

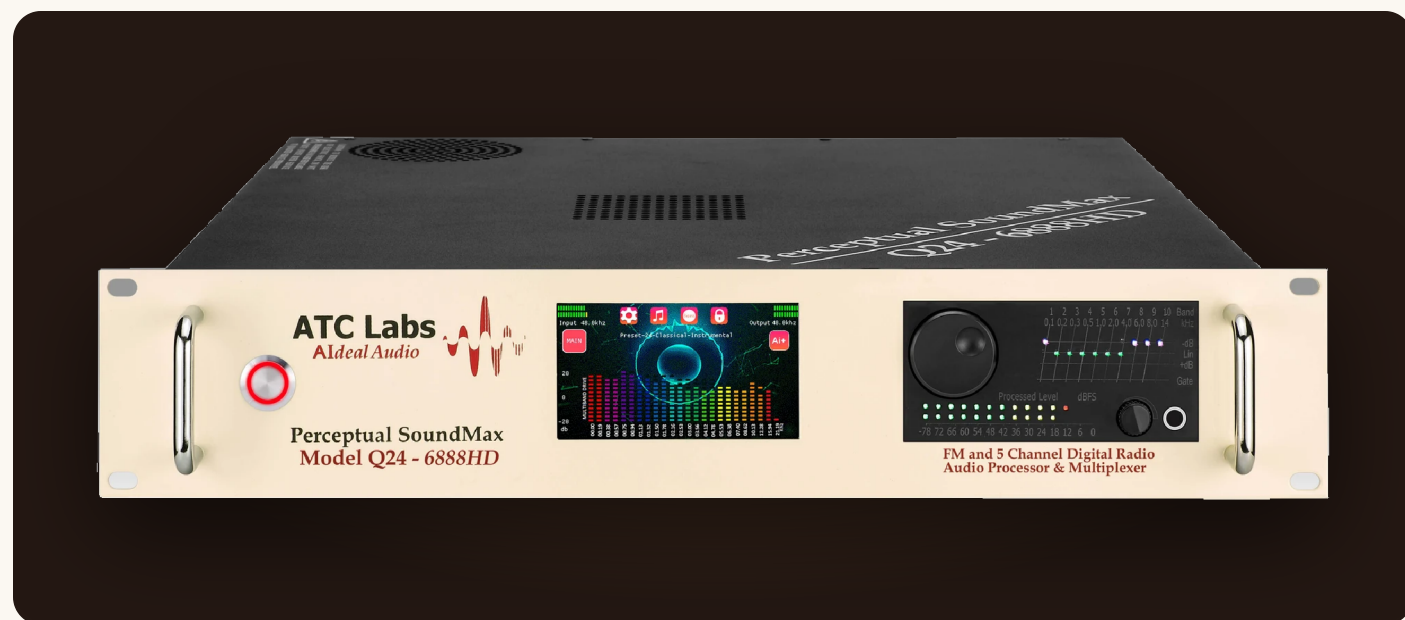
NEW • PERCEPTUAL SOUNDMAX™

Q24-6888HD

FLAGSHIP 6-SERIES PROCESSOR

Eight Services.
One SoundMax.

FM • HD1-HD5 • Streaming • Digital MPX



24-band

Signature SoundMax audio processing

5 digital radio services

HD Radio HD1 to HD5 — or
DRM A, B and C — each with
its own profile

192 kHz

dedicated digital MPX output

UP TO 12 s

diversity delay, accurate to ± 2
samples

HD RADIO AND DRM SERVICES

HD1 to HD5. *Five sounds.*

HD1 to HD5 — or DRM services A, B and C — each with its own 24-band profile, each on air and streamed.

	01 MAIN / HD1	02 HD2	03 HD3	04 HD4	05 HD5
ON AIR	Analog FM + HD1, aligned by the diversity delay of up to 12 s, ± 2 samples	From its own AES input or AES67	From its own AES input or AES67	From its own AES input or AES67	From its own AES input or AES67
PROCESSING	Its own 24-band profile	Its own 24-band profile	Its own 24-band profile	Its own 24-band profile	Its own 24-band profile
STREAMMAX™ STREAM	Its own separate processing — the online sound can differ from air	Same sound as on air	Same sound as on air	Same sound as on air	Same sound as on air

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

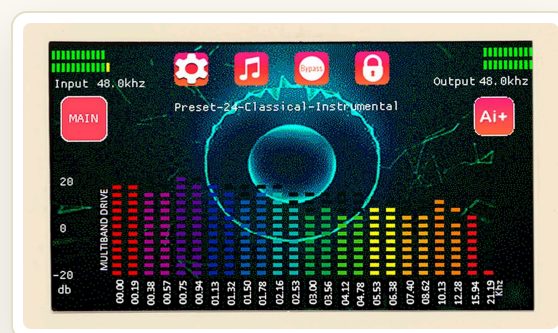
Steady, filling and consistent loudness, held at your target on every programme.

Noise reduction & SpatialMax™

Wideband noise removal, 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, every service.

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.

ON AIR AND ONLINE

**FM composite + RDS**

- 2 × composite / MPX outputs (BNC), ITU-R BS 412, individual level up to +12 dBu
- A dedicated digital MPX output at 192 kHz (AES)
- Built-in RDS encoder: PS and RadioText, static or dynamic
- Now-playing from automation, over TCP or UDP
- Inputs for SCA or an external 19 kHz pilot, and an external RDS encoder

**Nielsen™ watermarking**

- CBET watermarking encoder, 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; no external encoder in the chain

**StreamMax™ simulcast**

- **Five streams, one per service** — MAIN/HD1 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
- Built-in HTTP server; UDP unicast / multicast

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

**MAIN AES/EBU**

Input 32 / 44.1 / 48 kHz auto-sense · output · HD1 out

DIGITAL MPX

MPX OUT: 192 kHz over AES, or a stereo main

HD2 – HD5

4 × AES/EBU in and out, 44.1 / 48 kHz auto-sense

FM COMPOSITE

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

NETWORK

AOIP: AES67 in and out · CONTROL/STREAM: SoundMaxManager™, SNMP, 5 streams

IN

AES/EBU, AES67 or a network stream for MAIN; AES/EBU or AES67 for HD2 to HD5 — failsafe on the main input.

**PROCESS**

Five services, each with its own 24-band Aideal Audio™ profile — plus one for the MAIN/HD1 stream.

**ALIGN**

Diversity delay holds MAIN against HD1 — or CALIBRATE NOW measures and sets it.

**OUT**

Composite with RDS, digital MPX, MAIN and HD1 to HD5, AES67 and five streams — Nielsen™ in the box.

SoundMaxManager™

One PC controls every SoundMax on the network — and the front-panel touchscreen 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
- Five streams, the network-stream input and AES67 in and out
- RDS encoder, the automation feed, and the Nielsen™ settings
- Monitoring with VU meters; firmware and configuration over the network

Also available: Q24-6111HD — three digital services (MAIN/HD1, HD2, HD3) and three streams, in the same 2U box.

Q24-6888HD Technical specifications

24 Band Audio Processing for Audio Quality Optimization

DIGITAL AUDIO INPUT (AES/EBU)

Configuration	Stereo
Sampling Rate	32, 44.1 or 48 kHz (Auto Sense)
Word Length	16 bit or 24 bit
Input Reference Level	-25.0 to 0 dBFS
Connector	AES – XLR Female, 110 Ω

MAIN DIGITAL AUDIO OUTPUTS (AES/EBU)

Configuration	OUTPUT (MAIN) and HD1 OUT, individual software level control
HD1 OUT	HD1 or DRM Service A — or a second MAIN output
Diversity Delay	Up to 12 s on MAIN w.r.t. HD1, ±2 samples; CALIBRATE NOW
Output Levels	-20.0 to 0 dBFS
Sampling Rate	44.1 or 48 kHz (stereo)
Frequency Response	±0.3 dB (5 Hz – 20 kHz)
Pre-emphasis	50 μs or 75 μs (software)
Connectors	AES – XLR Male

DIGITAL COMPOSITE / MPX OUTPUT

Configuration	Dedicated MPX OUT connector: digital MPX, or a stereo main
Sample Rate	192 kHz
Connector	AES – XLR Male

HD2 – HD5 DIGITAL AUDIO INPUTS/OUTPUTS

Configuration	4 pairs of digital inputs/outputs for HD2 to HD5 (or DRM Services B and C)
Inputs	AES – XLR Female, 110 Ω, 44.1 or 48 kHz auto-sensed, 16 or 24 bit
Outputs	AES – XLR Male, -20 to 0 dBFS, sample rate follows the matching input

INPUT OPTIONS

Network Stream	HTTP/UDP AAC-ADTS/TS, MP3-TS or HLS as the MAIN source
Automatic Failsafe	Primary to secondary input on failure (user selectable)

COMPOSITE BASEBAND OUTPUT

Configuration	Two outputs, individual software level, ITU-R BS 412
Output Type	OUT1 composite or MPX; OUT2 composite, MPX or 19 kHz pilot
Output Level	-12 to +12 dBu (+12 dBu max)
D/A Conversion	24 Bits
Signal to Noise Ratio	≥ 90 dB (20 Hz – 15 kHz)
THD	≤ 0.02% (20 Hz – 15 kHz)
Stereo Separation	≥ 60 dB (20 Hz – 15 kHz)
Cross Talk	≤ -90 dB, channel to channel
38 kHz Suppression	≥ 90 dB
Pilot	19 kHz ±1 Hz, level 6% to 12%
Pilot Protection	65 dB relative to 9% injection, ±500 Hz
57 kHz (RDS) Protection	> 60 dB relative to 4% injection, ±2 kHz
RDS Encoder	In box — PS, RadioText; data over TCP/UDP
Connectors	Two coaxial BNC, EMI-Suppressed

COMPOSITE BASEBAND INPUT

Configuration	Two coaxial BNC: SCA or external 19 kHz pilot (IN1), external RDS/RBDS encoder (IN2)
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AUDIO OVER IP INPUT/OUTPUT

Configuration	Stereo in and out, AES67 standard
Format	L16 or L24, 44.1 or 48 kHz, stereo or mono
Packet Time (output)	0.125, 0.333, 1 or 4 ms
Clock	PTPv2 (IEEE 1588-2008)
Connector	Dedicated RJ-45 (AOIP), EMI-Suppressed

POWER

Power Requirements	100–240 V AC, 50–60 Hz
Connector	IEC, EMI Suppressed, detachable 3-wire cord with earthing
Safety Standards	ETL listed to UL standards, CE

STREAMING AUDIO OUTPUT

Configuration	5 × Internet stream out: MAIN/HD1 (its own processing), HD2, HD3, HD4, HD5
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	24–384 kbps for AAC; 32–320 kbps for MP3
HLS Generation	Up to 2 bitrates for adaptive HLS; chunking 3–10 s
Distributions	CDN primary/secondary push (incl. Amazon S3, AWS SigV4) · Icecast — your own or ATC Labs' servers · in-built HTTP server · UDP unicast/multicast
Player Compatibility	iOS / Android, VLC
Browser Compatibility	Edge, Chrome, Safari, Firefox

ETHERNET & REMOTE PC MANAGEMENT CONTROL

Configuration	Auto Presence Broadcast on Ethernet
Management	SoundMaxManager™ on any networked PC — monitoring, configuration & control; SNMP compliant
Connectors	AOIP and CONTROL/STREAM, RJ-45, EMI-Suppressed
Front Panel	Colour touchscreen, rotary knob, headphone jack; test tones and diagnostics
GPIO (optional)	8 in / 2 out, opto-isolated, DB-25

DIMENSIONS

Width / Height / Depth	19" · 2U (3.5") · 16.9" (430 mm)
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ENVIRONMENT

Weight	About 5.5 kg
Working Altitude	3000 m ASL
Operating Temperature	0° to 50° C
Relative Humidity	95%, non-condensing

Specifications are subject to change without notice, as the product is continually improved.

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.

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