C2N-VEQ4

4-Channel Volume/EQ Control Module

The C2N-VEQ4 provides a very simple solution for adding professional quality volume control, equalization, and signal routing to any Crestron 2-Series control system. In a compact half-space rack-mountable chassis, the C2N-VEQ4 delivers four channels of digital volume and tone control, four 12-band graphic/parametric equalizers, and a fully-adjustable 4x4 matrix mixer. Dual DSPs and 24-bit 96 kHz A/D and D/A converters attain high-end audio performance perfectly suited for a multitude of applications in boardrooms, auditoriums, night clubs, and homes.
The C2N-VEQ4 is controllable through any Crestron touchpanel, keypad, handheld remote, or **e-Control®2** user interface, with true feedback provided for every parameter. Mixer and EQ settings are easily configured and adjusted through Crestron's Media Tools software (part of Crestron Toolbox) and saved in presets stored onboard the C2N-VEQ4 module.

Volume/Tone Control

In its most basic configuration, the C2N-VEQ4 provides four individual audio channels which may be operated independently or linked for stereo operation. Each channel includes adjustments for volume, bass, treble, and mute, with definable ramp times and scaling for fully customized operation. Protective relays on each output are included to prevent "thumps" during power-up and provide 100dB attenuation for dead-silent muting.

Matrix Mixer

The 4x4 matrix mixer allows any input to be routed to any or all output channels with full control over each individual level. Using the C2N-VEQ4, up to four line-level sources may be mixed and distributed to up to four destinations, with each destination receiving a different mix as needed. A master volume adjustment is also included to make overall level adjustment a snap.
Five mixer presets may be stored onboard the C2N-VEQ4, with additional presets possible within the control system if

needed. Such power and flexibility makes the C2N-VEQ4 ideal

for a host of mixing and multi-zone applications.

Graphic/Parametric EQ

Each of the four output channels includes a full 12-band equalizer eliminating the need for additional outboard processors. Five selectable modes of audio equalization are available per output channel, providing up to 12 bands of fully parametric EQ or varying combinations of parametric and
graphic EQ including a filter set optimized for speech applications.
Five parametric EQ presets and ten graphic EQ "trim presets" may be stored onboard the C2N-VEQ4, allowing for save and recall of different EQ curves to account for changing room acoustics, audio material, or listener preference.
The C2N-VEQ4 is a Cresnet slave device designed to communicate with any 2-Series control system via the Cresnet
bus. The C2N-VEQ4 is also available as the **C2VEQ-4** Y-Bus expansion card for 2-Series card frames.

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SPECIFICATIONS

Audio

Features: 4x4 Matrix Mixer, 4-Channel Digital Audio Processor

Master Volume: -80dB to +20dB, 0.1dB steps (balanced I/O)

Channel Volume: -80dB to +12dB, 0.1dB steps from Media Tools; -80dB to +0dB, 0.1dB steps from SIMPL (balanced I/O)

Mute: > -100dB

Bass/Treble Gain Range: ±15dB, 0.5dB steps

Equalization Modes: 10-band graphic plus 2-band parametric; 5-band graphic plus 7-band parametric; speech-optimized 5-band graphic plus 7-band parametric; 3-band graphic plus 9-band parametric; or 12-band parametric

PEQ Filter Gain: ±12dB, 0.1dB steps from Media Tools; +24/-36dB, 0.1dB steps from SIMPL

PEQ Filter Bandwidth: 0.02 to 2.0 octaves (1.0 to 3.0 for shelving) from Media Tools; 0.02 to 3.5 from SIMPL

PEQ Filter Center Frequency: 25Hz to 19.9kHz from Media Tools; 5Hz to 24KHz from SIMPL

PEQ Filter Types: low pass, high pass, EQ filter (peaking/notching), bass shelf, and treble shelf

GEQ Filter Gain: +5/-10dB, 0.1dB steps from Media Tools; ±10dB, 0.1dB steps from SIMPL

GEQ Filter Center Frequencies: 31.5, 63, 125, 250, 500, 1k, 2k, 4k, 8k, 16k Hz (10-band); 63, 250, 1k, 4k, 10k Hz (5-band); 160, 600, 1k, 2.5k, 5k Hz (Speech Opt. 5-band); 250, 1k, 4k Hz (3-band)

Frequency Response: ±0.1dB 20Hz to 22kHz, ±0.5dB 10Hz to 30kHz

Total Harmonic Distortion (THD) + Noise: <0.008% @1kHz

S/N Ratio: >97dB balanced, >95dB unbalanced, 20Hz to 22kHz A-weighted

Crosstalk: > -90dB 20Hz to 22kHz

Common Mode Rejection: >90dB 20Hz to 22kHz

Connectors

IN 1 - 4: (2) 5-pin 3.5mm detachable terminal blocks comprising (4) balanced/unbalanced line-level audio inputs;

Maximum Input Level: 4 Vrms balanced, 2 Vrms unbalanced;

OUT 1 - 4: (2) 5-pin 3.5mm detachable terminal blocks comprising (4) balanced/unbalanced line-level audio outputs;

Maximum Output Level: 4 Vrms balanced, 2 Vrms unbalanced;

NET: (1) 4-pin 5mm detachable terminal block, Cresnet slave port;

G: (1) 6-32 screw, chassis ground lug

Indicators

PWR: (green) Indicates 24 Volts DC power supplied from Cresnet control network

NET: (yellow) Indicates communication with Cresnet system

ACTIVITY 1 - 4: (red) Illuminates when a parameter is being changed on a given channel

SETUP (rear): (red) Used for Touch-Settable ID (TSID)

Buttons

SETUP (rear): Used for Touch-Settable ID (TSID)

Power Requirements

Cresnet Power Usage: 8 Watts (0.34 Amps @ 24 Volts DC)

Environmental

Temperature: 32° to 122°F (0° to 50°C)

Humidity: 10% to 90% RH (non-condensing)

Enclosure

Chassis: Steel, black matte powder coat finish

Faceplate: Extruded aluminum, black matte powder coat finish with polycarbonate label overlay

Mounting: Freestanding or 0.5U 19-inch rack-mountable
(adhesive feet included, ST-RMK

Dimensions

Height: 1.80 in (4.57 cm);
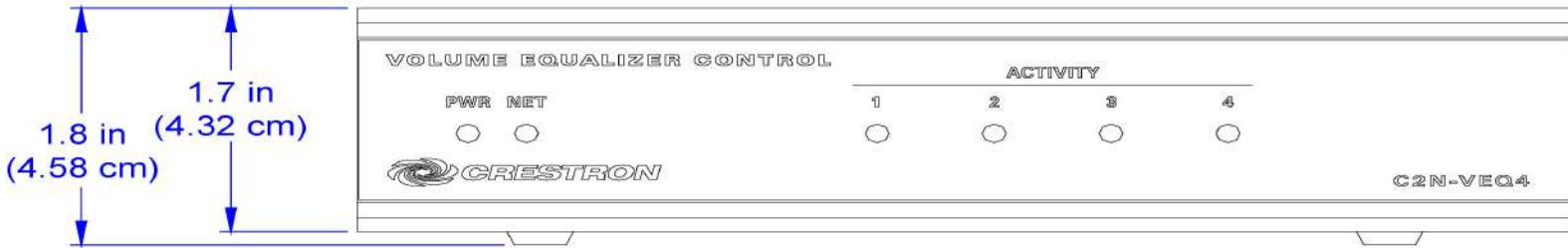
Width: 7.07 in (17.96 cm)

Depth: 6.38 in (16.21 cm)
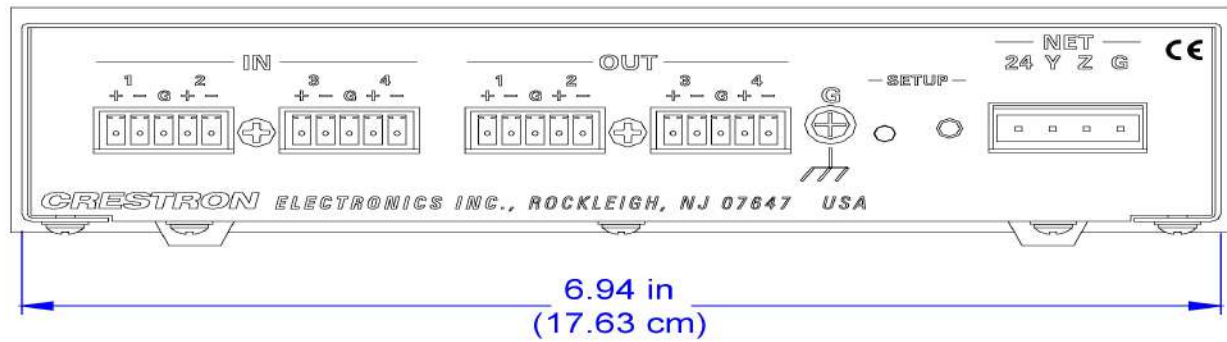
Weight

1.86 lb (0.84 kg)

Front

1.7 in (4.32 cm)

1.8 in (4.58 cm)

Back

6.94 in (17.63 cm)

Top

6.33 in (16.06 cm)