column		dВ	Accurate within 1.5 dB
Attack	300		msec.	To reach 0 dB indication
Decay	700 X		msec.	To reach -20 dB indication
Peak Hold Attack	Instantaneous			
I'eak Hold Decay	2	typ.	sec.	
SPL meter: Type	KMS averaging		ID OPT	
Range	51 to 120		dB SPL	Auto Kanging: 80, 100, 120 dB SPL
Resolution	1		dB	l
Data Sheet-2				



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Accuracy	±4		dB	Using Rane MIC 2 set to CAL
Weighting Filters	A- & C-weight			IEC-61672 Class 1, 20 Hz - 20 kHz
Averaging Time Constant	1000		msec.	IEC-61672 Time weighting S - Slow
Power Supply Requirement	18 VAC w/center tap	10%	Vrms	RS 1 (see data sheet)
Maximum Current	750		mA	Rms current from remote supply
Unit: Agency Listing				
120 VAC model	Class 2 Equipment			National Electrical Code
	UL			Exempt Class 2 equipment
	CSA			Exempt Class 2 equipment
230 VAC model	CE-EMC			EMC directive 89/336/EEC
	CE-Safety			Exempt per art. 1, LVD 73/23/EEC
Power Supply: Agency Listing				Class 2 equipment
120 VAC model	UL			File no. E88261
	CSA			File no. LR58948
	CE-EMC			EMC directive 89/336/EEC
	CE-Safety			LV directive 73/23/EEC
Unit: Construction	Steel			
Size	1.75"H x 19"W x 5.3"D (1U)			(4.4 cm x 48.3 cm x 13.3 cm)
Weight	4 lb			(1.8 kg)
Shipping: Size	4.25" x 20.3" x 13.75"			(11 cm x 52 cm x 35 cm)
Weight	9 lb			(4.1 kg)
Note: 0 dBu=0.775 Vrms				

Block Diagram



Data Sheet-3

RA 30

REALTIME ANALYZER

Rear Panel



PINK NOISE OUTPUT CLASS 2 EQUIPMENT UNBAL EVEL BALUNBAL CLASS 2 EQUIPMENT UNBAL EXTERNO

MIC 2 Details

The Rane MIC 2 Condenser Microphone is a professional quality back-electret condenser microphone with an omnidirectional pickup pattern. The MIC 2 uses the same element as Rane's MIC 1 which was sold with previous analyzers, but in a different casing.

The MIC 2 comes complete with a standard 25 foot (7.6 m) mic cable and clip to facilitate distant placement of the microphone from the analyzer. A zippered weather-resistant carrying/ storage bag is included for added convenience and protection. The MIC 2 is housed in a brushed aluminum case.

Like all condenser microphones, the MIC 2 must be powered before operating. The RA 30 provides this power.

The MIC 2 is supplied with the RA 30 Realtime Analyzer. A replacement may be ordered separately at www.rane.com.



MIC 2 Specifications

received, including interference that may cause undesired operation.

X

Architectural Specifications

The unit shall include functions of a realtime analyzer, sound pressure level meter, and stereo VU meter. The unit shall be contained in a rack mount chassis of one (1) rack space.

The RTA mode shall provide five LEDs for each of 30 bands using IEC 61260 class II filters covering 25 Hz to 20 kHz. User selectable 1, 3 & 6 dB RTA Scales shall be provided. A pink noise source with on/off button shall be provided. A normalize function shall set the 0 dB reference to the maximum band level.

The SPL meter mode shall include switchable A- or Cweighting filters. The maximum SPL shall be 120 dB.

The Stereo VU meter mode shall accept line-level inputs. The unit shall be able to calibrate to either +4 dBu or -10 dBV. The unit shall have a maximum VU of +12 dBu and a minimum VU of -31.5 dBu with a resolution of 1.5 dB. The VU meter shall provide an instant peak hold function with a 2 second hold time.

The unit shall have a front panel selector switch to choose the device input, including a calibrated microphone input, an auxiliary mic input, and left and right line inputs. The unit shall have input signal and overload indicators.

The unit shall have a built-in digital pseudorandom (pink noise) signal generator including a rear panel output and trim control, and a front panel on/off switch.

The unit shall come complete with an electret condenser microphone with a 25-foot cord packed in a carrying case.

The unit shall be capable of operation by means of an external power supply meeting CE requirements.

The unit shall be a Rane Corporation Model RA 30.

Parameter	Specification	Limit	Units	Conditions/Comments
Microphone Type	Back-Electret Condenser			6 mm capsule
Frequency Response	20 to 16,000	1	dB	+2 dB at 20 kHz
Polar Pattern	Omnidirectional			
Impedance	1.8k	5%	Ω	With 2.2 kΩ load
Sensitivity	-44	±3	dB	re 0 dB=1V/Pa, 1 kHz
	(6.3 mV @ 94 dB SPL)			1 Pa = 94 dB SPL
Maximum SPL	140		dB	1 kHz
Signal-to-Noise Ratio	58 (re 94 dB SPL)	min	dB	1 kHz, A-weighted
Phasing	Non-inverting	Positive diaphragm pressure equals positive output voltage		
Power: Voltage Range	1.5 to 6		VDC	T-power; absolute min and max ratings
Rated Voltage	2.0	10%	VDC	
Sensitivity Loss	-3 dB @ 1.5 VDC			
Current Demand	1	max	mА	@ 2.0 VDC
Cable	25 feet (7.6 meters)	2 conductor shielded; XLR-F to -M standard mic patch		
Case	6" x 9" (15.2 cm x 22.9 cm)			Zippered heavy black vinyl
Storage Temperature	-20 to 60		٥C	-4 to 140 °F
Operating Temperature	-18 to 50		٥C	0 to 122 °F
Relative Humidity	0 to 95		%	Operating or storage

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All features & specifications subject to change without notice. DOC 105551