

## 35 Watt Mixer Amplifier

HIGH EFFICIENCY MADE IN U.S.A.

- Three inputs with individual front-panel volume controls
- Bass and Treble tone controls
- Designed for background music with paging and music-on-hold
- Master volume VCA controlled with remote adjustment capability
- Manual or automatic (VOX) priority ducking
- Balanced inputs and amplified outputs on detachable terminal blocks
- Unbalanced inputs and outputs on RCA jacks
- Includes power supply
- High-efficiency Class D operation



**HD-MA35**  
4 Ω / 8 Ω



**HD-MA35A**  
25 V, 70 V, 100 V

The HD-MA35 is a three input audio mixer amplifier for systems demanding a broad range of features and high energy efficiency. Two output power amplifier zones are provided, 35 W (Zone 1) and 2 W (Zone 2). The Zone 1 output is driven from a high-efficiency Class D amplifier stage. The Zone 1 amplifier output level may be VCA controlled using various optional RDL remote controls, or by industry standard 0 to 10 Vdc or 0 to 10 kΩ controls. This output drives 4 Ω or 8 Ω speakers. The output impedance is switch-selectable on the rear panel. The Zone 2 amplifier output drives an 8 Ω speaker and/or 600 Ω telephone equipment. The HD-MA35A has all the features of the HD-MA35 except its 35 W (Zone 1) amplifier provides a constant voltage output (25 V, 70 V or 100 V) instead of a low impedance speaker output. The HD-MA35 is engineered and manufactured in the U.S.A.

The HD-MA35 features two mixers. The Zone 1 mixer is located on the front-panel providing user level and tone controls for the 35 W amplifier output. The tone controls adjust the equalization at the Zone 1 amplifier output. The Zone 2 mixer on the rear panel provides level trimmers normally set by the installer to provide music-on-hold and/or for background music in a small zone equipped with an 8 Ω speaker. The Zone 2 section includes a 2 W amplifier and a 600 Ω transformer-balanced MOH output.

The HD-MA35 has three inputs that are common to both mixers. Input 1 accepts a balanced mic or line level source. Inputs 2 and 3 accept unbalanced mono or stereo line-level sources.

- ▶ Input 1 is switch-selectable MIC or LINE. Phantom voltage (IEC standard 24 Vdc) is switch-selectable for the microphone input. The line input is transformer isolated and accepts balanced or unbalanced, high or low impedance audio sources.
- ▶ A paging source is normally connected to Input 1. This input is equipped with push-to-talk terminals and with an adjustable threshold VOX circuit with LED threshold indicator, either (or both) of which may be set to duck ("fade down" or "mute") inputs 2 and/or 3 by 25 dB when a paging signal is active on Input 1. The attenuated inputs fade up to normal volume when the paging message is finished.
- ▶ Inputs 2 and 3 each provide unbalanced stereo RCA input jacks, summed to mono.

The HD-MA35 is equipped with a master VCA for remote adjustment of the Zone 1 amplifier output. A detachable terminal block is provided for direct connection of an optional RDL remote level control.

A balanced line-level output is provided on a detachable terminal block to feed the inputs of other audio equipment or power amplifiers. Ground-referenced 24 Vdc power is available on a rear-panel terminal block to power an optional external RDL module which may be mounted on the panel space provided. External module type examples: audio filtering or processing, mixing, isolation, twisted-pair sender/receiver.

The Zone 1 amplifier includes an analog compressor/limiter for audio fidelity noticeably superior to conventional class D amplifiers with digital limiting. Increasing the input gain can substantially increase the average output power beyond that of a standard 35 W amplifier. A red front-panel LED flashes when the compressor is preventing output clipping. Normal audio level signals remain unaffected by the compressor thereby preserving audio dynamics. The audio is compressed according to three dynamic time constants providing aural transparency while maintaining clean, unclipped amplified audio for input overloads of up to 20 dB. The HD-MA35, with compression, is capable of producing average audio output levels and clarity normally expected from amplifiers with a much higher output power rating.

A blue POWER LED illuminates when the HD-MA35 is powered from its external 24 Vdc power supply (included). The power LED is dim when the mixer amplifier is in the standby mode, and is bright when the amplifiers are fully active. A front-panel pushbutton is provided to manually switch between standby and active modes. The power amplifiers are equipped with both thermal and output short-circuit protection. The high-efficiency Class D output stage produces minimal heat for all levels of expected voice or music modulation.

# HD-MA35 & HD-MA35A

## Audio Mixer Amplifiers

HD-MA35: Low Impedance Output 4 or 8  $\Omega$

HD-MA35A: Constant Voltage Output 25 V, 70 V or 100 V

### INPUT 1 LEVEL CONTROL

Adjusts the Input 1 level for the 35 W (Zone 1) output. Input 1 is normally fed from the paging source: mic, line or telephone system.

### INPUTS 2 and 3 LEVEL CONTROLS

These controls adjust the Input 2 and 3 level for the 35 W output. These inputs are normally used for music or wireless mic sources on RCA jacks.



### TONE CONTROLS

User controls adjust bass and/or treble boost or cut.

RLC10K



Remote Control Examples

RLC10KMS



### RDL REMOTE CONTROLS

Multiple RDL remote controls are available to allow user adjustment of master output level. Remote controls sold separately.

### SIGNAL PRESENT INDICATORS

An LED for each input glows if an audio signal is present at the associated input. The LED is not affected by the level control.

### COMPRESSION LED

LED flashes when audio compressor is acting on the amplified audio.

### POWER BUTTON

Latching pushbutton turns the amplifier ON or off (STANDBY).

### POWER INDICATOR

Glow dimly when the amplifier is powered and is in standby (off) mode; glows bright when amplifier is on.

- Audio Mixer Amplifier with Three Inputs
- Primary “Zone 1” Amplifier: 35 W RMS
- Output Impedance Switch-Selectable 4  $\Omega$  or 8  $\Omega$  (HD-MA35)
- Constant Voltage Outputs 25 V, 70 V, 100 V (HD-MA35A)
- Secondary “Zone 2” Amplifier: 2 W into 8  $\Omega$  and 600  $\Omega$  Transformer
- One Balanced Switch-Selectable Mic/Line Input
- Two Unbalanced Stereo-Summing Line Inputs
- Front-Panel Mixer with Tone Controls for Zone 1
- Selective Input Ducking from Paging VOX or Contact Closure
- Balanced Inputs and Outputs on Detachable Terminal Block

- Master VCA Control on Detachable Terminal Block
- Compatible with RDL Remote Level Controls
- Transformer-Isolated Telephone/Line Input and Output
- Aurally Transparent Compressor Controls Clipping
- Compressor Maximizes Average Output Power and Level
- Audio Compression Threshold LED
- Rear-Panel Mixer Using Audio Gain Trimmers for Zone 2
- Zone 1 Amplifier Features High-Efficiency Class D Operation
- Thermal and Short-Circuit Protection

**OUTPUT IMPEDANCE**  
Set output impedance to match a 4 Ω or 8 Ω load.

**ZONE 1 OUTPUT**  
35 Watt 4 Ω or 8 Ω amplified output.

**ZONE 2 MIXER**  
Adjusts Input 1 thru 3 levels for all Zone 2 outputs.

**DUCKING SENSITIVITY**  
Set VOX sensitivity for INPUT 1 signal using threshold LED. Set fully CCW to disable automatic ducking.

**RDL MODULE**  
Space is provided to mount an RDL STICK-ON® module. Power is provided for the module. RDL TX™ modules also fit in the module space.

**DUCKING SELECTORS**  
INPUT 1 takes priority by ducking selected input(s) 2 and/or 3. Ducking affects Zone 1 outputs.

**MIC PHANTOM SWITCH**  
Turn 24 Vdc phantom voltage on or off for Mic Input 1.

**MIC / LINE SWITCH**  
Set input 1 to accept a MIC or LINE source.

**MIC OR LINE INPUT 1**  
Connect a balanced or unbalanced mic or line. Mic may be dynamic or condenser. Line input is transformer balanced.

**MANUAL DUCKING TERMINALS**  
Open-collector-to-ground or mechanical switch closure gives priority to INPUT 1 by ducking inputs 2 and/or 3 (set using Ducking Selectors).

**LINE OUTPUT**  
Zone 1 balanced line output feeds +4 dBu inputs of additional RDL HD-series amplifiers or other equipment. This output is unaffected by the tone controls or VCA.

**MASTER VCA REMOTE CONTROL**  
Connect an RDL wall-mounted remote control to adjust the 35 W (Zone 1) output master level.

**MODULE POWER**  
24 Vdc 100 mA

**ZONE 2 AMPLIFIER OUT**  
2 W 8 Ω amplified output from zone 2 mixer.

**ZONE 2 LINE OUT**  
600 Ω transformer-isolated line output from zone 2 mixer.

**LINE INPUTS 2 & 3**  
Connect music or wireless mic receiver. Actively sums stereo sources.

**24 VDC POWER INPUT**  
Insert plug from the included power supply. Rotate 1/4 turn clockwise to lock.

**ZONE 1 OUTPUT**  
35 Watt 25 V, 70 V or 100 V amplified output.

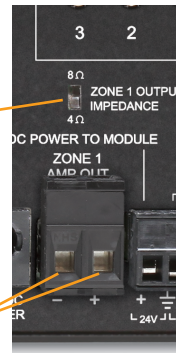
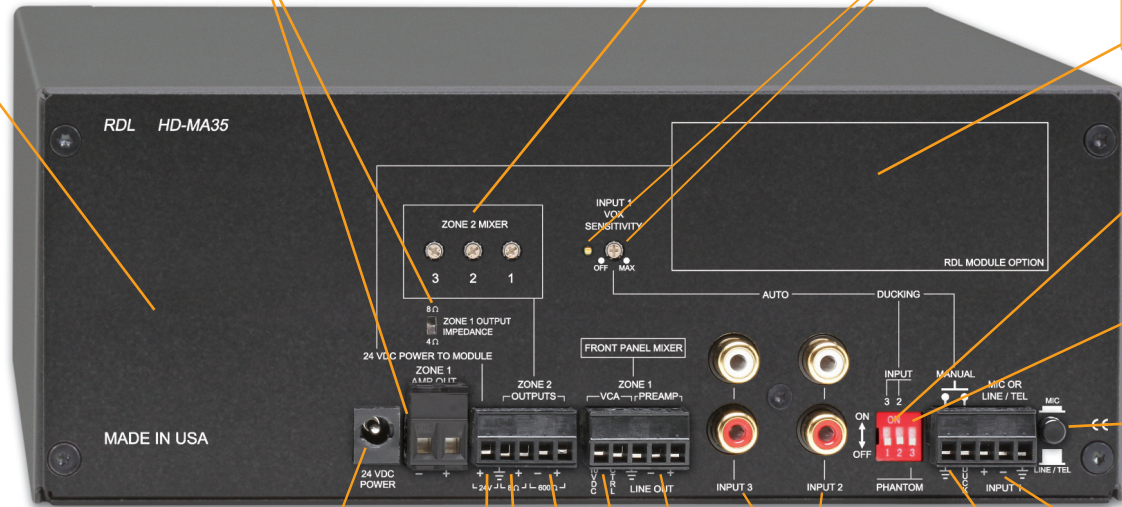
**SECURITY COVER**  
Slides over the wired constant voltage terminal block to prevent accidental contact. Secured by tightening a single screw.

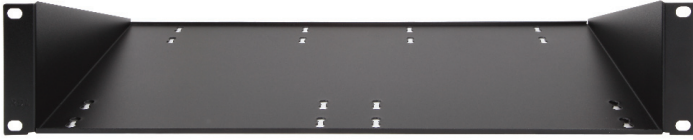
**WIRE ACCESS**  
Wires enter through the bottom of the cover.

**OUTPUT DETAIL HD-MA35A**



**OUTPUT DETAIL HD-MA35**





**HD-RA2 Rack Adapter**

Mounts 2 HD series products. Mixer amplifiers may be mounted forward for user control, or may be recessed securely behind a filler panel.



Amplifier mounted in HD-RA2



**HD-BP1 BACK-PACK Rear Cover**

Mounts to an HD series mixer / amplifier to prevent user access to the rear panel. The back-pack holds the power supply and provides a completely closed back for the installed amplifier.



Inside View with Power Supply



BACK-PACK Installed on Mixer Amplifier

Rear View



**HD-FP1 Filler Panel**

Fills an unused half of rack adapter or mounts in front of an HD series product to prevent user adjustment or tampering.



Amplifier mounted behind HD-FP1



**HD-FP2L Filler Panel with Lens**

Mounts in front of an HD series product to allow viewing while preventing user adjustment or tampering. Lens is removable during setup.



Amplifier mounted behind HD-FP2L



**HD-ASC1 Amplifier Security Cover**

Mounts to an HD series mixer / amplifier to prevent user adjustment or tampering. The power button and associated indicators remain accessible with the HD-ASC1 installed.



HD-ASC1 mounted to an amplifier

**TYPICAL PERFORMANCE**

Amplifier Zones (2): Zone 1 (Main): 35 W RMS, front-panel mixer (user controls); Zone 2: 2 W RMS (8 Ohms), rear-panel mixer (trimmers)  
 Audio Inputs (3): Balanced, mic or line switch selectable on terminal block; 2, unbalanced stereo summing inputs on RCA jacks  
 Maximum Input Level: Mic input: -11.5 dBu; Balanced line input: + 19 dBu; Unbalanced Inputs: + 9 dBV (+15.5 dBV, one input); (for 1% THD+N at output)  
 Phantom Voltage: 24 Vdc (IEC 1938: 1996-12), switch-selectable for the mic input  
 Ducking/Muting Actuation: Automatic (Input 1 VOX: rear-panel adjustable signal threshold with LED indicator) or Manual (contact closure to ground)  
 Ducking/Muting Release Delay: 4 seconds, nominal  
 Ducking/Muting: Switch-selectable for inputs 2 and/or 3, 25 dB ducking attenuation, nominal  
 External RDL Module Power Output: 24 Vdc, 100 mA maximum, ground-referenced  
 Input level: (to cross compressor threshold equaling 23 W amplified output)  
 Mic Input: -50 dBu (2.5 mV), (front panel gain at max.)  
 Balanced line input: -21 dBu (70 mV), (front panel gain at max.)  
 Unbalanced Inputs: -15 dBV (180 mV, front panel gain at max., both inputs driven)  
 Noise (line output): Mic input: -68 dB, Balanced line input: -72 dB (below compressor threshold at max gain); Unbalanced Inputs: <-85 dB (max gain)  
 Noise (amplified outputs): Mic input: -68 dB, Balanced line input: -72 dB (below compressor threshold at max gain); Unbalanced Inputs: <-75 dB (max gain)  
 THD+N: < 0.5% (1 kHz at compressor threshold, main amp output); < 0.25% (line output, main)  
 CMRR: Mic input: > 50 dB (50 Hz to 120 Hz); Balanced line input: > 80 dB (50 Hz to 120 Hz, transformer-coupled input)  
 Compressor: Threshold 2 dB below rated output, automatically adjusting attack and release times  
 Frequency Response (mixer): Mic to line output: ± 1.5 dB (40 Hz to 25 kHz); Balanced line input to line output: ± 1 dB (20 Hz to 20 kHz); Unbalanced line input to line output: ± 0.5 dB (20 Hz to 20 kHz)  
 Frequency Response (Zone 1 amplifier): Constant voltage: ± 3 dB (50 Hz to 18 kHz); 4/8 Ohm: ± 1 dB (50 Hz to 20 kHz)  
 Frequency Response (Zone 2 amplifier): 8 Ohm: ± 1.5 dB (50 Hz to 20 kHz); 600 Ohm: ± 1.5 dB (30 Hz to 18 kHz)  
 Tone Controls: ± 10 dB @ 10 kHz, ± 9 dB @ 100 Hz (front-panel) with center detent  
 Audio Outputs (2): +4 dBu nominal (1.23 V), balanced, terminal block (FLAT); 0 dBu nominal balanced, terminal block (zone 2 mixer, 600 Ohm output)  
 MOH Output: 0 dBu nominal (775 mV), 600 Ohm transformer-isolated, > 16 dB headroom  
 Power Amplifier Outputs (2): HD-MA35: Zone 1 (main, <1% THD+N): 35 W RMS (4 Ohms), 32 W (8 Ohms) on detachable terminal block (switch-selectable 4 or 8 Ohm impedance); HD-MA35A: Zone 1 (main): 35 W RMS (25, 70 or 100 V); Zone 2: 2 W (8 Ohms, on detachable terminal block)  
 Indicators (6): Front-panel: Signal present (3; 1 per input, green), Compressor activity (red), Power (bright=on, dim=standby, blue); Rear-panel: Ducking/muting threshold (yellow)  
 VCA: Zone 1 (main) master level, 0 to 10 Vdc control, detachable terminal block (compatible with RDL VCA wall controls)  
 Front-panel controls (6): Zone 1 (main) mixer level controls (3, inputs 1 through 3), EQ (2, bass and treble), Power (latching pushbutton, on/standby)  
 Rear-panel controls (9): Mic/Line switch (Input 1), Input 1 ducking/muting detector sensitivity trimmer, Phantom voltage switch (Input 1), Ducking control switches (2, to duck inputs 2 and/or 3), Zone 2 mixer level controls (3, inputs 1 through 3), HD-MA35: Output impedance switch 4 or 8 Ohms  
 Ambient Operating Environment: 0° C to 50° C Maximum; 20° C Recommended  
 Power Supply (included): 100 to 240 Vac, 50-60 Hz, 50 W, 24 Vdc output to amplifier chassis  
 EMC: **CE**  
 Dimensions and Weight: Height: 3.5 in.(8.89 cm); Width: 8.5 in.(21.6 cm); Depth: 6.75 in.(17.1 cm); Weight: 4.5 lb.(2 kg) (HD-MA35), 6 lb.(2.7 kg) (HD-MA35A)