



RDL®

High Performance Audio Products. Made in America.

RACK-UP® SERIES Model RU-RN04

Network to Mic/Line Interface 0x4



- Default Configuration Converts 4 Dante/AES67 Channels to Mic or Line Outputs
- 4 X 4 Mixing Matrix Signal Paths and DSP Filters Expand System Design Flexibility
- Ultra-Low Latency: 1 ms Digital to Analog
- Analog Outputs Connect through XLR or Detachable Terminal Block
- Terminal Block Connections may be Wired Balanced or Unbalanced
- One DSP Filter for Each Dante/AES67 Input
- Three DSP Filters for Each Analog Output
- Selectable DSP Filters: None, Hi-Pass, Lo-Pass, Shelf Hi/Lo, Notch Boost/Cut
- All DSP Filters are Fully Programmable
- Each Output Stage Receives Audio through a Four-Channel Mixer
- Each Output Mixer Source is Adjustable From Unity (Fully On) to OFF
- Analog Outputs are Protected from External Phantom Voltages up to P48
- Each Analog Output Equipped with a Selectable 180° Polarity “Phase” Inverter
- Each Analog Output Equipped with a Selectable Line to Mic Attenuator Pad
- Analog Outputs Adjust in 1 dB Steps Below +4 dBu Line or -46 dBu Mic Level
- Each Output Attenuator is Adjustable in 1 dB Steps 0 to -63 dB then OFF
- Remote Controllable Using Compatible RDL Remote Controls
- Multicolor LED Indication of Audio Levels, Sync and Signal Presence
- Operates at 48 kHz or 96 kHz with High Resolution 24 Bit D/A Conversion
- All Operating Parameters and Settings Programmed using RDL CONSOLE

The RU-RN04 modules are Dante/AES67 audio network interface products compatible with microphones and line-level audio equipment inputs and outputs. These modules are designed to be mounted in equipment racks, closets, conference tables and on shelves or backboards in commercial/industrial installations.

APPLICATION: The RU-RN04 has four Dante/AES67 network digital audio channel inputs and four analog mic/line outputs. Each output stage is driven by an incorporated mixer fed from all four RU-RN04 inputs. Independent control of all mixer levels plus multiple DSP filters with adjustable parameters make the RU-RN04 far more versatile than a basic format converter. Each DSP filter may be set to None (audio pass-through), High-Pass, Low-Pass, Shelf High/Low or Notch Boost/Cut. Multiple filters may be set to the same function to obtain higher order filtering.

The RU-RN04 factory default settings provide high-quality converters that feed professional line-level outputs from four Dante/AES67 network received audio channels. The RU-RN04 provides an XLR or a detachable terminal block for connection to each analog output. Normal operating line level is +4 dBu balanced for -18 dBFS. The balanced terminal blocks may be wired unbalanced.



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Network to Line Level Interface Settings (Factory Default)

The RU-RN04 receives four Dante/AES67 audio channels through the network. Each channel passes unaltered through a DSP filter (set to NONE), then through the four mixers associated with AUDIO OUTPUT 1, AUDIO OUTPUT 2, AUDIO OUTPUT 3 and AUDIO OUTPUT 4. All other inputs on those two mixers are set to OFF. The signals from the mixers pass unaltered through three DSP filters (set to NONE), a REVERSE POLARITY “phase” switch (set to OFF) and the OUTPUT ATTENUATOR that may be used as an output volume control. The line-level output is, by default, not routed through the LINE TO MIC ATTENUATOR PAD which may be enabled if the output is to feed the mic input of a mixer or amplifier.

Customized Settings

RDL CONSOLE network software provides a range of settings allowing the installer or user to reconfigure the RU-RN04.

Default settings, with only one mixer input turned up, effectively use the MIXER level adjustments to route audio. Turning up two or more mixer inputs can send a mix to the associated output. A common use would produce a mono sum from a stereo source.

Three programmable DSP FILTERs may be enabled and configured to adjust output equalization. If needed, the polarity of the audio output signal may be inverted by setting the REVERSE POLARITY switch ON.

Consult the RU-RN04 functional block diagram to explore the wide range of configurations made possible by the mixing matrix design.

Common Characteristics

The RU-RN04 can be powered from PoE (Power over Ethernet) or an external 24 V DC power supply, available separately. User volume level adjustment may be provided using compatible RDL remote controls, available separately.

The RU-RN04's superior performance specifications make it ideally suited to the most demanding installations, and an exceptional value in commercial networked audio systems.

The RU-RN04 is constructed in a durable, professional all-metal enclosure suitable for free-standing, surface-mounted or rack-mounted operation. This full-featured product is engineered and manufactured in the U.S.A. for continuous duty in demanding installations. Built to last. Built to outperform.



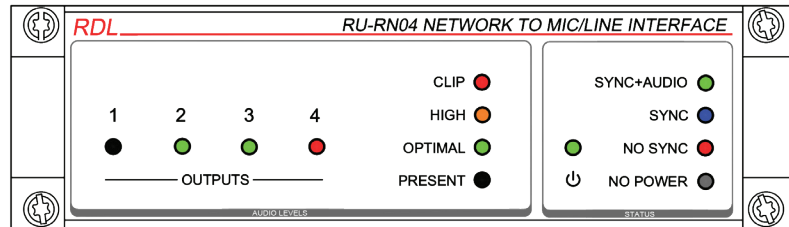
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ANALOG AUDIO LEVELS

Analog LED thresholds
(4ms refresh rate)

< -61	dBFS	OFF
-60 to -23	dBFS	WHITE
-24 to -11	dBFS	GREEN
-12 to -1	dBFS	ORANGE
-1 to 0	dBFS	RED

All operating functions and parameters of the unit are set using RDL Console software version 3.0 or newer.

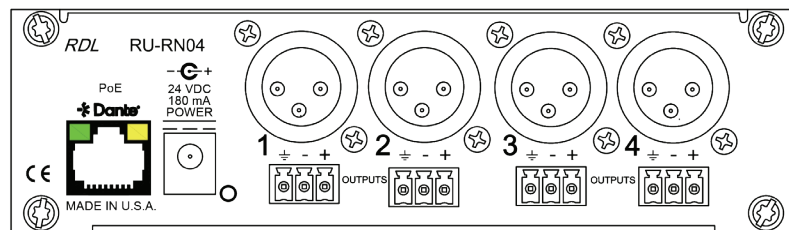
DEVICE STATUS

SYNC+AUDIO = (GREEN) when ANY DANTE / AES67 traffic is present.

SYNC = (BLUE) when device is synchronized to the network PTP leader.

NO SYNC = (RED) when device is not synchronized to the network PTP leader.

NO POWER = (OFF) when unit is not receiving valid power from either PoE or a locally connected 24 Vdc power supply.

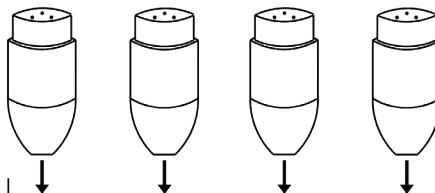


Green = Data Activity
Yellow = 100 Mbps
(Must be illuminated)

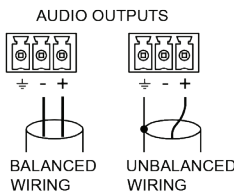
Connect optional 24 VDC Power Supply if unit is not to be PoE powered.

NETWORK CONNECTION

The analog audio connections can be made using EITHER the XLR or terminal block for each output.



Balanced XLR Outputs Provide Mic or Line Level Signals



Safety Instructions/Consignes de sécurité/
Instrucciones de seguridad/Sicherheitshinweise:



EU Importer:
Importateur de l'UE:
Importador de la UE:
EU-Importeur:

RDL Europe B.V.
Joan Muyskenweg 124
1114 AN Amsterdam

**For Software and Programming
Information See Product Page at
rdlnet.com**

Radio Design Labs Technical Support Centers

U.S.A. (800) 933-1780, (928) 778-3554 - Europe [NH Amsterdam-Duivendrecht] (+31) 20-6238 983

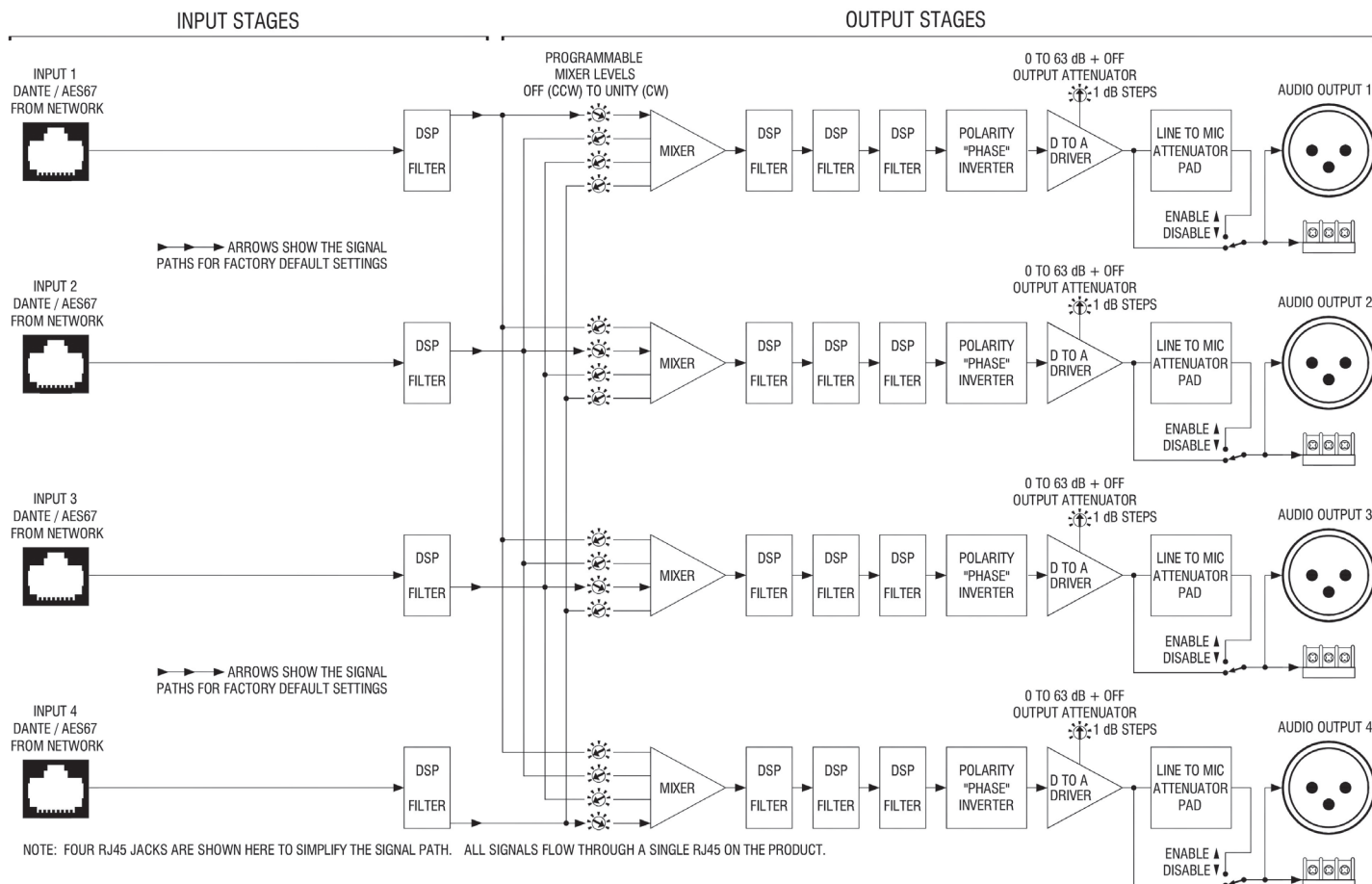


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Model RU-RN04 Network to Mic/Line Interface 0x4

Functional Block Diagram



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RU-RN04 NETWORK TO MIC/LINE INTERFACE
REV A



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Installation/Operation



Declaration of Conformity available from rdlnet.com.
Sole EMC specifications provided on product package.
Specifications are subject to change without notice.

TYPICAL PERFORMANCE

Network Connector:	RJ45 with Link and Speed indicators
Digital Audio Ethernet Protocol:	Dante or AES67
Transmission Rate:	100 Mbps
Sample Rates Supported:	44.1 kHz, 48 kHz (default), 88.2 kHz, 96 kHz
Bit Depth Supported:	24 bits
Audio Operating Level:	-18 dBFS = +4 dBu
Reference Level:	0 dBFS = +22 dBu
Outputs (4):	Balanced, XLR (male) or Detachable Terminal Block (may be wired unbalanced)
Output Attenuation Pads (4):	Software-selectable, Line Output (no attenuation), Mic Output (50 dB attenuation)
Output Level (operating):	Line: +4 dBu (nominal) balanced; Mic: -46 dBu (nominal) balanced
Output Level (maximum):	Line: +22 dBu balanced; Mic: -28 dBu balanced
Output Attenuators (4):	Software-controlled, 0 to -63 dB and OFF, 1 dB steps (per analog output)
Output Impedance:	150 Ω balanced
Frequency Response:	20 Hz to 20 kHz (+0, -0.75 dB)
THD+N:	< 0.01% (20 Hz to 20 kHz, +4 dBu/-18 dBFS)
Noise below -18 dBFS (20 to 20 kHz):	< -85 dB (20 Hz to 20 kHz, +4 dBu/-18 dBFS); < -103 dB (below +22 dBu)
Crosstalk:	Below Noise Floor (1 kHz at operating level, output to output); < -74 dB (20 Hz to 20 kHz)
Headroom above +4 dBu:	> 18 dB
Indicators (7):	Ethernet Link and Speed (2, rear panel); Signal per audio channel and Power (5, front panel)
Ambient Operating Environment:	0° C to 40° C
Power Requirement:	PoE Class 0, IEEE 802.3af, or 24 Vdc @ 180 mA (4.3 W)
Specification Conditions:	Gain/Level $\pm$ 1 dB; Source termination 150 Ω
Dimensions:	5.74" (14.58 cm) W; 1.64" (4.17 cm) H; 6.4" (16.26 cm) D
Package Type:	Cardboard Box
Package Dimensions:	3.25" (8.26 cm) H X 7.8" (19.8 cm) W X 7.25" (18.4 cm) D
Shipping Weight:	2.14 lbs. (0.97 kg)
WEEE weight:	1.78 lbs. (0.81 kg)