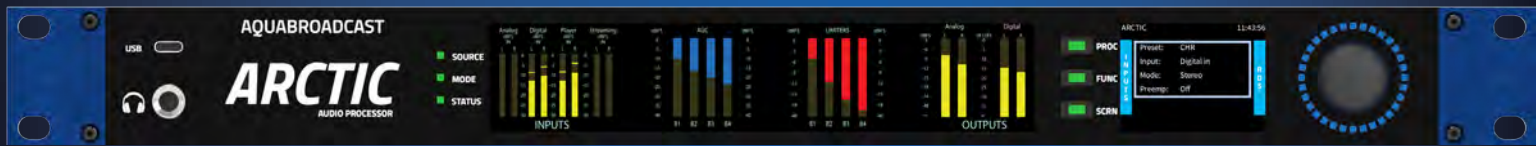


Made by engineers, for engineers



ARCTIC

4-Band Audio Processor

Datasheet and Specifications

FULLY FEATURED 4-BAND AUDIO PROCESSOR

The Aqua Broadcast ARCTIC is more than just an audio processor—it's a complete broadcast audio control hub, designed from the ground up for modern FM radio stations that demand clarity, flexibility, and reliability. Built with precision DSP hardware and powered by a fully customized Linux operating system, the ARCTIC delivers a powerful combination of exceptional audio quality, robust connectivity, and intuitive operation. At its heart, the ARCTIC features a 4-Band audio processing architecture, giving broadcasters precise control over their on-air sound. Whether your station prefers a smooth, natural tone or a bold, aggressive sound designed to cut through the noise, the ARCTIC ensures your audio always stands out. Its crystal-clear, punchy audio helps define your station's sonic identity and gives you the professional edge needed to capture and retain listeners.

UNRIVALLED CONNECTIVITY

The ARCTIC has been engineered with versatility in mind, offering a full suite of inputs and outputs to integrate seamlessly with any broadcast chain. Standard connections include:

- Analog inputs and outputs for compatibility with traditional studio gear
- AES/EBU digital audio for precision transmission and reception
- Digital MPX over AES192, ensuring direct-to-transmitter connectivity without compromise
- Ethernet and USB for networking, streaming, and management tasks
- Advanced GPIO for external device triggering and automation

ADVANCED PROCESSING FEATURES

The ARCTIC's processing toolkit includes everything required for professional, consistent, and powerful FM audio:

- Bass Enhancement for deep, powerful low-end that remains clean and controlled
- Pilot Protection to safeguard stereo pilot integrity
- Wide AGC for seamless loudness management across diverse content sources
- Preset Library packed with expertly designed, modern sound profiles that get you on-air instantly

And because every station is different, all presets can be customized and fine-tuned, allowing you to create the exact sound signature that reflects your station's brand. A hardware power-off bypass is built in for operational security, ensuring your signal keeps flowing in the event of an outage. Dual LAN ports provide redundant connectivity, keeping your station online at all times.

MODERN DESIGN, INTUITIVE OPERATION

The ARCTIC is designed to be as impressive in operation as it is in performance. It features a widescreen ultra-clear RGB main display, a secondary RGB status screen, and intuitive joystick controls with haptic feedback for precision adjustments. Durable silicon buttons ensure long-term reliability and quick access to key functions. This thoughtful design makes configuration and daily operation simple, fast, and accurate—whether you're a seasoned engineer or a first-time user. The modern interface not only looks great in your rack but also reduces setup time dramatically.

REMOTE CONTROL & GLOBAL MANAGEMENT

Control and monitoring are at the heart of the ARCTIC. The advanced communications package provides:

- A secure, intuitive web-based interface accessible from any browser
- Full remote control via Ethernet (HTTPS) for complete flexibility
- SNMP v1, v2c, and v3 management for professional network integration
- Email and alert notifications to keep you informed about system status
- Live audio monitoring streams, letting you listen to both processed and source audio from anywhere

This means your station is always under control—whether you're in the studio, at the transmitter, or across the globe

FULLY FEATURED 4-BAND AUDIO PROCESSOR

AUTOMATION THAT WORKS FOR YOU

The ARCTIC includes a powerful automation and scheduling package. This allows the processor to automatically change settings or presets based on:

- Time schedules (e.g., daypart programming)
- External triggers via GPI or SNMP
- Environmental conditions or system inputs

This ensures your audio chain adapts effortlessly to different program formats or operational needs, freeing your team to focus on content while the ARCTIC takes care of consistency.

CONFIDENCE AUDIO MONITORING

With the ARCTIC's new confidence audio monitoring function, engineers and operators can stream audio directly from the processor to any web-enabled device. You can listen to:

- The processed audio before it goes to air
- Source feeds such as Analog, Digital, or STL inputs
- Test tones for quick troubleshooting

This function is invaluable for checking audio quality and source integrity remotely, giving you a real-time window into exactly what your audience will hear.

BUILT-IN STREAMING FLEXIBILITY

As standard, the ARCTIC now includes support for Shoutcast and Icecast stream inputs. These can be configured as either primary or backup sources, ensuring uninterrupted service in the event of studio or STL failure. This extra level of redundancy helps keep your station on-air no matter what challenges arise.

THE COMPLETE PROCESSING SOLUTION

The Aqua Broadcast ARCTIC isn't just another audio processor—it's a fully integrated broadcast solution designed for today's radio. By combining world-class DSP processing, intuitive design, extensive connectivity, advanced automation, and global monitoring, it empowers broadcasters to deliver consistent, professional-quality sound with total confidence.

Whether you're running a small community station or managing a nationwide network, the ARCTIC adapts to your needs, providing the tools, reliability, and performance that modern broadcasters demand. With the ARCTIC in your rack, your station is always ready to sound its absolute best.



STANDARD FEATURES

- | | |
|--|---|
| Linux OS | Ethernet Control with HTTPS |
| Dual RGB Screens | SNMP v1, v2c, v3 |
| 4 Band Audio Processor | Advanced Automations and configurations |
| Audio confidence monitoring by web browser | Scheduler |
| Dynamic, UECP Compliant RDS Encoder | Audio Failover and Silence Detection |
| ITU-R BS412.9 Limiter | Backup Audio player via USB |
| Digital MPX (AES192) | Shoutcast / Icecast Stream input |
| Dual LAN | HDMI |

OPTIONS

- MicroMPX
- 48V DC Power input
- Optional 2.4 GHz, 5.0 GHz IEEE 802.11 b/g/n/ac wireless
- Optional Bluetooth 5.0, BLE

GENERAL

Input ACV @ 50/60Hz	100-240VAC, 50/60HZ
Power Connector	IEC13 3A filtered
Optional DC power input	48V
Dimensions WxDxH (inch)	19x10.5 x 1RU (1.75")
Dimensions WxDxH (cm)	48.3 x 27 x 44
Weight	2.5kg / 5.51lb

ENVIRONMENTAL

Maximum operating Altitude	15,000 ft / 4,420m AMSL
Temperature range	0 to +45°C working. -10 to +50°C storage
Humidity	95% @ 35°C, non-condensing

STEREO ENCODER

Test Conditions	400Hz/1kHz test tones at modulation level
Modes	≤75kHz
Frequency response	Stereo, Mono L+R, Mono L, Mono R
Pre-emphasis	20Hz-15kHz ±0.02dB
Pilot tone	0, 50 or 75µs
Subcarriers suppression	19kHz, adjustable level 0-12%
Stereo Suppression	≤ -70dB
Stereo SNR	≥75dB AES/EBU input ≥70dB Analogue input ≥80dB with 75us de-emphasis
Stereo THD+N	≥75dB without de-emphasison
Crosstalk	both inputs<0.03% ≥70dB, between L+R and L-R due to channel matching, both inputs

MONO OPERATION

Frequency response	20Hz - 15kHz ±0.02dB
Pre-emphasis	0, 50 or 75 µs
Mono SNR	≥100dB, with 75us de-emphasis
Mono THD+N	≤0.002% analogue input, ≤0.001% AES input, with 75us de-emphasis

CONNECTIVITY

2x 1Gbit Ethernet (1 per CM5)
2x 100Mbit Ethernet with POE+ (1 per CM5, 1 shared with AES67 module)
4x USB 3.0 (2 per CM5)
1x USB 2.0 on the front panel
1x USB UART for primary CM5
2x HDMI 2.0 (1 per CM5)
Optional 2.4 GHz, 5.0 GHz IEEE 802.11 b/g/n/ac wireless on CM5
Optional Bluetooth 5.0, BLE on CM5

USER INTERFACE

Primary display
Secondary display
Control Inputs

TFT LCD 320x240 RGB
TFT LCD 1424x280 RGB
Analogue joystick with 3 x silicone backlit buttons

ANALOG AUDIO INPUT

Stereo analogue audio input

2 x XLR female, 10k Ω impedance level adjustable 0-24dBu

ANALOG AUDIO OUTPUT

Stereo analogue audio output

2 x XLR female, 10k Ω impedance level adjustable 0-24dBu
Optional bypass relay module for power-off signal pass through

DIGITAL AUDIO INPUTS

1 x AES/EBU Audio, RJ45 StudioHUB+, 48kHz, 24bits, 110 Ω output impedance
1 x AES/EBU MPX, RJ45 StudioHUB+, 192kHz, 24bits, 110 Ω output impedance

DIGITAL AUDIO OUTPUTS

1 x AES/EBU Audio, RJ45 StudioHUB+, 48kHz, 24bits, 110 Ω output impedance
1 x AES/EBU MPX, RJ45 StudioHUB+, 192kHz, 24bits, 110 Ω output impedance

ANALOG MPX OUTPUT

2 x BNC female, 10 Ω output impedance, level adjustable 0-12dBu

ANALOG MPX INPUT

2 x BNC female, 10 Ω output impedance, level adjustable 0-12dBu
Optional bypass relay module for power-off signal pass through

HEADPHONE OUTPUT

1/4" (6.3mm) female stereo socket
Software adjustable volume
Minimum load impedance 16 Ω



AQUABROADCAST

Aqua Broadcast is shaping its own future, for you, our customers. Our transmitters are equipped with cutting-edge network security features, offering broadcasters peace of mind in an increasingly connected world. As we continue to develop new solutions, we aim to anticipate the future of broadcasting and deliver products that exceed expectations—helping our customers not just meet their goals but shape the future of broadcasting itself.

At Aqua Broadcast, we live by the mantra: “Made by engineers, for engineers.” With a team of highly skilled engineers and industry professionals boasting over 100 years of cumulative experience, we understand the technical challenges and demands faced by broadcasters. Our staff is driven by a passion for engineering excellence and a deep understanding of the intricacies of broadcast technology. Every product we create is designed with the precision and quality that only seasoned engineers can deliver.

We are not just a product manufacturer; we are a trusted partner for broadcasters across the globe. Our commitment to supporting our clients goes beyond just selling a product. We take the time to understand each station’s unique needs, offering tailored solutions and providing ongoing support to help them achieve their goals. Whether it’s ensuring smooth broadcasts, optimizing performance, or delivering custom-built features, Aqua Broadcast is always there to ensure your success.

CONTACTS

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