Architectural and Engineering Specifications Dynacord VZX-8

Make: Dynacord

Model: VZX-8 8-zone audio processor

The 8-zone audio processor shall be a full-matrix DSP designed for multi-zone audio applications, providing twenty continuous inputs and eight outputs. It shall support digital selection, combination, mixing, routing, and processing of signals from twelve analog sources, eight digital players, and four accessory inputs for the VCS-8 8-zone call station. Processed audio shall be delivered to eight discrete outputs for downstream amplification. The device shall utilize a fixed-architecture DSP design.

The front panel shall include status indicator LEDs for Power, Fault, and Call Active, as well as a microSD card slot.

The rear panel shall provide eight analog mic/line inputs with balanced connections. Each input shall support switchable 48V phantom power. Four RCA mono-summed inputs shall also be provided. Two physical inputs (mic/line and RCA) shall be required to configure stereo to zones.

The rear panel shall provide eight balanced line-level outputs, along with two RJ45 line-output connectors (AES72-1E) for outputs 1–4 and 5–8, in parallel with the Euroblock connectors.

The rear panel shall include a GPIO control port providing eight freely assignable GPIOs that may be configured as inputs or outputs. The GPIO port shall include ready/fault contacts for supervision and status.

An EMG highest-priority override input shall be provided, supporting line-level and 70/100V signal levels, for integration with external EVAC or emergency messaging systems.

The processor shall include internal storage for messages, bells, and chimes, and shall include a microSD card slot for configuration backup, playback of audio files, and playlists. The processor shall provide eight digital media players for messages, chimes, music tracks, or playlists. Each player shall operate in either Message (MSG) mode or BGM mode. Content may be stored to internal memory and the installed microSD card.

Message players shall support adjustable playback settings including repeats, trigger delay, repeat delay, and priority. Multiple messages and chimes may be triggered from a single media player instance. Messages shall be assignable to actions and triggerable from call stations, GPIO, or API via Openinterface.

GPIO inputs shall be configurable as analog inputs, digital inputs, or 0–13 VDC analog-level inputs. GPIOs shall be configurable in the Web App. Inputs may trigger actions such as muting outputs or playing messages. Inputs may also be mapped to zone-level control. Outputs may provide status or control signals to external equipment.

The VZX-8 shall provide Ethernet control via Openinterface (TCP/IP, JSON-RPC). When enabled in the Web App, Openinterface shall allow incoming command control for the full set of web-configurable functions. Openinterface documentation shall be accessible through the Web App and shall provide complete command listings, syntax, and example integration code.

Dynacord shall provide third-party plug-ins for Crestron and Q-SYS control systems, along with setup documentation.

The processor shall provide a browser-based Web App accessible via LAN with configurable security. The Web App shall be accessible wirelessly when connected to a DHCP-enabled Wi-Fi router. The Web App shall provide real-time adjustment of all functions including:

Overview
DSP: Inputs, Outputs, Zones, Virtual Mixer
Media: Player, Messages, Storage
Accessories: Wall Panels, Call Stations
Control & Automation: GPIO, Actions
Settings

The Web App shall provide the ability to clone DSP processing blocks between inputs and outputs. All DSP, mixing, and routing functionality shall be fully controllable from the Web App. The Ethernet port shall be used strictly for control and configuration; no audio transport protocols (e.g., Dante or AES67) shall be required or supported.

All input channels shall support label naming, mode selection, mono/stereo functionality, and DSP processing. Input modes shall include BGM, MIX, VOX, EMG, and ANC. VOX mode shall provide ducking functionality, EMG mode shall provide extended override behavior and shall be available on Mic/Line input 8 only. BGM shall allow source-selector mode. Mix shall allow multiple active inputs for the eight zone mixes. ANC mode shall allow Mic/Line inputs to function as ambient-noise sensing microphones when used with ANC output processing. Any microphone with suitable signal level can be supported.

Mic/line inputs shall include gain (0–60 dB), switchable 48V phantom power, high-pass filter, noise gate, compressor/automatic gain control, and parametric EQ. RCA inputs shall include high-pass filter, noise gate, compressor/automatic gain control, and parametric EQ.

Accessory inputs are for devices such as call stations connected to the accessory A and B ports. These four accessory inputs shall be in addition to the twenty processed continuous inputs and shall include high-pass filter, noise gate, compressor/automatic gain control, and parametric EQ.

The processor shall provide eight zone mixes, each capable of combining up to twenty sources into a zone mix with unique levels.

The processor shall include a Virtual Mixer, with its own unique selection of inputs that can be assigned to a unique IP address with a quick-link QR code. This can be assigned to zones as another selectable source. The Virtual Mixer shall include FX such as Reverb, Echo, Delay, Chorus, combination FX with unique send levels per input and an FX on/off switch.

The processor shall include an internal test signal generator that supports sine, white noise, pink noise, level control and is assignable to any zone.

The processor shall have eight processed zones. Each of the eight zones shall include editable name labels, source select, metering, indicators and control constraints on inputs and zones. Zones can support one or multiple outputs and this is freely selectable. Zones and outputs can be used to support stereo outputs, bi-amped or tri-amped loudspeakers and sub/top configurations.

The processor shall have eight outputs with DSP processing. This processing shall include speaker presets or custom speaker configurations, output delay, ANC (Ambient noise compensation), and room PEQ. Custom speaker configurations include crossover, speaker PEQ, FIR and more. Sonicue speaker database presets for Electro-Voice, Dynacord and other manufacturers have this processing included.

Accessory ports A and B shall support daisy-chain connection of control and audio accessories. Up to sixteen accessories shall be supported, with a maximum cable length of 500 m (1640 ft) per port using Cat5e/6 unshielded cable.

Supported accessories shall include the VCS-8 Call Station and the VWP Wall Panel Controller. The Web App shall provide accessory identification, labeling, and configuration.

The VWP controller shall allow zone, level, and source control, with Unicode label support for more than 150 languages. VWP control content shall be fully editable. The VWP shall support PIN lockout and multiple user profiles.

The VCS-8 Call Station shall provide zone paging and system control, with a high-quality microphone, nine assignable buttons, and a push-to-talk button. Buttons shall be assignable to paging zones, all-call, or action recalls (e.g., GPIO commands, message playback, bells/chimes). The Web App shall support button label editing and printable paper labels. VCS-8 settings shall allow selection of accessory port, audio input assignment (1–4), and priority settings.

The audio processor shall be a 1RU chassis measuring 483 mm W × 44.2 mm H × 269.5 mm D (19.2 in × 1.74 in × 10.6 in) with rack-mount hardware included. The device shall have a net weight of 3.58 kg (7.89 lb). Operating temperature range shall be 5 °C to 40 °C (40 °F to 105 °F). AC mains input shall be 100–240 VAC, 50–60 Hz, via IEC appliance inlet. Maximum power consumption shall be 35 W. Maximum thermal output shall be 120 BTU/hour. The processor shall allow silent operation through convection cooling and an intelligent fan only used in extreme thermal conditions.

Audio performance specifications shall include:
Frequency response: 20 Hz to 20 kHz (±0.5 dB)
Signal-to-noise ratio (A-weighted, analog in to analog out): >112 dB
Total harmonic distortion (THD): <0.003% at 0 dBu input/output, 0 dB gain, 1 kHz
Maximum balanced line-level output: 6.15 Vrms (15.78 dBV / 18.0 dBu)
Sample rate: 48 kHz
Analog input-to-output latency: <0.31 ms

The device shall comply with FCC, ICES (Canada), CE, and RoHS requirements, and shall be certified to UL 62368-1 and CSA C22.2 No. 62368-1.

The audio processor shall be the Dynacord VZX-8 8-zone audio processor.