

## Model DD SERIES-RN31 Wall-Mounted Bi-Directional Mic/Line Dante Interface 4x4

- Dante Network Interface for Four Audio Inputs and Four Audio Outputs
- One Mini-jack, Two RCA Jacks and Two XLR Front-Panel Inputs
- One Mini-jack Front-Panel Output; Two Balanced Outputs on Rear-Panel Terminal Block
- Module is Configured and Adjusted Using Network Control Software
- Converts Two Standard XLR Mic or Line Audio Sources to Dante Network Channels
- Each Input Gain is Selected by Software
  - Mic Gain: 35 dB, 42 dB or 59 dB
  - Line Gain: Unity or 12 dB
- 48 V Mic Phantom (P48) Selected by Software
- Each Mini-jack and RCA -10 dBV Input May Feed One or Two Dante Network Channels
- Converts Four Dante Network Audio Signals to Line Level
- Mini-jack -10 dBV Stereo Output from Two Specific Dante Channels
- Rear Panel Balanced Outputs from Two Specific Dante Channels
- Each Rear Panel +4 dBu Output Equipped with Software Controlled Attenuator in 1 dB Steps
- Studio Quality, Low-Noise Performance
- High Resolution 24 Bit Analog to Digital and Digital to Analog Conversion
- Legendary RDL Analog Filtering Enhances Superb Audio Performance



**APPLICATION:** The DD-RN31 is a complete wall-mounted Dante audio network interface. It features two XLR mic or line inputs, one stereo Mini-jack line input, left and right RCA jack inputs and one stereo Mini-jack line output on the front panels, plus two line outputs on a rear-panel detachable terminal block. The module is configured and adjusted using RDL CONSOLE or other network control software. The DD-RN31 fits a standard US dual-gang electrical box or an RDL WB-2 back box for installations in thinner European or equivalent walls. The DD-RN31 is PoE powered, and is available in multiple finishes with optional customized graphics.

### Mic/Line to network section

The two XLR inputs are each converted to a separate Dante network transmit channel. Gain settings are software-selectable for both the mic and line input ranges to match condenser or dynamic mic levels and standard line levels. P48 phantom voltage may be software enabled when an input is set for mic level.

### Line to network section

The Mini-jack and RCA jack left and right inputs each provide a network digital audio level of -18 dBFS for an unbalanced -10 dBV input. The control software allows each of these inputs to feed either or both of two Dante channels. Multiple sources fed to a single Dante output are summed.

### Network to line section

Two Dante audio channels are converted to unbalanced line level to feed the front-panel Mini-jack. Each channel provides -10 dBV unbalanced for a network digital audio level of -18 dBFS.

Two Dante audio channels are converted to balanced line level on the rear-panel detachable terminal block. Each output provides +4 dBu balanced for a network digital audio level of -18 dBFS.

Valid PoE power and synchronization to the Dante network are indicated by green LEDs visible from the front of the unit.

The DD-RN31 is a professional grade product with RDL mic preamplifiers for studio quality fidelity and low noise performance, coupled through XLR jacks housed in a steel chassis with dual powder-coated or stainless steel Decora® front plates.

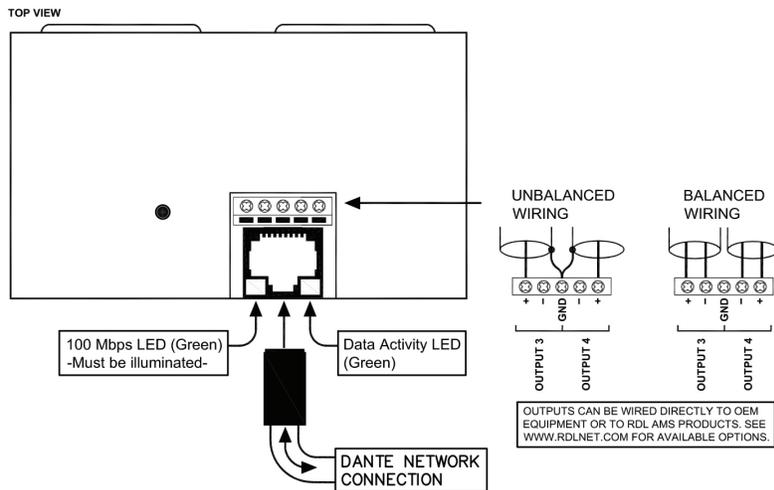
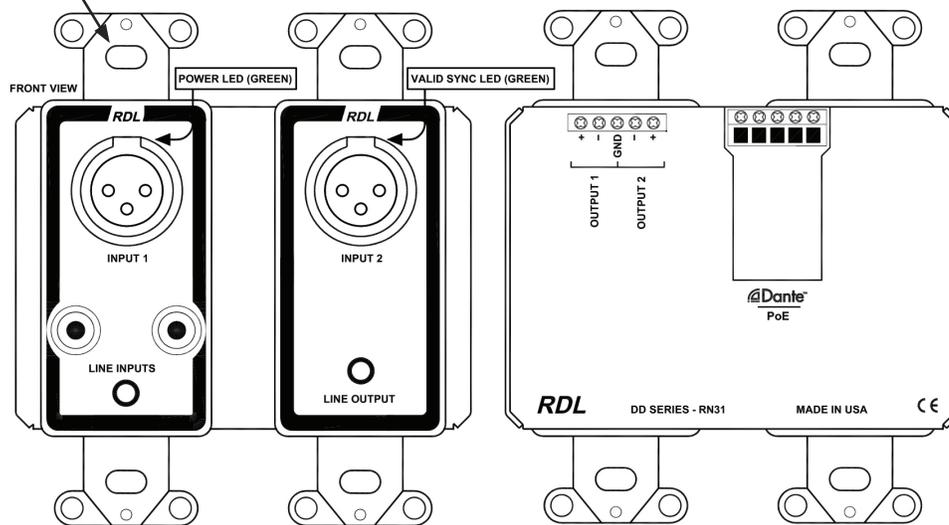
The DD-RN31's superior performance specifications make it ideally suited to the most demanding installations, and an exceptional value in commercial networked audio systems. This full-featured product is engineered and manufactured in the U.S.A for continuous duty in demanding installations. Designed to outperform. Built to last.

**Model DD SERIES-RN31  
Wall-Mounted Bi-Directional  
Mic/Line Dante Interface 4x4**

**Installation/Operation**

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

Fasten this unit into a wall box or chassis by threading the four mounting screws (included) into the corresponding holes in the wall box/chassis.



This product is not specified to provide basic insulation from network cabling not installed wholly within the same building structure or terminated on equipment earthed to a different earthing network.

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### TYPICAL PERFORMANCE

Network Connector: RJ45 with Link and Speed indicators  
 Digital Audio Ethernet Protocol: Dante  
 Transmission Rate: 100 Mbps  
 Sample Rates Supported: 44.1 kHz, 48 kHz (default)  
 Bit Depth Supported: 24 bits  
 Audio Operating Level: -18 dBFS = +4 dBu  
 Reference Level: 0 dBFS = +22 dBu

#### Mic/Line Inputs to Network Interface

Inputs (2): XLR (female)  
 Gain: Mic: 35 dB (LOW), 42 dB (MED), 59 dB (HIGH);  
 Line: Unity (NORM), 12 dB (HIGH)  
 Input Level (for +4 dBu/-18 dBFS): Mic: -31 dBu (LOW), -38 dBu (MED), -55 dBu (HIGH);  
 Line: +4 dBu (LOW), -8 dBu (HIGH)  
 Input Level (maximum): Mic: -14 dBu (LOW), -21 dBu (MED), -38 dBu (HI);  
 Line: +23 dBu (LOW), +10 dBu (HIGH)  
 Input Impedance: > 1.2 kΩ  
 Phantom Power: P48, 48 Vdc, software-selectable  
 Standard for Phantom: IEC 61938: 2013  
 Selectors per input (2): Phantom, Gain, software-selectable  
 Frequency Response: 20 Hz to 20 kHz (± 0.5 dB)  
 Equivalent Input Noise: < -128 dBu (59 dB gain); < -130 dBu A-Weighted  
 Noise below -18 dBFS (20 to 20 kHz): Mic: < -88 dB (LOW), < -82 dB (MED), < -68 dB (HIGH); Line: < -88 dB (NORM), < -88 dB (HIGH)  
 THD+N: < 0.1% (20 Hz to 20 kHz, +4 dBu/-18 dBFS)  
 CMRR: > 65 dB (50 Hz to 120 Hz)  
 Crosstalk: Below Noise Floor (20 Hz to 20 kHz at operating level, any input to any input, max. mic gain)

#### Line Inputs to Network Interface

Inputs (4): Mini-jack Stereo (2, L and R); RCA jacks (2, L and R)  
 Input Level (for +4 dBu/-18 dBFS): -10 dBV nominal  
 Input Level (maximum): +8 dBV  
 Input Impedance: > 50 kΩ  
 Selectors: Stereo (L and R)/Mono (summed), software-selectable

Frequency Response: 20 Hz to 20 kHz (± 0.2 dB)  
 Noise below -18 dBFS (20 to 20 kHz): < -85 dB  
 Crosstalk: < -85 dB (1 kHz);  
 < -65 dB (L into R, R into L, 20 Hz to 20 kHz)  
 < 0.05% (20 Hz to 20 kHz, +4 dBu/-18 dBFS);  
 0.01% at 1 kHz (typ)  
 THD+N:

#### Network to Line Outputs

Outputs (4): Balanced, detachable terminal block (2);  
 Unbalanced, Mini-jack (2, L and R)  
 Output Level (operating): +4 dBu (nominal) balanced,  
 software adjustable in 1 dB steps;  
 -10 dBV (nominal) unbalanced  
 Output Level (maximum): +22 dBu balanced; +8 dBV unbalanced  
 Output Impedance: 150 Ω balanced, 100 Ω unbalanced  
 Frequency Response: 20 Hz to 20 kHz (± 0.5 dB)  
 THD+N: < 0.05%  
 Noise: < -88 dB (bal., below +4 dBu);  
 < -106 dB (bal., below +22 dBu);  
 < -90 dB (unbal., below -10 dBV)  
 < -70 dB (bal., 20 Hz to 20 kHz);  
 < -80 dB (unbal., 20 Hz to 20 kHz)  
 Crosstalk:  
 Indicators (4): Ethernet Link and Speed (2, rear panel);  
 Sync and Power (2, front panel)  
 Ambient Operating Environment: 0° C to 40° C; 30° C maximum recommended  
 Power Requirement: PoE Class 0, IEEE 802.3af  
 Specification Conditions: Gain/Level: ± 1 dB; Source termination:  
 150 Ω; A to D values measured in digital domain  
 Dimensions: 3.52" (8.94 cm) W; 4.11" (10.44 cm) H;  
 2.09" (5.31 cm) D  
 Package Type: Cardboard Box  
 Package Dimensions: 3.625 x 4.625 x 2.125 in.  
 Shipping Weight: 0.92 lbs.  
 WEEE weight: 0.765 lbs.  
 Tariff code: 8543.70.9100

### Equivalent Gain Settings for Dante Products

Digital signal levels in a Dante network are measured in dBFS (dB referenced to the maximum output or clipping level). The nominal standard reference levels used in professional audio products are: 0 dBFS = +22 dBu to +24 dBu. Some OEM industry products do not specify their reference and use a non-standard reference such as 0 dBFS = +2 dBu. The following table shows the most closely equivalent gain settings that equate to the gain settings of products using a 0 dBFS = +2 dBu reference:

### Software Settings for MIC/LINE balanced inputs

#### Non-Standard Reference (OEM)

#### Gain Setting

-18 dB  
 -3 dB  
 --- (condenser mics)  
 25 dB  
 40 dB

#### RDL DD-R Products

#### Gain Setting

Unity  
 12 dB  
 35 dB  
 42 dB  
 59 dB

#### MIC/LINE Setting

Line  
 Line  
 Mic  
 Mic  
 Mic

### Radio Design Labs Technical Support Centers

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