Sound Devices

8-Series

Scorpio

Technical Datasheet

Analog Inputs
- Frequency Response: 10 Hz to 80 kHz ± 0.5 dB (192 kHz sample rate, re 1 kHz)
- THD + Noise: 0.005% max (mic in, 1 kHz, 22 Hz–22 kHz BW, trim at 20, fader at 0, -10 dBu in)
- Equivalent Input Noise: -131 dBV (-129 dBu) max (mic in, A-weighting, 76 dB gain, 150 ohm source impedance)

Processing Engine
- Highly extensible, full FPGA-based audio processing, 3 FPGAs
- Six-way ARM multiprocessor system
- 64-bit audio processing precision

Audio Over Ethernet
- Dante, AES67 compatible
- 32 channels in, 32 channels out (up to 96 kHz)
- 1 Gb/s Ethernet, 2 ports, transformer-balanced

Inputs
Mic/Line inputs
- 16 total, all fully featured; 6 on full-size XLR, 2 on TA3, 8 on TA5

Inputs
- Mic-level inputs: (XLR, TA3, TA5): Class-A, discrete differential long-tail pair, 4k ohm input impedance
- Line-level inputs: (XLR, TA3, TA5): active-balanced, 4k ohm input impedance
- 48V phantom: full 10mA to all 16 inputs simultaneously
- 22 Total analog inputs: 16 mic-line inputs, 6 on returns
- AES3 or AES42 available on XLR inputs 1 and 6
- AES42: +10 V, 250 mA available, mode-1, auto-ASRC
- USB Audio: 2 Inputs
- Rtn A, B, C (3.5 mm/10-pin): unbalanced 2-channel, 4k ohm input impedance
- Com Rtn 1,2 (TA3, 3.5mm) balanced, 1-channel, 8k ohm input impedance
- External Slate Mic (TA5): balanced, 8k ohm input impedance, menu-selectable 12 V phantom

Maximum Input Level
- Mic: +8 dBu (2.0 Vrms)
- Line: +28 dBu (19.5 Vrms)
- Rtn A, B, C: +18 dBu (6.2 Vrms)
- Com Rtn 1, 2: +24 dBu (12.3 Vrms)
- External Slate Mic: +12 dBu (3.2 Vrms)

Buses
- 12 Buses (L, R, 1-10)
- Left and Right Mix Bus receives post-fade isolated channels. Optional NoiseAssist plugin instances can be applied to any bus.
- Buses 1-10 can receive pre-fade, post-fade, or independent send level from isolated channels, Returns A, B, or C, and Com Returns 1 and 2.

High-Pass Filters
- Adjustable 10 Hz to 320 Hz, 18 dB/oct. 1st stage analog (before preamp), 2nd stage digital.

Limiters
- Limiters available at all channels, buses, headphones, for all sample rates
- Analog first stage, all subsequent stages digital
- Attack time: adjustable 1 to 200 ms
- Release time: adjustable, 50 ms to 1000 ms
- Threshold: adjustable, -2 dBFS to -12 dBFS
- Selectable ratio: inf:1, 20:1, 18:1, 16:1, 14:1, 12:1, 10:1
- Knee: soft, hard

Compressors
- Compressors available at all channels (pre or post-fade) and buses for all sample rates
- Attack time: adjustable, 1 to 200 ms
- Release time: adjustable, 50 ms to 1000 ms
- Threshold: adjustable, 0 dBFS to -40 dBFS
- Selectable ratio: adjustable, 1:1 to 20:1
- Knee: soft, hard

Delay
- Channel Adjustable 0-50 ms
- Output Adjustable 0-500 ms

Maximum Gain
- Trim stage (mic input): 76 dB
- Trim stage (line input): 50 dB
- Fader stage: 16 dB
- Bus stage: 16 dB
- Headphone stage: 20 dB
- Mic-to-Line: 108 dB
- Mic-to-Headphone: 112 dB

Outputs
- XLR (L, R) active-balanced, 250/3.2k/120 ohms (mic/-10/line)
- Hirose 10-pin (L, R) active-balanced, 250/3.2k/120 ohms (mic/-10/line)
- TA3 (X1-X6) active-balanced, 250/3.2k/120 ohms (mic/-10/line)
- 3.5mm (X7, X8): unbalanced, stereo, 1.8k ohms

Headphone Outputs
- ¼", 3.5 mm
- TA5 (along with mic input pins) for single connection to headset + mic
- High output, 4 ohm output impedance, 400 mW + 400 mW at each connector, all individually driven
- Compatible with headphones of any impedance

Maximum Output Level (all into 10k load)
- Line: +20 dBu (7.8 Vrms)
- "-10": +6 dBu (1.5 Vrms)
- Mic: -20 dBu (0.078 Vrms)
- X7/X8 Out: +6 dBu (1.5 Vrms)
- Headphone outputs (¼", TA-5, X9/X10): +14 dBu (4.0 Vrms)

Digital Outputs
- AES3 transformer-balanced, in pairs; 1-2 (XLR-L), 3-4 (XLR-R), 5-8 (Hirose 10-pin A)
- 110 ohm, 2 V p-p, AES and S/PDIF compatible

Recording
A/D Converters
- 32-bit, 120 dB, A-weighted dynamic range typical
- Sampling rates 44.1 kHz, 47.952 kHz, 48 kHz, 48.048 kHz, 96 kHz, 192 kHz

Bit Depth
- 16, 24, 32-bit float

Recording
- Internal 256 GB SSD; two removable SD Cards. Each 10% over-provisioned (reserved free space) for optimum performance
- Simultaneous recording to internal SSD and the two SD cards
- exFAT formatting
- 36 tracks (32 iso channels, 4 buses)
- Broadcast WAV monophonic (48048 and lower) and polyphonic file format
- 64-bit WAV (RF64) monophonic and polyphonic; support for files > 4 GB
- AAC 2 track at 48 kHz, selectable bit rate 32, 64, 128, 192, 256 kbps

Automatic Mixing
- Dugan Automixer up to 16 channels on Left and Right Mix bus
- MixAssist up to 16 channels on Left and Right Mix bus

Noise Suppression
- Via optional paid Sound Devices NoiseAssist or CEDAR sdnx Plugins
- Two, four, or eight instances of Noise Suppression can run on any combination of isolated channels (excluding 17-32 on Scorpio), or buses.
- Attenuation range: 0-20 dB
- NoiseAssist operates with sampling rates of 44.1 kHz to 48.048 kHz.
- CEDAR sdnx operates with sampling rates of 44.1 kHz to 96 kHz.
- NoiseAssist audio path latency: 0.77 ms @ 48kHz
- CEDAR sdnx audio path latency: 0.27 ms @ 48kHz, 0.14ms @ 96kHz

USB
- USB-C (USB 3.1 type 1) for file transfer of internal SSD, both SD Cards
- USB-C 2-in/2-out USB audio interface
- USB-A host for keyboard, external controller, external USB hubs supported for connecting multiple devices

Timecode and Sync
- Modes Supported: Off, Rec Run, Free Run, 24h Run, External, including External Auto-Record and Continuous modes.
- Frame Rates: 23.98, 24, 25, 29.97 DF, 29.97 ND, 30 DF, 30 ND
- Sample/Timecode Accuracy: 0.1 ppm (0.25 frames per 24 hours)
- Timecode Input: 20k ohm impedance, 0.3 V – 3.0 V p-p (–17 dBu – +3 dBu)
- Timecode Output: 75 ohm impedance, 5 V p-p (+7 dBu)

Remote Control
- Sound Devices CL-16 Linear Fader Controller
- Sound Devices CL-12 Linear Fader Controller
- USB MIDI MCU Control – supported 3rd party fader controllers
- SD-Remote Android Tablet app via USB or Bluetooth LE
- SD-Remote Android Phone app via Bluetooth LE
- SD-Remote iPad and iPhone app via Bluetooth LE
- USB Keyboard
- External Timecode Record Trigger
- File Delivery to Cloud
- Compatible with Frame.io Camera to Cloud
- Compatible with Viviana Cloud

LCD
- 320×240, Transflective, excellent sunlight visibility
- Larger touchscreen display available via USB-connected SD-Remote app

Power
- External: dual 10-18 V inputs on locking TA4 connectors, (pin 4 positive, pin 1 ground), supports Smart Battery telemetry
- Dual rear-mount Sony-style L-mount batteries with chargers

Current Draw, at 12 V no battery charging
- All mic preamps off: 950 mA
- All mic preamps on: 1.26 A
- All mic preamps on, 192 kHz sample rate, recording to internal SSD and 2 SD Cards: 1.42 A
- All mic preamps on, 192 kHz sample rate, recording to internal SSD and 2 SD Cards, Dante enabled: 1.67 A
- Intelligent power-down of unused mic preamps and other internal circuits

Environmental
- Operating: -20° C to 60° C, 0 to 90% relative humidity(non-condensing)
- Storage: -40° C to 85° C

Dimensions (H x W x D)

- 5.1 cm x 32 cm x 20.5 cm
- 2.0 in. x 12.6 in. x 8.1 in

Weight

- 5.8 lbs (unpackaged, without batteries)
- 2.63 kg (unpackaged, without batteries)