

Made by engineers, for engineers



AQUA TOOL

POWERED BY



6 Band Audio Processor & MicroMPX Encoder

Datasheet and Specifications

6-BAND AUDIO PROCESSOR

The Aqua Tool from Aqua Broadcast combines world-class hardware with the industry-leading Stereo Tool software by Thimeo Audio Technology. The result is audio processing that is bold, clean, punchy, and dynamic—delivering top-tier performance without the premium price tag.

Built on a rock-solid platform with precision DSP hardware and a customized Linux operating system, the Aqua Tool delivers outstanding audio quality, reliable connectivity, and intuitive control. At its core is a powerful 6-band audio processing engine, giving broadcasters the flexibility to shape their sound exactly as they want it—whether smooth and natural or bold and aggressive. With crystal-clear, impactful audio, the Aqua Tool defines your station's sonic identity and ensures you stand out on the dial.

UNRIVALLED CONNECTIVITY

The Aqua Tool 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 Aqua Tool'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 Aqua Tool 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.

UNRIVALLED CONNECTIVITY

The Aqua Tool 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
- MicroMPX encoder on-board
- Ethernet and USB for networking, streaming, and management tasks
- Advanced GPIO for external device triggering and automation

6-BAND AUDIO PROCESSOR

REMOTE CONTROL & GLOBAL MANAGEMENT

Stay in control wherever you are. The Aqua Tool includes:

- Secure web-based interface accessible from any browser
- Full remote control via HTTPS/Ethernet
- SNMP v1, v2c, and v3 for professional integration
- Email alerts and notifications
- Live audio monitoring streams for both processed and source audio

Whether you're in the studio, at the transmitter, or halfway across the world, your station remains firmly under your control.

BUILT-IN AUTOMATION

The Aqua Tool adapts automatically to your programming needs with built-in scheduling and automation features. Presets can switch based on:

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

This ensures consistent, tailored audio without constant manual adjustments—freeing your time to focus on content.

CONFIDENCE AUDIO MONITORING

Stream audio directly from the processor to any web-enabled device. Listen to:

- Processed audio before it goes to air
- Source feeds (Analog, Digital, or STL)
- Test tones for quick troubleshooting

This feature gives engineers real-time confidence in audio quality and source integrity, wherever they are.

STREAMING FLEXIBILITY

As standard, the Aqua Tool supports Shoutcast and Icecast stream inputs, configurable as primary or backup sources. This ensures uninterrupted service, even if your studio or STL link goes down—keeping your station on-air no matter what

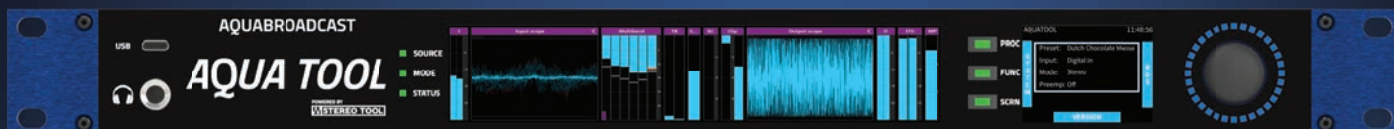
MICROMPX ON-BOARD

With integrated MicroMPX technology from Thimeo Audio Technology, the Aqua Tool can deliver a full FM signal, including RDS data, at bitrates as low as 320 kbps. MicroMPX supports multiple transmitter feeds and off-site monitoring. Direct connection to Cobalt Fully Featured FM Transmitters is supported (MicroMPX Decoder license required).

THE COMPLETE PROCESSING SOLUTION

The Aqua Tool is more than just an audio processor—it's a fully integrated broadcast solution for today's radio. With its combination of advanced DSP, intuitive design, global connectivity, and flexible automation, it gives broadcasters consistent, professional-quality sound and complete peace of mind.

Whether you're running a small community station or managing a nationwide network, the Aqua Tool adapts to your needs—delivering the tools, reliability, and performance modern broadcasters demand. And with regular software updates included, your station will always stay ahead.



STANDARD FEATURES

- | | |
|--|---|
| Linux OS | Ethernet Control with HTTPS |
| Dual RGB Screens | SNMP v1, v2c, v3 |
| 6 Band Audio Processor | Advanced Automations and configurations |
| MicroMPX | Scheduler |
| Audio confidence monitoring by web browser | Audio Failover and Silence Detection |
| Dynamic, UECP Compliant RDS Encoder | Backup Audio player via USB |
| ITU-R BS412.9 Limiter | Shoutcast / Icecast Stream input |
| Digital MPX (AES192) | HDMI |
| Dual LAN | |

OPTIONS

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

PROCESSING STANDARD FEATURES

- | | |
|-------------------------------|---|
| Perfect Declipper | Natural Dynamics |
| Delossifier | True Bass |
| Intelligent Composite Clipper | Bass Exciter |
| Dehummer | Adaptive Compressor |
| Streaming | BS412 limiter |
| Noise Gate | MicroMPX encoder |
| Phase repair | AM Brilliance |
| Speech detection | HTML 5 web interface, JSON remote control interface |

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 $\leq 75\text{kHz}$
Modes	Stereo, Mono L+R, Mono L, Mono R
Frequency response	20Hz-15kHz $\pm 0.02\text{dB}$
Pre-emphasis	0, 50 or 75 μs
Pilot tone	19kHz, adjustable level 0-12%
Subcarriers suppression	$\leq -70\text{dB}$
Stereo Suppression	$\geq 75\text{dB}$ AES/EBU input
Stereo SNR	$\geq 70\text{dB}$ Analogue input
	$\geq 80\text{dB}$ with 75 μs de-emphasis
	$\geq 75\text{dB}$ without de-emphasis on both inputs $< 0.03\%$
Stereo THD+N	$\geq 70\text{dB}$, between L+R and L-R due to channel
Crosstalk	matching, both inputs

MONO OPERATION

Frequency response	20Hz - 15kHz $\pm 0.02\text{dB}$
Pre-emphasis	0, 50 or 75 μs
Mono SNR	$\geq 100\text{dB}$, with 75 μs de-emphasis
Mono THD+N	$\leq 0.002\%$ analogue input,
	$\leq 0.001\%$ AES input, with 75 μs 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 and Audio products 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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