

# Axia® RAQ

## Rack-Mount IP Console



## OVERVIEW

Six-fader Axia® RAQ console provides a convenient way to add a physical mixing surface nearly anywhere, no matter how space-limited. RAQ has six rotary faders with OLED channel options displays, two stereo mixing buses and Preview (cue) bus, a high-resolution OLED meter display with switchable VU / PPM ballistics, and monitor / headphone controls for auditioning of Program buses or two assignable External monitor source selections.

RAQ is built for heavy duty work. Aircraft-quality switches feature all-LED lighting. The anodized metal work surface features rub-proof, etched markings that can't rub off. Smooth, accurate rotary faders with push-on/push-off channel switches make fast work of audio control. And RAQ features Axia's famous fully-automatic mix-minus for phone callers and codec sources, too. Show Profiles give instant recall of up to 4 pre-defined console "snapshots".

RAQ is ideal for standalone installation, but networks with larger Axia networks too. A RAQ control surface and a QOR.16 integrated console engine constitute a complete RAQ system, but two RAQ consoles, or one RAQ and one DESQ console, may be paired with a single QOR.16 for cost-effective multi-console deployment.

## FEATURES

- 6 faders, each with instant access to any source. Assign any type of source to any channel with a simple twist of the Options knob.
- Proven surface-and-core architecture separates control from mixing processes. No audio passes directly through RAQ; all mixing and processing is performed in the QOR.16 Integrated Console Engine – so studio “accidents” don’t turn into off-air events.
- Software upgrade for QOR.16 integrated console makes the RAQ AoIP console AES67-compliant.
- Two stereo mix buses and a Preview (cue) bus.
- Alpha-numeric OLED displays below each fader always show the current audio source with audio confidence meter, and, when the Options knob is pressed, offer fast adjustment of fader gain trim, EQ, pan and balance and other features without panel clutter or intimidating controls.
- Channel-input confidence meters assure talent of audio presence before taking sources to air.
- Built-in three-band per-source EQ.
- Each fader’s context-sensitive Soft key can be used to activate talkback, start delivery system events, or perform other special functions.
- Every channel strip has a stereo Preview (“cue”) function, with a unique interlock system for fast cuing of multiple sources.
- Reconfigurable CR monitor section with direct-selection of Program buses and reassignable buttons that allow instant monitoring of external sources.
- Four custom Show Profile “snapshots” can be saved to instantly recall frequently-used console setups – useful to quickly prepare for interview segments, music-intensive programming, call-in talk shows, etc.
- Automatic mix-minuses for phones, remote talent, etc.
- Bright OLED meter display provides responsive, readable VU or PPM metering styles. Switchable display allows metering either Program bus.
- All functions can be accessed remotely for configuration, management and diagnostic purposes using any standard Web browser.
- Network gateway enables loading networked sources while simultaneously exporting outputs back to the network.
- Easy-to-deploy QOR.16 integrated console engine includes console CPU and power supply, DSP mixing engine, custom Ethernet switch with 6 Livewire® ports and 2 Gigabit ports for studio networking, 8 analog inputs and 4 analog outputs, 1 AES input and 1 AES output, 2 Mic inputs with switchable Phantom power, and 4 GPIO ports for machine control. I/O can be expanded using Telos Alliance® xNodes.
- QOR.16’s integrated zero-configuration network switch is custom-designed for broadcasting — no switch setup required. Supports Simple Networking, allowing up to 4 QOR engines to be daisy-chained without the need for a separate core switch.

## Axia RAQ | Rack-Mount IP Console

- Each QOR.16 can support two connected RAQ or DESQ consoles, or one of each.
- Fan-free, convection-cooled power supply for noiseless in-studio operation.
- Automixer available on all channels.

## IN DEPTH

### A big console for small spaces.

Not every studio requires a full-size mixing console. Not every studio is full-size, itself! But you still want the advantages of IP-Audio networking: the ability to send program audio to other studios, the ability to consume audio from satellite downlinks, remote codecs and phone hybrids, or to trigger routing scene changes from a user-mapped control panel. And you don't want a toylike plastic pro-audio mixer — you want a real broadcast console that fits into a rack or turret, or on a small desktop space. A console with a small footprint, but big capabilities.

RAQ is a compact, special-purpose IP console from Axia. It may be compact in stature, but it's big on features and performance. RAQ has "big board" capabilities you won't find in other consoles of this size — automatic per-fader mix-minus, built-in EQ for voice and codec sources, and the ability to instantly load new local or networked sources to any fader with just the turn of a knob. Which means RAQ easily out-classes mixers with similar form factors — and even ones that take up much more room.



RAQ is a six-channel mixer over-engineered the Axia way, with super-duty rotary faders, aluminum front-panel, high-resolution OLED displays for channel assignment and metering, heavy-duty switches with LED lighting, and four Show Profile snapshot locations you can use to store and instantly recall favorite console configurations. One touch, and presto! Talent's favorite sources are loaded, monitor source configured, and bus assignments made.

## Axia RAQ | Rack-Mount IP Console

RAQ has two stereo mixing buses, plus a Preview (cue) bus, which makes it the perfect rack-mount utility mixer, whether in the studio, in an OB van, or in a road case. It fits in just 4 RU of space, so you can place it anywhere you need a full-featured, rack-mounted mixer: News booths, editors' workstations, voice-over booths, dubbing stations, even small remote studios or club installations.

RAQ also features something else you won't find on other compact consoles: a full-featured Monitor section. Along with headphone and Preview volume controls, you'll also find a selector that lets you hear either Program 1, Program 2, or one of two External sources —helpful for monitoring off-air feeds, a processed headphone chain, or another studio. And you can finally say goodbye to Dymo labels and masking tape: each channel has an OLED display to show exactly what source is loaded.



Audio I/O, GPIO, console CPU, super-duty power supply, and even a network switch are all built into the QOR.16. Just plug in your mics, CD players, codecs, profanity delays, whatever. There are 16 audio I/O ports: two Mic inputs with switchable Phantom power, eight analog inputs and four analog outputs, and one AES/EBU input and output. QOR.16 also has four GPIO logic ports for machine control of studio peripherals, six 100BASE-T ports for Livewire devices, and two Gigabit ports with SFP for connection to the outside world. For more I/O, just add Telos Alliance xNode interfaces. And you can daisy chain as many as four QOR engines without the need for an external Ethernet switch, making installation even more economical.

And here's the kicker: one QOR.16 can power two RAQ mixers — or a RAQ and a DESQ (RAQ's six-fader, desktop-mount cousin)! Despite all these features, RAQ is so cost-effective, broadcasters are coming up with creative, new uses for them. We figured folks would use them for news booths, dubbing stations and guest performance mixers, but audio pros are also telling us they'd be ideal for broadcast remote kits, mobile trucks, for shipboard broadcasting, or as personal mixers. What else could you use them for? The possibilities are endless...

## SPECIFICATIONS

### QOR.16 Connections

- Microphone Inputs: 2x balanced XLR-F, with selectable Phantom power
- Analog Inputs: 8x RJ-45, StudioHub+ standard.
- Analog Outputs: 4x RJ-45, StudioHub+ standard.
- AES/EBU Inputs: 1x RJ-45, StudioHub+ standard.
- AES/EBU Outputs: 1x RJ-45, StudioHub+ standard.
- GPIO: 4x DB-15
- Livewire:
  - 4x 100BASE-T with PoE, RJ-45
  - 2x 100BASE-T, RJ-45
  - 2x 1000BASE-T, RJ-45
  - 2x Gigabit, SFP (Small Form Pluggable)
- Console Frame Connections: 1x, 6-pin "latch and lock" style
- Accessory Connections: 1x, 6-pin "latch and lock" style

### Microphone Preamplifiers

- Source Impedance: 150 Ohms
- Input Impedance: 4 k Ohms minimum, balanced
- Nominal Level Range: Adjustable, -75 dBu to -20 dBu
- Input Headroom: >20 dB above nominal input
- Output Level: +4 dBu, nominal

### Analog Line Inputs

- Input Impedance: 20 k Ohms
- Nominal Level Range: Selectable, +4 dBu or -10dBv
- Input Headroom: 20 dB above nominal input

### Analog Line Outputs

- Output Source Impedance: <50 Ohms balanced
- Output Load Impedance: 600 Ohms, minimum
- Nominal Output Level: +4 dBu
- Maximum Output Level: +24 dBu

## Digital Audio Inputs and Outputs

- Reference Level: +4 dBu (-20 dB FSD)
- Impedance: 110 Ohm, balanced (XLR)
- Signal Format: AES-3 (AES/EBU)
- AES-3 Input Compliance: 24-bit with selectable sample rate conversion, 20 kHz to 216kHz input sample rate capable.
- AES-3 Output Compliance: 24-bit
- Digital Reference: Internal (network timebase) or external reference 48 kHz, +/- 2 ppm
- Internal Sampling Rate: 48 kHz
- Output Sample Rate: 48 kHz
- A/D Conversions: 24-bit, Delta-Sigma, 256x oversampling
- D/A Conversions: 24-bit, Delta-Sigma, 256x oversampling
- Latency <3 ms, mic in to monitor out, including network and processor loop

## Frequency Response

- Any input to any output: +0.5 / -0.5 dB, 20 Hz to 20 kHz

## Dynamic Range

- Analog Input to Analog Output: 102 dB referenced to 0 dBFS, 105 dB "A" weighted to 0 dBFS
- Analog Input to Digital Output: 105 dB referenced to 0 dBFS
- Digital Input to Analog Output: 103 dB referenced to 0 dBFS, 106 dB "A" weighted
- Digital Input to Digital Output: 125 dB

## Equivalent Input Noise

- Microphone Preamp: -128 dBu, 150 Ohm source, reference -50 dBu input level

## Total Harmonic Distortion + Noise

- Mic Pre Input to Analog Line Output: <0.005%, 1 kHz, -38 dBu input, +18 dBu output
- Analog Input to Analog Output: <0.008%, 1 kHz, +18 dBu input, +18 dBu output
- Digital Input to Digital Output: <0.0003%, 1 kHz, -20 dBFS
- Digital Input to Analog Output: <0.005%, 1 kHz, -6 dBFS input, +18 dBu output

## Crosstalk Isolation, Stereo Separation And CMRR

- Analog Line channel to channel isolation: 90 dB isolation minimum, 20 Hz to 20 kHz
- Microphone channel to channel isolation: 80 dB isolation minimum, 20 Hz to 20 kHz
- Analog Line Stereo separation: 85 dB isolation minimum, 20Hz to 20 kHz
- Analog Line Input CMRR: >50 dB, 20 Hz to 20 kHz
- Microphone Input CMRR: >50 dB, 20 Hz to 20 kHz

## Audio Processing

- Mic Equalizer (applicable to up to 6 faders)
- Frequency Bands: 20Hz to 320Hz, 125Hz to 2KHz, 1.25KHz to 20KHz.
- Cut/Boost range on each band: -25dB to +15dB.
- Q-factor: Automatic - bandwidth varies based on amount of cut or boost.

## Power Supply AC Input, QOR.16 with RAQ Console

- Auto-sensing supply, 90VAC to 240VAC, 50 Hz to 60 Hz, IEC receptacle, internal fuse
- Power consumption: 100 Watts

## Operating Temperatures

- -10 degrees C to +40 degrees C, <90% humidity, no condensation

## Dimensions

- W 19.0 in (48 cm), H 3RU, 6.97 in (177.0 cm), D 2.54 in (64.50 cm)

## Regulatory

**North America:** FCC and CE tested and compliant, power supply is UL approved.

**Europe:** Complies with the European Union Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS), as amended by Commission Decisions 2005/618/EC, 2005/717/EC, 2005/747/EC (RoHS Directive), and WEEE.