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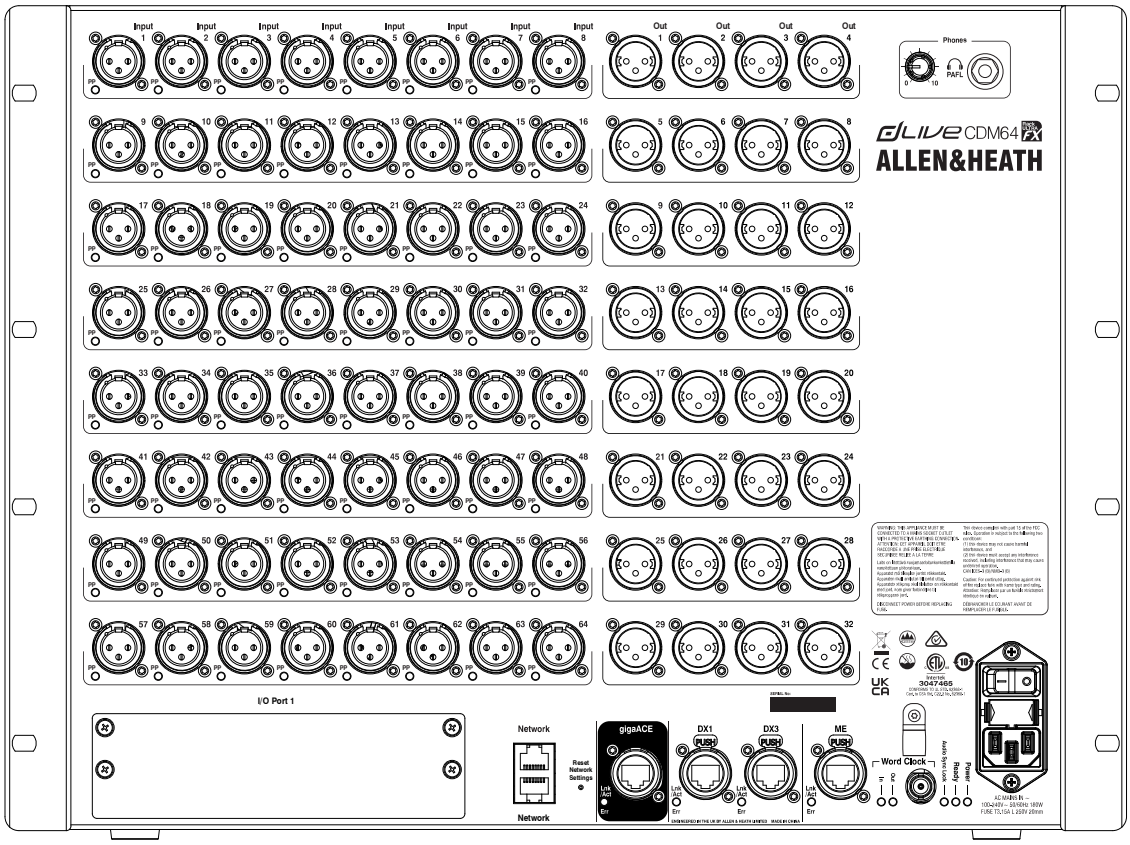
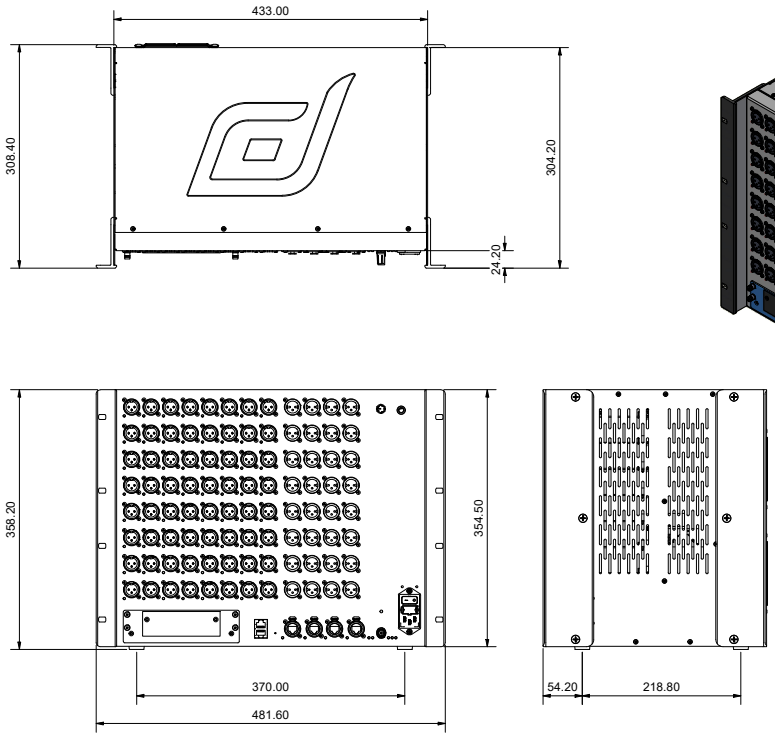
CDM64U Technical Datasheet

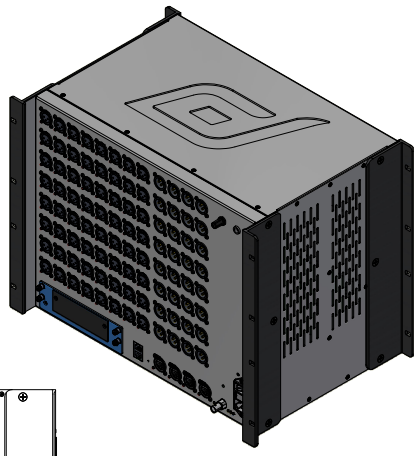
Overview

- 64 mic/line inputs, 32 line outputs
- **XCVI** 160x64 FPGA core
  - 96kHz sample rate
  - Variable bit-depth for ultimate precision and noise performance
  - Virtually infinite mix headroom thanks to 96bit accumulator
  - Class leading, ultra-low latency 0.7ms
- 128 Input Channels with full processing
- 64 Mix Outputs with full processing
- Configurable 64 bus architecture (group, FX, aux, matrix, mains)
  - LR, LCR and up to 5.1 mains mode
  - Multiple PFLs
- 16 **RackExtra FX** with dedicated stereo returns
- 8 **RackUltra FX** with dedicated stereo sends & returns.
- Automatic Mic Mixer (AMM) up to 4 zones, 64 ch
- **DEEP** processing – powerful embedded plugins including GEQ and compressor modelling
- 24 DCAs
- Built-in signal generator, RTA and spectrogram
- New preamp design for extra transparency
- Unique Active PAD circuit for consistent performance with any source
- Connection hub
  - 1 x GigaACE gigabit link to MixRack
  - 2 x DX link for I/O expansion
  - 1 x I/O Ports – 128 ch 96 kHz
  - Dedicated ME-1 48kHz port
  - 2 x Network ports
  - Wordclock BNC I/O
- Flush front panel with ultra-quiet fan
- Reversible rack ears design



Dimensions





CDM64U - without box
Width - 481.6mm/19"
Depth - 309mm/12.2"
Height - 354.5mm/14"/8U
Weight - 13.7kg/30.1lbs

CDM64U - with box
Width - 600mm/23.7"
Depth - 430mm/17"
Height - 520mm/20.5"
Weight - 16.65kg/36.6lbs

A&E Specifications

The mixer shall be a rack-mountable device capable of stand-alone operation, with or without a control surface. It shall be capable of 128 input channels, 64 mix busses, and over 400 soft-patchable system inputs and outputs, all independently assigned. There shall be 16 stereo rack FX engines with dedicated stereo returns, and 24 DCAs. The rack unit shall contain the mix engine. This mix engine shall run at 96kHz sampling rate and employ FPGA technology for digital signal processing. The system latency from analogue input to output shall not exceed 0.7ms.

The mixer shall provide 64 XLR inputs of high quality and capable of handling microphone or line signals and shall have remote controlled analogue gain adjustable in 1dB steps, a 20 dB PAD, and phantom power. All input channels shall be configurable mono/stereo and have access to any hardware input on the unit, or remote input via expansion options. Mix busses shall be configurable as any combination of mono/stereo auxiliary sends, groups, mains, FX sends or matrices. All output channels shall be routable to any of the 32 XLR line outputs on the unit, or remote output via expansion options. All input channels shall contain the following processing: Trim, Polarity, High Pass Filter, Low Pass Filter, two Insert points, Gate, Parametric EQ, Compressor, Delay. All output mix channels shall contain the following processing: External input, Trim, Polarity, Insert, Parametric EQ, Graphic EQ, Compressor, Delay. The channel processing shall also provide high quality emulations of classic compressors and GEQs. These emulations shall be insertable on the fly on any channel without using the internal FX and without the need of external plug-ins or licenses.

16 user-assignable effect racks known as “RackExtra FX” shall be provided with a library of factory preset FX emulations. The RackExtra FX racks shall be individually configurable as send/return from a channel or FX/Mix, or inserted into input or output channels. The mixing system shall provide the options of FX racks processed signals to be returned to other mixes via dedicated FX input channels with PEQ, assigned as sources to input channels, daisy-chained to another FX rack by internal patching, or routed to an output socket or interface channel.

8 additional user-assignable effect racks known as “RackUltra FX” shall be provided with a library of factory preset FX emulations including vocal pitch correction and harmonizers. RackUltra FX Units shall be provided with dedicated Stereo FX mix busses complete with Dynamic Processing and PEQ, not requiring the use of the consoles existing 64 mix busses. RackUltra FX Units shall be individually configurable as a send/rtn from their dedicated mix bus, an existing mix bus or inserted into input or output channels. The mixing system shall provide the options of FX racks processed signals to be returned to other mixes via dedicated FX input channels with Dynamic Processing and PEQ.

The mixer shall provide Automatic Mic Mixing (AMM) of up to 64 microphone sources into 1, 2 or 4 zones. The AMM shall be capable of running in classic gain sharing mode or optionally as a NOM (Number of Open Microphones) algorithm.

A single 128-channel I/O port for an optional digital interface module shall also be provided. Optional interface modules shall include: MADI, EtherSound, Dante, Waves SoundGrid, and ACE.

An Ethercon port shall be provided for connection to the control surface via the Allen & Heath gigaACE protocol. This connection shall carry over 300x300 channels of uncompressed audio at 96kHz, control data and tunnelling of third party Ethernet traffic. An Ethercon port shall also be provided for I/O expansion, carrying up to 32x32 channels of uncompressed audio at 96kHz. A range of optional expansion racks shall be provided and shall include fixed format and modular racks with analogue or digital I/O. A further Ethercon port shall be provided for connection to the Allen & Heath ME personal mixing system. This connection shall carry 40 channels of uncompressed audio at 48kHz with built-in sample rate conversion, and channel naming.

A BNC connector shall be provided on the unit for Wordclock input and output. A pair of RJ45 sockets shall be provided for gigabit Ethernet network connections to laptops or other control systems. A headphone output shall also be provided.

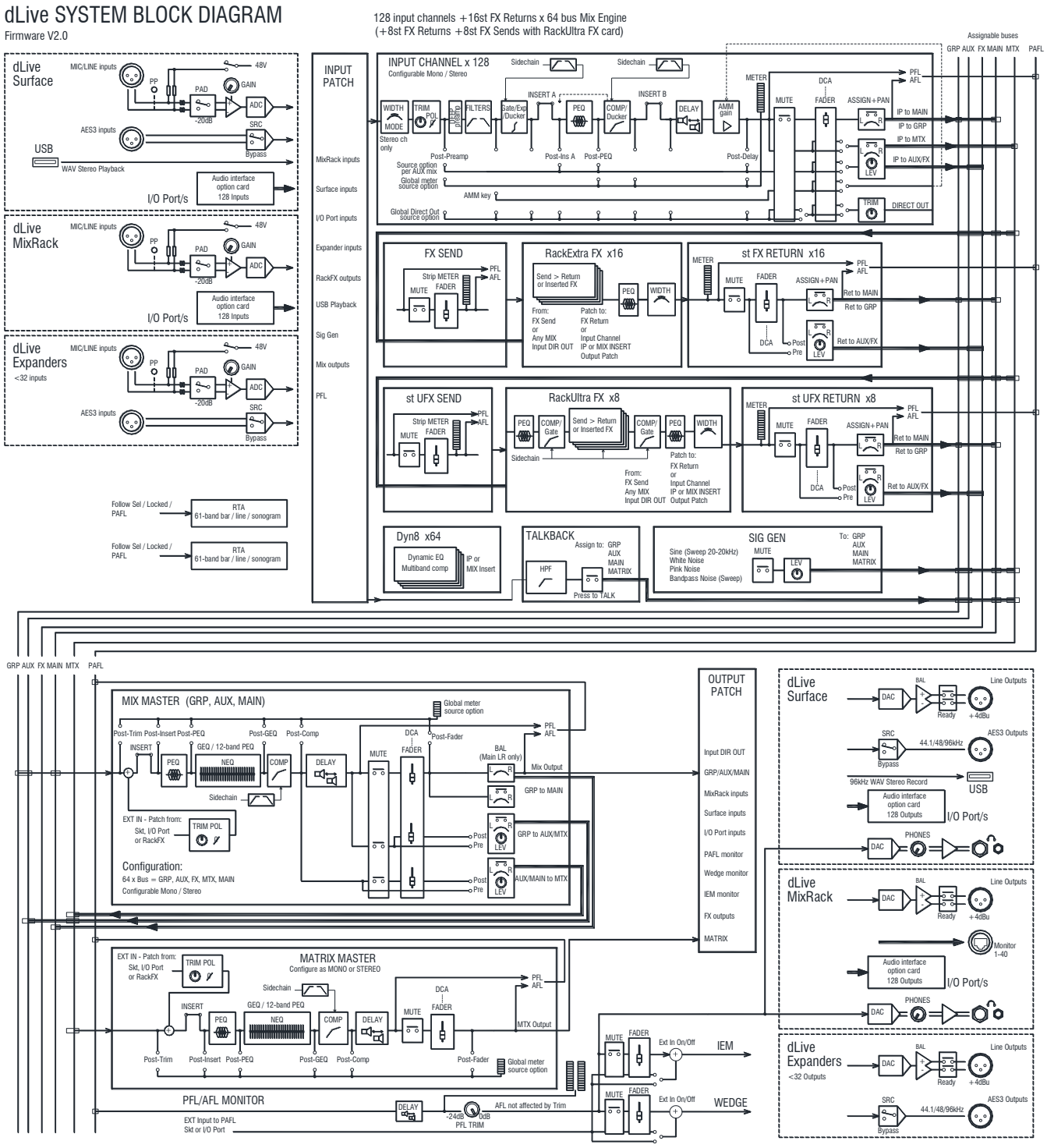
The unit shall have a fixed power supply accepting AC mains voltages of 100~240V, 50/60 Hz, 175W max via an earthed 3-pin IEC male connector. A rocker switch shall be provided near the mains inlet to isolate the mixer from the incoming mains supply. The rack ears shall be provided with the unit and reversible so that either face of the unit can be presented on the front of the rack or flight case.

The mixer shall provide the facility to save 500 scenes. The scenes shall be name-able and a descriptive text entry per scene provided. A comprehensive table of Scene Safes shall be provided to prevent selected items from being changed from their state when the safe was enabled. A comprehensive scene filter shall be provided per scene to Allow / Block each parameter saved in a scene from being changed as that scene is recalled. A Cue List of scenes shall be provided to facilitate a running order of scenes from the master list. A crossfade of up to 20 seconds shall be adjustable per scene. Scene recall may be embedded into a scene with the option to delay the start of the embedded scene recall by up to 4 minutes.

An option shall be provided for password protection for log-in of several users with different levels of system access and permissions. A particular scene may be chosen to be recalled per change of user-login if desired.

The mixer shall be the Allen & Heath dLive CDM48 RackUltra FX.

Block Diagram



Technical Specifications

Inputs

Mic/Line XLR Inputs	Balanced XLR, +48V phantom power
Mic/Line Preamp	Fully recallable
Input Sensitivity	-60 to +15dBu
Analogue Gain	+5 to +60dB, 1dB steps
Pad	-20dB Active PAD
Maximum Input Level	+30dBu (PAD in)
Input Impedance	>4kΩ (Pad out), >10kΩ (Pad in)
Mic EIN	-127dB with 150Ω source
Phantom Power indication	Per socket, internal or external phantom power sensing, triggered at 24V

Outputs

Analogue XLR Outputs	Balanced, Relay protected
Output Impedance	<75Ω
Nominal Output	+4dBu = 0dB meter reading
Maximum Output Level	+22dBu
Residual Output Noise	-92dBu (muted, 20-20kHz)
	-90dBu (muted, 20-40kHz)

Dimensions and Weights

	Width x Depth x Height x Weight
CDM64U	481.6 x 309 x 221 mm 5U (19"x 12.2"x 8.7") x 13.7kg (30.1lbs)
CDM64U - boxed	600 x 430 x 380 mm (23.6"x 16.9"x 15") x 16.65kg (36.6lbs)

System

Measured balanced XLR in to XLR out, 20-20kHz, minimum Gain, Pad out, signal @ 0dB (meter)

Dynamic Range	110dB
System Signal to Noise	-92dB
Frequency Response	20Hz - 30kHz +0/-0.8dB
THD+N (analogue in to out)	0.0015% @ +16dBu output, 1kHz 0dB gain
Headroom	+18dB
Internal operating Level	0dBu
dBFS Alignment	+18dBu = 0dBFS (+22dBu at XLR output)
Meter Calibration	0dB meter = -18dBFS (+4dBu at XLR out)
Meter Peak indication	-3dBFS (+19dBu at XLR out)
Sampling Rate	96kHz +/- 20 PPM
ADC	24-bit Delta-Sigma
DAC	24-bit Delta-Sigma
Latency	0.7 ms (MixRack XLR in to XLR out, Input to Mix)
	+ 5 samples, Surface to Mixrack (GigaACE hop)
	+ 8 samples, DX32 to Mixrack (DX hop)
Operating Temperature Range	0 deg C to 35 deg C (32 deg F to 95 deg F)
Mains Power (MPS16)	100-240V AC, 50-60Hz, 175W max