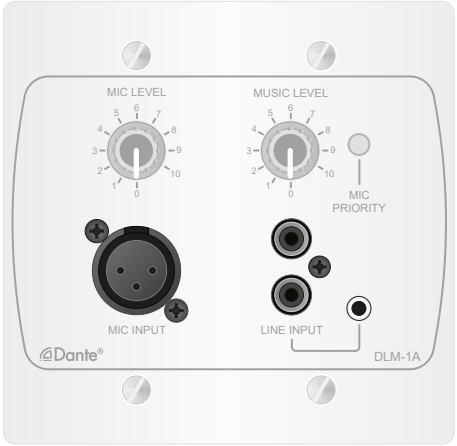
DLM-1 SERIES
Remote Dante™ Mic/Line Input Modules

Clearly better sound

DLM-1: UK version

DLM-1W*

DLM-1: US version



DLM-1AW*

* black modules also available.

General Description

The DLM-1 Series is a range of remote mic/line input modules for use in a Dante-compatible network audio system. A DLM-1 module allows a microphone and/or a stereo music (or other line level) source to be connected at a remote location. The music input is mixed with the mic signal and the resulting output appears as a mono Dante channel at a standard RJ45 Ethernet port. Typically, the Dante channel will then be routed via the Dante network to the audio system (a Dante-equipped amplifier or mixer) feeding the speakers in the area where the module is fitted. Selectable mic-over-music priority is provided.

The DLM-1 can be used in any Dante network, or Dante-compatible network. This includes the Cloud CA Series and CV Series of advanced multichannel power amplifiers when they are fitted with a CDI-CA or CDI-CV Dante interface card.

Applications

In many installations, the host unit will normally be located in a rack along with other audio equipment, and will not be readily accessible. Installing a DLM-1 module in a Zone provides the user with the ability to connect a microphone in the Zone itself via an XLR socket, and also to connect a wide variety of local stereo line level audio sources such as portable music systems, CD players, laptops, MP3 players, DJ mixers, radio mic receivers, etc. Music sources may be connected via either a pair of phono sockets or a 3.5 mm stereo jack socket. The L and R line inputs are summed to mono, and the signal at the jack input is combined with that at the phonos. The mic and music inputs are mixed, with independent control of mic and music level using faceplate controls. The mixing ability makes the DLM-1 particularly useful for Karaoke.

A faceplate MIC PRIORITY button gives the microphone input priority (30 dB of ducking) over the stereo line input. A DIP switch at the rear of the module inserts a 120 Hz hi-pass filter into the mic signal path, to help reduce unwanted low-frequencies which can result from heavy breathing or poor microphone handling.

Multiple DLM-1s may be "daisy-chained" together to provide additional input points in the same Zone. The chaining is enabled virtually in Dante Controller and permits the Dante output of one DLM-1 to be routed to the input of another, which then combines the Dante audio with its own audio inputs.

The DLM-1 is available in two form factors to suit UK or American styles of electrical back box. The module is powered via PoE (Power over Ethernet) via standard Cat 5 Ethernet cabling.

DLM-1 key features

- Remote mic/line input module, for use with all Dante-compatible networks
- AES67 compliant for interoperability with alternative (non-Dante) networks
- Easy connection to network via RJ45 and standard Cat 5 cable
- Powered via PoE – no local PSU required
- Network speed and activity LEDs (on RJ45)
- Balanced mic input (XLR) with level control
- Stereo, unbalanced line level input (phonos/RCA), with independent level control
- Alternative line input on 3-pole 3.5 mm jack socket
- Active mixing of mic and line signals
- Selectable mic-over-music priority
- Selectable hi-pass filter on mic input to reduce handling noise, etc.
- Multiple DLM-1s in the same Zone may be linked using Dante Controller

Versions

Four versions of the DLM-1 are available; they are electrically identical and differ only in style and appearance. Versions available are:

- DLM-1W – to fit UK back boxes, white finish
- DLM-1B – to fit UK back boxes, black finish
- DLM-1AW - to fit US back boxes, white finish
- DLM-1AB – to fit US back boxes, black finish

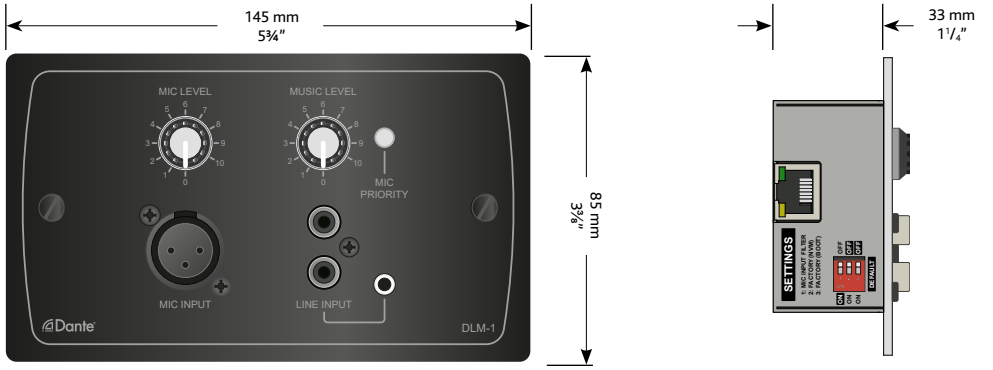
The DLM-1W and DLM-1B mount into a standard dual-gang UK-style electrical back box (85 x 145 mm).

The DLM-1AW and DLM-1AB mount into a standard dual-gang US-style box (114 x 114 mm/4½" x 4½").

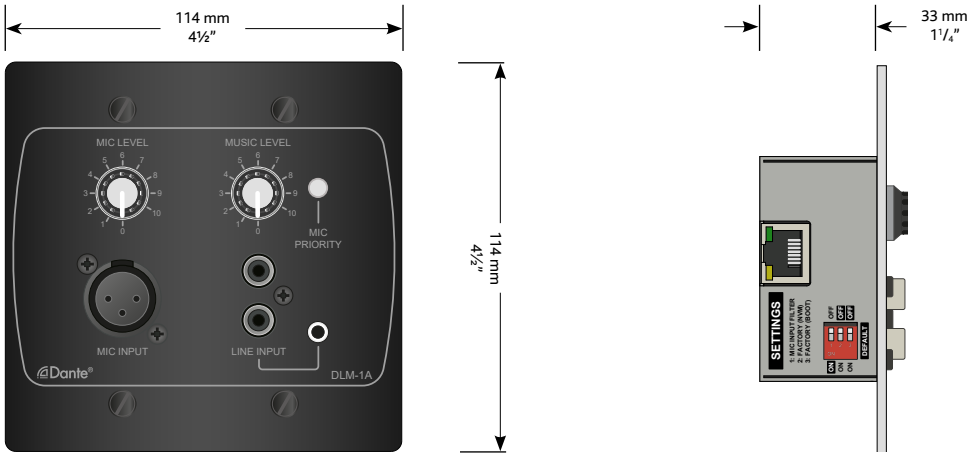
All versions require a back box depth of 35 mm minimum.

Dimensions

DLM-1B



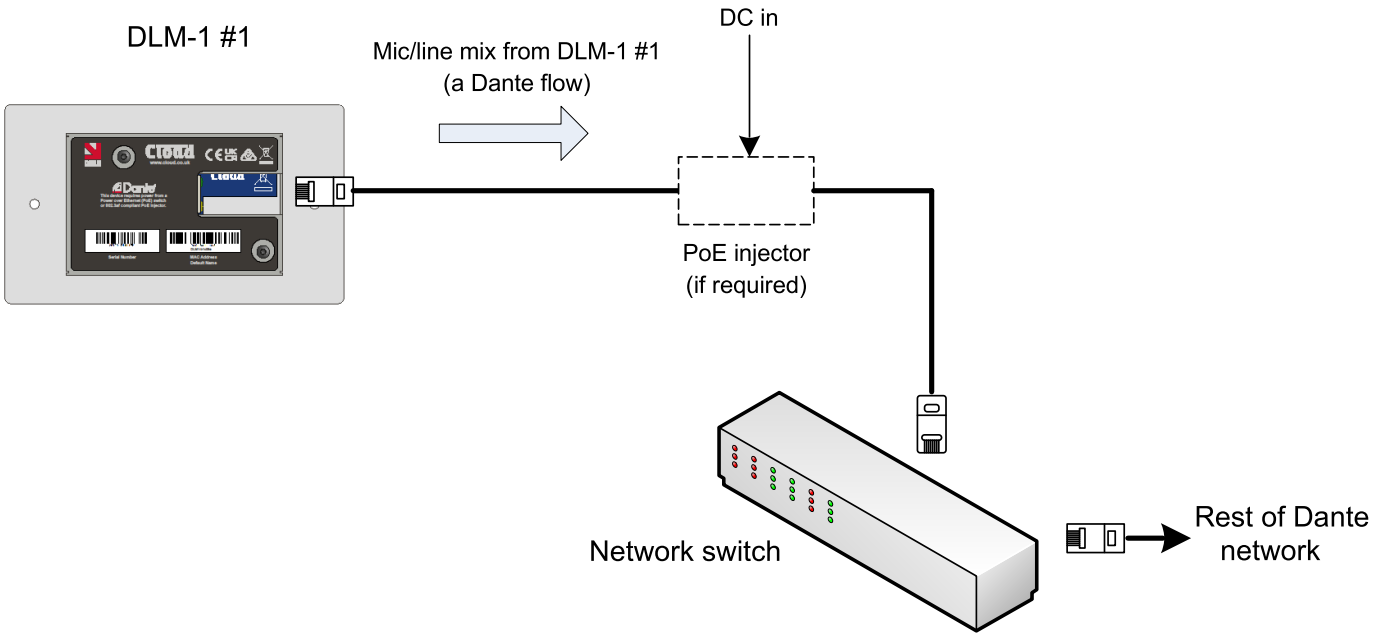
DLM-1AB

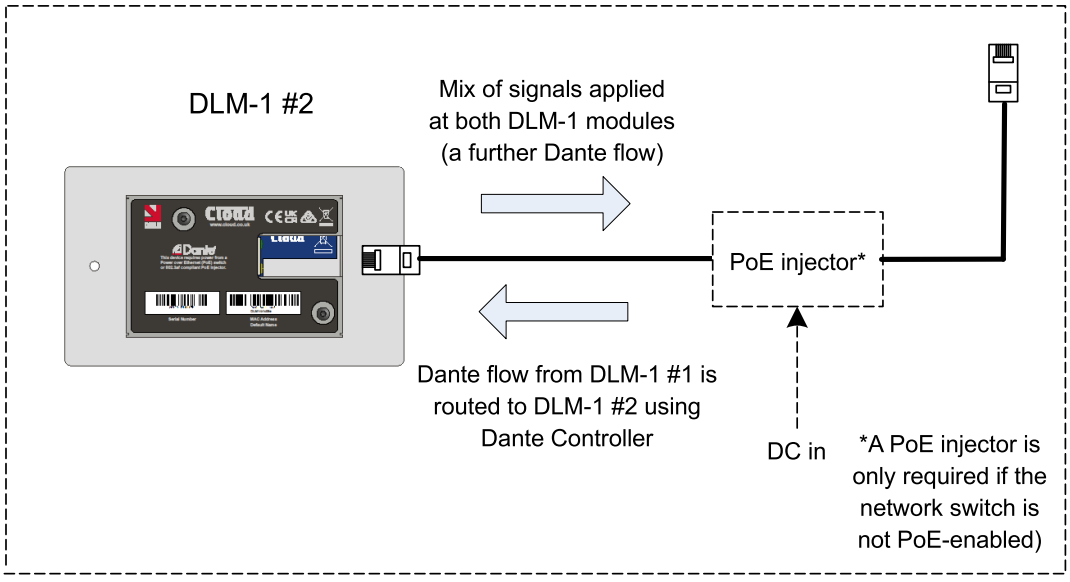


Connections

The DLM-1 is a Dante compliant product using standard Ethernet connectivity, and is therefore exceptionally simple to install. The single RJ45 connector is connected to a port on a Dante-compatible network switch. The switch should be both Managed and PoE-enabled; if a PoE-enabled switch is not available, a 100 Mb/s-compatible PoE injector should be inserted between the DLM-1 and the switch.

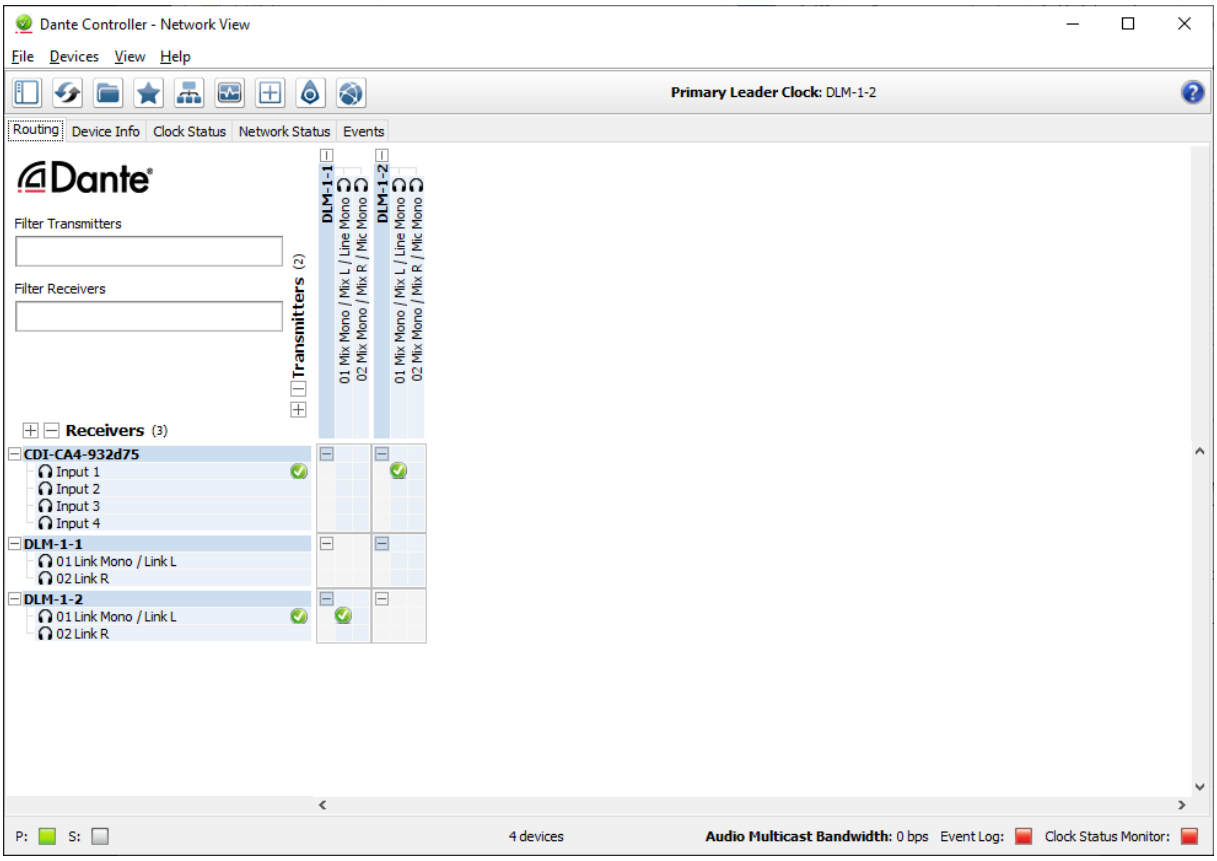
An audio "daisy-chain" of multiple DLM-1s in a Zone, may be realised by routing the Dante output of one DLM-1 to the input of another, again via Dante Controller or equivalent software. This "chaining" process may be continued for further DLM-1s, if needed.



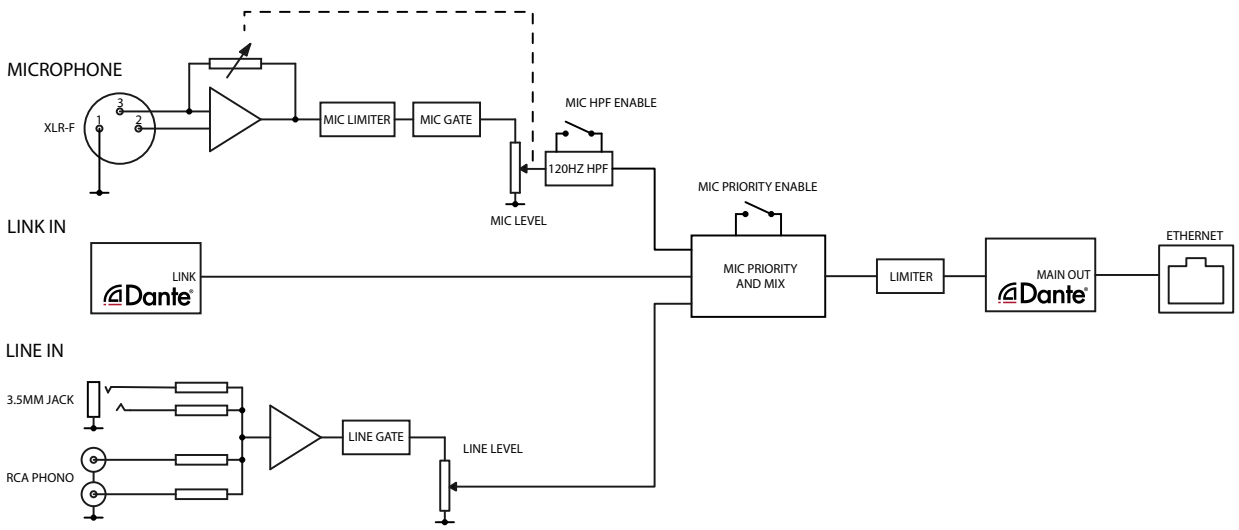


Additional wiring required if a second plate is to be installed in the same zone

The Dante audio output of the DLM-1 may be routed to any Dante receiver on the network, by setting up a subscription in Dante Controller, or equivalent software. The screengrab below shows two DLM-1s configured in this way: the output of DLM-1 #1 (identified as "DLM-1-1") is routed to the Link input of DLM-1 #2 (identified as "DLM-1-2"). The network also includes a Cloud CDI-CA4 four-channel Dante input card: the routing sets Channel 1 of this to receive the combined mono feed of both modules from DLM-1 #2.



Block Diagram



Technical Specifications

Audio performance - mic input			
Sensitivity		-50 dBu nominal	
Gain range		20 to 40 dB	
High pass filter		120 Hz, 12 dB/octave	
Input headroom		12 dB	
Frequency response		20 Hz – 20 kHz +0.5 dB/-0 dB (HPF disabled)	
Noise		Noise gate inactive: -65 dBr, rel 0 dBFS output (Noise gate active: -95 dBr)	
Audio performance – line inputs			
Sensitivity		via RCA/phonos: 0 dBu nominal via 3.5 mm jack: -10 dBV nominal	
Maximum input level		via RCA/phonos: +11 dBu via 3.5 mm jack: +4 dBV	
Frequency response		20 Hz – 20 kHz +0.5 dB/-0 dB	
Noise		-90 dBr, rel 0 dBFS output	
Dante specifications			
Dante transmit channels		2	
Simultaneous receive flows		2	
Dante receive channels		2	
Simultaneous transmit flows		2	
Sample rates	Dante	44.1 kHz, 48 kHz	
	AES67	48 kHz	
Encoding		16/24/32-bit PCM (default 24-bit)	
Data rates		10 Mb/s, 100 Mb/s	
Connector		1 x RJ45	
LEDs		Network speed (yellow), activity (green)	
Software compatibility		Audinate Dante Controller (configuration and routing)	
		Audinate DDM (security and domain management)	
Other			
Power requirements		Via PoE. A Class 1 (3.84 W max.) injector required for use with non-PoE switches. Power consumption: <1 W	
Net dimensions, inc. faceplate controls (w x h x d)		DLM-1 (UK)	145 mm x 85 mm x 50mm (5.71” x 3.35” x 1.97”)
		DLM-1A (US)	112 mm x 110 mm x 50 mm (4.41” x 4.33” x 1.97”)
Shipping dimensions (w x h x d)		All versions	200 mm x 145 mm x 83 mm (7.87” x 5.71” x 3.27”)
Net weight		All versions	252 g (8.9 oz)
Shipping weight			350 g (12.3 oz)

Architect's and Engineer's Specification

The remote input module shall be compatible with a Dante-compatible AoIP network and, if AES67 interoperability is enabled, with an AES67-compliant AoIP network. The module shall be provided with an RJ45 connector to permit connection to the network using standard Category 5 data cable. The output of the module shall be interpretable by any Dante compliant receiver elsewhere on the network.

The remote module shall allow the connection of i) a balanced microphone via a 3-pin XLR connector and ii) a stereo unbalanced audio source on both phono (RCA) connectors and a 3.5 mm dia. 3-pole jack (the "music" input). All connectors shall be accessible from the front of the module. The microphone input shall have a gain control with sufficient range to allow dynamic microphones of any type to be used effectively. The music input shall have a separate level control; the phono inputs shall be capable of accepting signals with a nominal level of 0 dBu, and the jack input signals with a nominal level of -10 dBV. The left and right channels shall be summed into mono and mixed with the microphone signal within the module.

A user-switchable priority facility shall be provided to reduce the level of the music signal connected at the module by 30 dB. The microphone signal path shall include a switchable high-pass filter; enabling this filter shall not be user-selectable. The filter should be effective in reducing microphone handling noise.

The module shall include Dante receiver capability. It shall be possible to configure the Dante network so that the module can receive the output of a similar module, and to mix the audio of both modules together to a combined output. Circuitry shall be included such that modules so configured which do not have microphones connected do not contribute any perceptible noise to the output signal.

The remote module shall be available in versions suitable for fitment in standard UK or US electrical back boxes. The modules shall be available in a choice of finishes.

The remote modules shall be the Cloud DLM-1W (UK version, white finish), the Cloud DLM-1B (UK version, black finish), the Cloud DLM-1AW (US version, white finish), the Cloud DLM-1AB (US version, black finish).