

PERCEPTUAL SOUNDMAX™

Q24-6111

One box for
FM and AM.

Your Station Shines with Its Own Signature SoundMax Sound.



24-band

Signature SoundMax audio
processing

3-in-1

processing · encoding &
streaming · sweetening

2 ×

analog composite outputs,
plus digital MPX · built-in RDS
encoder

1

StreamMax™ stream

AIDEAL AUDIO™ PROCESSING

The Signature SoundMax sound — *with AI at its side.*

01

Enhanced consistent loudness

24-band processing packs far more audio density than 5- or 6-band processors — higher average modulation and wider coverage.

02

Crisp & clear sound

Free of phase distortion and never over-processed: clarity, loudness and presence together.

03

Lively broadcasts

Vocal, stereo-image and bass enhancement, and the sweetening tools, make the sound livelier and pleasing.

04

Embedded deep audio AI

Patent-pending real-time multi-class classification — noise, speech, music, genre — adapts the processing.

The 24-band high-resolution core

Linear-phase processing in 24 psychoacoustically tailored bands; compression, limiting, expansion and gating in a single stage.

Dynamic Listening Fatigue Reduction

Unique to SoundMax: conditions the audio envelope in six bands to minimise listener fatigue.

SmoothClip™ look-ahead limiting

Loud, clean peaks, with the final level set for your transmitter or your codec.

The Aideal+™ genie

Recommends the best-matching profile, or keeps tuning toward your target — you approve before air.

Aided by AI

Deep-learning networks read noise profile, content, mood and genre, and gently adapt the processing — true to your profile.

Intelligent Loudness Control

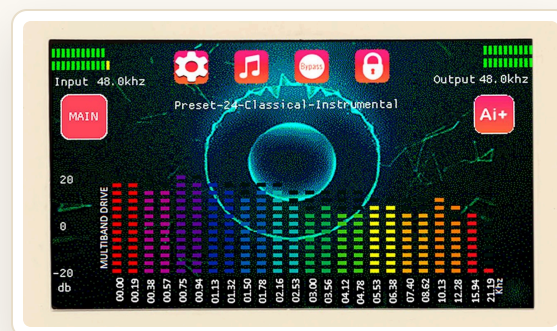
Steady, filling and consistent loudness, held at your target on every programme.

Noise reduction & SpatialMax™

Wideband noise removal, AI band noise gating, and SpatialMax™ to widen the sound stage.

18 genre presets + custom profiles

Refine any preset with 1000+ parameters and save unlimited custom profiles.



The front-panel touchscreen: 24-band drive meters, the active profile and the Ai+ button — with a knob, headphone socket and built-in test tones.

1000+ parameters on every path.

Basic and Advanced tuning from the front panel or from SoundMaxManager™ — per-band thresholds, attack and release, compression, expansion, graphic EQ and the two-band limiter.

THREE IN ONE

Three broadcast technologies, *one 2U box.*



24-band multiband processing

Optimised for FM and AM, with psychoacoustic modelling, deep-network ML and harmonic analysis.



StreamMax™ streaming simulcast

A full stream encoder with multi-rate HLS, a distribution server and CDN push or pull.



Audio sweetening suite

DLFR, wideband noise reduction, SpatialMax™, voice and bass enhancement, graphic EQ and two-band limiting.

ON AIR AND ONLINE



FM composite + RDS

- 2 × composite / MPX outputs (BNC), ITU-R BS 412, individual level up to +12 dBu
- Built-in RDS encoder: PI, PS, PTY, PTYN, dynamic PS, RT, RT+, TP/TA, CT, AF, MS
- Now-playing from automation in XML or UECP (EN 62106), over TCP or UDP
- Inputs for SCA or an external 19 kHz pilot, and an external RDS encoder
- Pilot 6–12 %; pre-emphasis 50 or 75 µs; digital MPX at 192 kHz



Nielsen™ watermarking

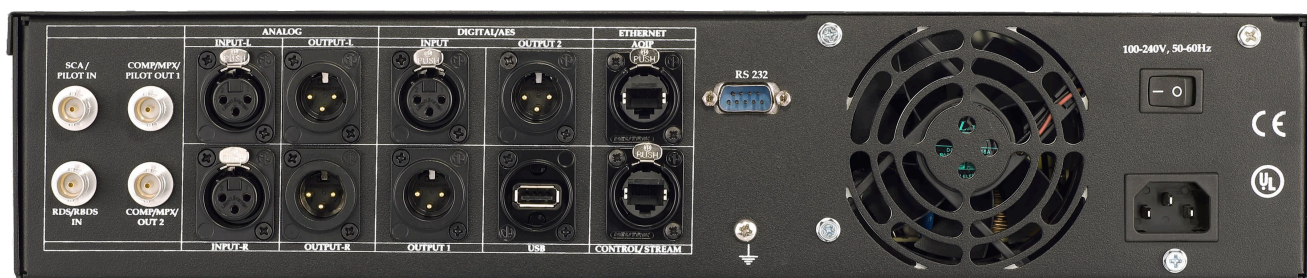
- Fully certified CBET encoding, in the box
- Station SID and check digits, as issued by Nielsen
- Time-code insertion; radio mode set for your region
- Prior-watermark detection, with overwrite
- EAS handling built in; no external encoder in the chain



StreamMax™ simulcast

- **One stream** of the main programme, with its own processing
- AAC, HE-AAC v1/v2 at 24–384 kbps; MP3 at 32–320 kbps
- Two-bitrate adaptive HLS, 3–10 s chunks
- CDN push incl. Amazon S3 (AWS SigV4); Icecast — yours or ATC's servers
- Built-in HTTP server; UDP unicast / multicast

Every input and output, *on one 2U panel.*



ANALOG

XLR in and out, balanced

AES/EBU

Input 32–192 kHz auto-sense · outputs 1 and 2 · digital MPX at 192 kHz

FM COMPOSITE

2 × BNC out with RDS · 2 × BNC in (SCA / pilot, external RDS)

NETWORK

Ethernet-1: AES67 in and out · Ethernet-2: SoundMaxManager™, SNMP, stream

OTHER

USB 2.0 · RS-232 and GPIO (optional)

IN

Analog XLR, AES/EBU, AES67 or a network stream — with automatic failsafe to a backup input.

PROCESS

24 bands of Aideal Audio™, the Aideal+™ genie, and the sweetening suite.

OUT

Composite with RDS, analog and AES outputs, AES67 and the stream — all at once, Nielsen inside. AES output 2: a second main or digital MPX.

SoundMaxManager™

One PC controls every SoundMax on the network — and the front panel does the same on the unit itself.

- Finds SoundMax units on the network automatically; SNMP compliant
- Profiles, Basic and Advanced tuning — export and import between units
- Streaming set-up, stream input and AES67 in and out
- RDS encoder: the full RDS data set and the automation feed
- Monitoring, with firmware updates and configuration backup over the network

Also available: Q24-6111HD — with HD Radio / DRM+ paths, diversity delay and three streams.

Q24-6111 Technical specifications

24 Band Audio Processing for Audio Quality Optimization

ANALOG AUDIO INPUT

Configuration	Left and Right / Stereo
Maximum Input Level / Impedance	+27dBu / >10kΩ
Nominal Input Level	Adjustable -10.0 to +13.0 dBu
A/D Converter Resolution	24-bit
EMI Suppressed	Yes
Connectors	Balanced XLR Female

ANALOG AUDIO OUTPUT

Configuration	Left and Right / Stereo
Output Level	Adjustable -6.0 to +24 dBu
SNR	≥ 90 dB (20 Hz to 20 kHz)
Crosstalk	≤ -90 dB (20 Hz to 20 kHz)
Distortion	THD ≤ 0.01% (20 Hz to 20 kHz)
D/A Converter Resolution	24-bit
EMI Suppressed	Yes
Connectors	Balanced XLR Male

DIGITAL AUDIO INPUT (AES/EBU)

Configuration	Stereo
Sampling Rate	32/44.1/48/96/192 kHz (Auto Sense)
Word Length	16 bit or 24 bit
Input Reference Level	-25.0 to 0 dBFS
Connector	AES-XLR, Female

DUAL DIGITAL AUDIO OUTPUTS (AES/EBU)

Configuration	Two Stereo Outputs with Individual Software Level control
AES1	MAIN output or Digital MPX (configurable)
AES2	HD1 or DRM-Service A Output
Output Levels	-20.0 to 0 dBFS
Sampling Rate AES 1 (MAIN/MPX)	32, 44.1, 48 kHz (stereo MAIN) OR 192 kHz (Digital MPX)
Sampling Rate AES 2 (HD1/DRM+)	44.1 or 48 kHz (stereo)
Connectors	AES – XLR Male

AUDIO OVER IP INPUT/OUTPUT

Configuration	Stereo Input/Output follows AES67 standard. Compatible with Livewire, Ravenna, Wheatnet.
Connectors	Independent RJ-45

COMPOSITE BASEBAND OUTPUT

Configuration	Two Outputs with Individual software level Control
Maximum Output Level (unbalanced)	+12dBu
D/A Conversion	24 Bits
Signal to Noise Ratio	≥ 90 dB (20Hz-15kHz)
THD	≤ 0.01% (20 Hz to 15 kHz)
Stereo Separation	≥ 60 dB (20 Hz to 15 kHz)
Cross Talk	≤ 90 dB, channel to channel
38 kHz Suppression	> 90 dB
Pilot Protection	65 dB relative to 9% injection, +/- 500 Hz
57 kHz (RDS) Protection	> 60 dB relative to 4% injection, +/- 2 kHz. In box RDS Encoder
Connectors	Coaxial BNC, EMI-Suppressed

COMPOSITE BASEBAND INPUT

Configuration	Two coaxial BNC inputs configurable as Pilot/RDS/SCA
----------------------	--

ETHERNET & REMOTE PC MANAGEMENT CONTROL

Configuration	Auto Presence Broadcast on Ethernet
Powerful SoundMax Manager Software	on any networked PC for monitoring configuration & control.
Connectors	RJ-45, EMI-Suppressed

POWER

Power Requirements	105-260 V AC, 45-60 Hz
Connector	IEC, EMI Suppressed, Detachable 3-wire chord with earthing.
Safety Standards	UL, CE

STREAMING AUDIO OUTPUT

Configuration	1 x Internet Stream Out for MAIN.
Encoding formats	Enhanced AAC Profiles: LC, HE-v1, HE-v2; MP3
Encapsulation Format	ADTS or MPEG2-TS for AAC; MP3 or MPEG2-TS for MP3
Bitrates	32-256 kbps for AAC; 32-320 kbps for MP3
HLS Generation	Up to 2 bit rates for adaptive HLS; Chunking 3-10 sec (soft-configurable)
Distributions	CDN Primary/Secondary Push/Post · External Icecast Servers · In-built HTTP server for direct pull of AAC/MP3/HLS · UDP Unicast/Multicast
Player Compatibility	iPhone / Android, VLC, WMP
Browser Compatibility	Edge, Chrome, Safari, Mozilla

DIMENSIONS

Width / Height / Depth	19" · 2U (3.5") · 16.9"
-------------------------------	-------------------------

ENVIRONMENT

Weight	About 5.5 Kg
Working Altitude	3000 meter AMSL
Operating Temperature range	0° to 50° C
Relative Humidity	95%

Due to constant upgradation the above specification are subject to change without intimation.

AFTER-SALES & SERVICE

Engineered with premium components for 24/7 continuous operation. ATC Labs provides 24x7 after-sales and service support from its own team, with software upgrades as part of that support.

ABOUT ATC LABS

Founded by former Bell Labs researchers, ATC Labs brings decades of signal-processing and acoustics expertise to broadcasting — its technology serves over 20 million listeners through FM, satellite and internet radio worldwide.

ATC Labs, USA

New Jersey · +1 973 624 1116

ATC Labs, India

Noida · +91 120 251 9611

Email

sales@atc-labs.com
support@atc-labs.com



atc-labs.com/product/s/soundmax/q24-6111