



# Falcon X5

**Broadcast Audio Processor for FM & HD Radio**

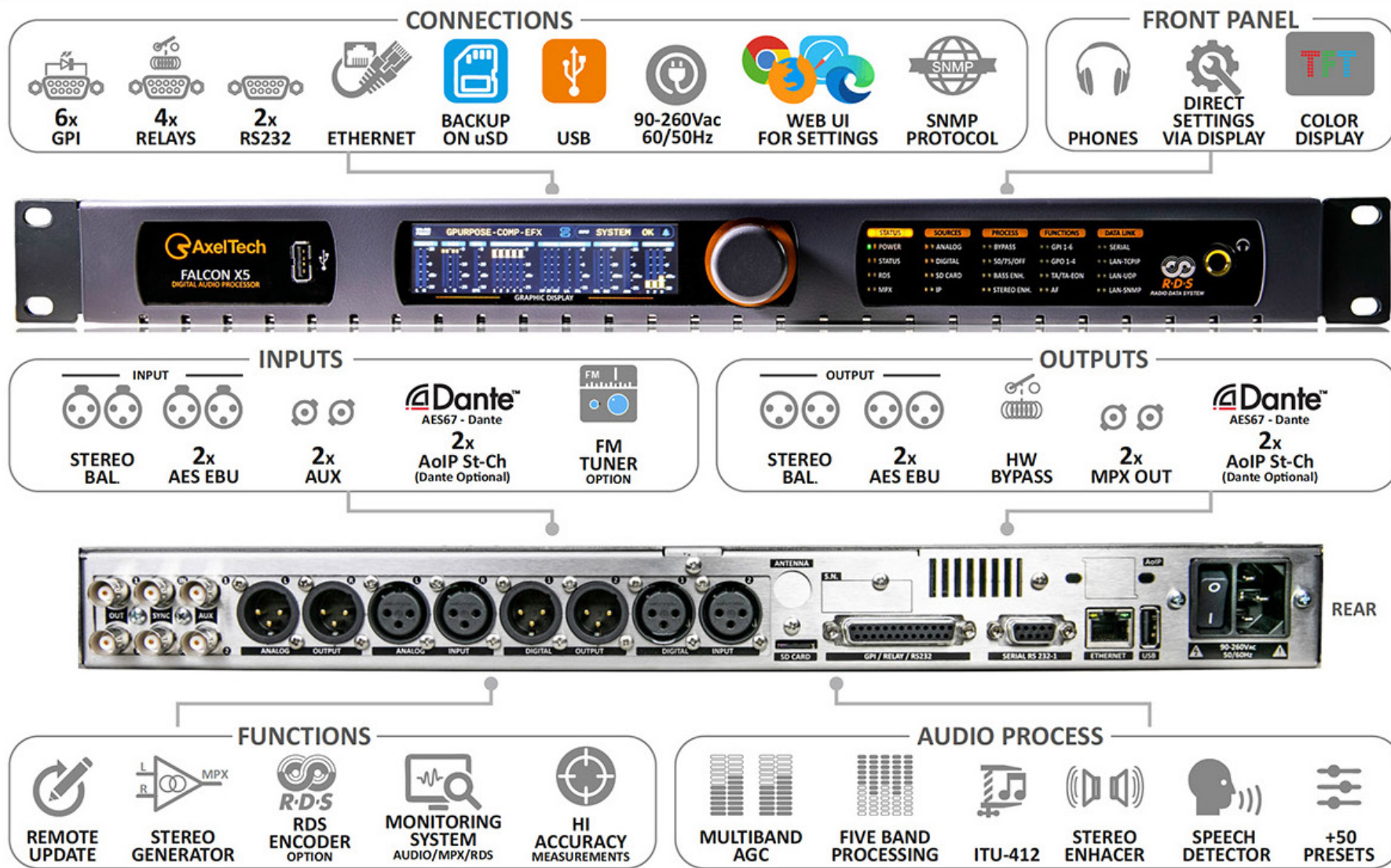
## Falcon X5 Makes Your Radio Sound Great!

Falcon X5 is the entry level unit among AxelTech's Audio Processors new generation: the traditional quality, reliability and cost effectiveness, recalled by the name Falcon so well known in the broadcast world.

Falcon X5 makes your Radio sound great enabling you to set up your perfect sound identity by choosing the pre set that suits better with the style of your radio or by tailor making your own set.

Falcon X5 embeds the New Falcon Platform: a brand new firmware with cutting-edge technology that combines ease of use and high level quality sound.

# // Falcon X5



# // Overview

- All-in-one 5 Bands Audio Processor with MPX Generator, RDS Encoder (optional), MPX power Control and Change Over/ Silence Detector (optional).
- Parallel Dual Processing allows Falcon to feed at the same time FM (15 kHz) and digital broadcasting (20 kHz) such as DAB, HD Radio, Sirius XM and Web Radio.
- Fully customizable top class Audio processing tools with 5 bands compression control, adjustable Drive and Threshold, Dual AGC, 3 Bands Equalization (Low, Mid and High frequency), Stereo Enhancer, Voice Detector and Brightness Control.
- Mono Sound Phase Control gives a more natural and pleasant sound to the human voices. The final limiter enhances the sound presence.
- More than 240 Factory Presets + 20 User Presets to tailor at best your channel.
- MPX Encoder and Optional Dynamic RDS encoder both integrated in the DSP structure to provide the ideal MPX signal: easy to integrate with the customer infrastructure thanks to the MPX digital AES-192 and two independent analogue MPX outputs.
- Power MPX control: ITU BS.412 MPX Power Recommendations available for MPX processing (<https://www.itu.int/rec/R-REC-BS.412/en>).
- Fully configurable Audio Changeover/Silence Detector (optional) to switch over four out of the Analog, Digital, MPX, IP, AoIP and Dante™ (optional).
- The hardware bypass circuit guarantees audio presence and programs continuity.
- Full range of outputs: one analog, two digital audio (over XLR connectors), two Optional Dante™ and two independent MPX.
- Falcon can integrate with existing infrastructure via Ethernet port, two RS-232 serial ports, two USB ports and six GPI ports with optical coupler and four relays..

# // Overview

- A LAN port and a built-in Web Server to control & configure the processor from any device and tune audio from anywhere.
- Falcon Logs every second on the external microSD card the value/status of 8 out of 88 internal parameters for 1 year (at the end of the period oldest data will be overwritten). The user can choose the 8 parameters to be logged and can select a time lapse among the logging to export the data on a CSV file for any analysis.
- Falcon processors are equipped with a universal 90-260 V AC power supply, working at 50 or 60 Hz, ready to be used in every country around the world. Thanks to the low power consumption (max 15 W) Falcon is also a green equipment.
- Falcon 1 Rack Unit robust design is sustained by the extensive use of steel and aluminum. Falcon appliances are immune to strong electro-magnetic fields and are suitable to be installed in extreme climate environments.

- A dedicated digital test signal generator can send to all the physical outputs (analogue, digital and MPX) signal sample with variable frequency and amplitude to help calibrate the whole audio chain.

## The Falcon X Series

- Different users have different needs: that's the reason why AxelTech features a whole line up of processors with different models suitable for different workflows. Falcon X7 is the full option unit, Falcon X6 embeds the same features only except the controls on the front panel, perfect to be remotely installed and managed through the WEB interface. Falcon X5 is entry level unit with the same processing power of the Falcon X7 and a simplified I/O and changeover sections

# // Features

Falcon audio processors integrate many extra though needful features for the radio workflow: RDS coding (optional) and Stereo Generator or innovative technologies such as DAB and audio over IP. Falcon series equipment ensures top quality performances and high level audio. It features powerful DPSs, 5-bands architecture, dual bands AGCs, 3-bands equalizer, stereo enhancer, speech detector and 5 limiters. The comprehensive and accurate control of each audio parameter allows to perfectly shape the audio to broadcast unique and exceptional branded sound.

## COMPLETE SET OF INPUTS

- 1xAnalog, 2xAES/EBU, 2xMPX, 2x Dante™ (Optional)
- 1xMPX-AES192
- SAMPLING RATE FROM 32 kHz TO 192 kHz

## COMPLETE SET OF OUTPUTS

- 1xAnalog, 2xAES/EBU, 2xMPX, 2x Dante™ (Optional)
- 1xMPXAES192

## ADVANCED SNMP (Simple Network Management Protocol)

- Allows data interchange and simplified configuration of third-party appliances connected in the same LAN using shared datasets MIB.

## MPX CHANGEOVER (Optional)

- Manages the routing of MPX signals for Advertisement Area Splitting.

## ADVANCED RDS (Optional)

- Dynamic RDS fully supported, UECP Input implemented, 8 Datasets available. Suitable for network infrastructures.

## UPGRADEABLE AND RELIABLE

- Internal microSD card with OS for Disaster Recovery. Easily Upgradable via WEB or Windows application.

## WEB BASED CONTROL PANEL

- The whole system can be managed through a WEB page generated by the internal web Server. The main functions can be managed through the physical panel.

# // Features

## PROCESSING DELAY

- A configurable delay (from 0 to 3.5") can be applied to the FM process to synch with those distribution channels having a significant latency like the DAB.

## DUAL PROCESSING

- 15 kHz processing allows to use it as FM Audio Processor.
- 20 kHz processing for digital broadcasting, allows to use it as DAB Audio Processor, HD Radio Audio Processor, Sirius XM Audio Processor, Web Radio Audio Processor.

## MPX LOUDNESS PROCESSING

- ITU BS.412 MPX Power Loudness Recommendations available for MPX processing chains compliant with every country loudness rules.

## MPX over AES 192 (AES3)

- This is the standard for exchange the digital MPX+RDS signals between professional audio devices. 192 kHz standard is supported by several transmitter manufacturers.

## ADVANCED CHANGEOVER (optional)

- The Advanced Audio Changeover/Silence Detector can switch between any available input source: Analog, Digital, MPX, FM, IP, Dante™, Internal Audio Player.

## REAL TIME AUDIO MONITOR

- Processing delay is quite non audible, 10 to 30mS depending on the processing complexity.

# // Features

## Audio Processing

### CLARITY OF SOUND

- Falcon processors high-quality hardware design and software algorithms produce a detailed, crystal-clear sound on any speaker system, always preserving original audio signature.

### VOICE PROCESSOR

- A dedicated processing section boosts presence of voice delivering a soft, silky sounding effect. Vocals are always on top of the mix making lyrics comfortably audible. Each instrument and vocalist gains dominium of its own space.

### EXTREME DENSITY

Falcon processors deliver full impact sound at the highest volume density preserving original audio detail, identity and mood. The dedicated 'Bass Enhancer' stage delivers a strong and effective 'drum punch' for a deep musical emotion.

Here are the (processing) tools to make it sound as you like:

### AGC – Automatic Gain Control

- AGC Enable
- Cross Frequency
- Filter Slope
- Drive
- Attack Time
- Release
- Gate Threshold
- Release Acc. Hold
- Release Acc. Coeff.
- Work Zone Threshold
- Work Zone Release
- L/R Linkage
- Bass vs Master Coupling
- Idle Compression
- Idle Speed
- HP Filter

# // Features

## EFX/EQ

### Stereo Enhancer

- Mode, Band, Effect Limiter, Effect Drive, Effect Depth

### Post-AGC Equalizer

- Low Band
- Mid Band
- High Band
- Low Pass Frequency
- Center Frequency
- High Pass Frequency
- Low Pass Slope
- Band Pass Width
- High Pass Slope

### Speech Detector

- Mode
- Action

## Phase Rotator

- Phase Rotator

## Multiband Controls

- Drive
- Attack Time
- Release
- Gate Threshold
- Release Acc. Hold
- Release Acc. Coeff.
- Idle Compression
- Idle Speed
- Band1 vs Band2 Coupling
- Band2 vs Band3 Coupling
- Band4 vs Band3 Coupling
- Band5 vs Band4 Coupling

## Compressors

- Threshold (for each of 5 bands)
- Relative Attack (for each of 5 bands)

# // Features

## **Compressor-Limiters Feedback**

- Feedback (for each of 5 bands)

## **Limiters**

- Drive (for each of 5 bands)
- Attack Time (for each of 5 bands)
- Release (for each of 5 bands)
- Hold (for each of 5 bands)

## **Downward Expander**

- Expansion (for each of 5 bands)
- Expansion Threshold (for each of 5 bands)
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## **Bands Mixer**

- Gain (for each of 5 bands)

## **Final Limiters**

## **Limiters Setup**

## **Bass Limiter**

- Bass Drive
- Bass Attack
- Bass Release
- Bass Threshold
- Super Bass Mode
- Super Bass Gain
- Lookahead Mode

## **Main Limiter**

- Mid. Freq Drive
- Mid. Freq Attack
- Mid. Freq Release
- Mid. Freq Threshold
- Mid-High Peaks SubDrive
- Mid-High Peaks Attack
- Mid-High Peaks Release
- Mid-High Peaks Threshold

# // Features

## **Bass/Main Limiter Setup**

- Bass Limiter Mix
- Main Limiter Mix

## **Lookahead Final Limiter**

- Overdrive

## **Brilliance adjustment**

- Wide Band Process Brilliance Attenuation

## **MPX Bass Control**

- Mode
- Drive
- Clipping Threshold
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## **MPX Limiter Deemphasis**

- Drive
- Attack

## **MPX Limiter Emphasis**

- Drive
- Attack

## **MPX Limiter Emphasis 2**

- Drive
- Attack

## **MPX Limiter Global**

- Attack

# // Options

## **DANTE™ AUDIO-OVER-IP CONNECTIVITY**

- Dante™ option (also supporting AES67 and SMPTE ST 2110-30 transport protocols) provides an Ethernet connection for 2 Stereo Input and 2 Stereo Output, with independent and dedicated Level Control and Sample Rate Conversion.

## **RDS RADIO DATA SYSTEM ENCODER**

- Falcon RDS option performs a full digital Static and Dynamic RDS encoding in compliance with the latest standards: UECP EBU SPB490 v7.05, Cenelec (Europe) and NRSC (USA).
- It provides 8 Data Sets with a wide range of static services, including Radio Text.
- The dynamic RDS features allows to manage many kinds of services: PS, RT, CT, EON, RT+, PTY, PTYN.
- With the addition of the RDS encoder, the processor makes the listening experience even more engaging by also transmitting emergency information, such as weather or traffic alerts, helping to keep listeners informed and safe.

- Add the RDS encoder to the Falcon is easy and convenient and does not require additional hardware installation. Furthermore, the RDS encoder can be controlled and configured through the web user interface, making managing the services/data transmitted even easier.

## **ADVANCED CHANGEOVER**

- The Advanced Audio Changeover/Silence Detector can switch between any available input source: Analog, Digital, MPX, FM, IP, Dante™.