

FALCON 50 FM

DIGITAL AUDIO PROCESSOR



FIRST CLASS AUDIO PROCESSING

- Analog and digital stereo I/O
- High performance stereo generator
- Bass enhancer + 3 bands EQ
- Dual composite outputs
- ITU-compliant MPX power control
- 50 factory presets + 50 user-definible
- Widest range of processing controls
- Improved peak limiting system
- Day-part automation
- Remote control via serial, USB & IP

FALCON 50 FM

Falcon 50 FM is Axel Technology's top-of-range digital audio processor for FM. With its 6-band processing design, it features the most up-to-date architecture and technologies.

FALCON 50 FM shapes your sound according to your needs.

It is well known that all broadcasters want to use their bandwidth completely, obtaining the greatest impact while still remaining in control of on-air deviation.

No matter of what the requirements are, FALCON 50 FM answers to the challenge, delivering consistent performance in the widest variety of artistic environments.

Under the lid, FALCON 50 FM reveals a powerful engine made of 6-Band core, a 2-band AGC stage, Stereo Enhancer, Super Bass Enhancer, Brilliance circuits, 3-band parametric equalizer, a superb MPX Stereo Generator.



Falcon50 FM

CLARITY OF SOUND :

FALCON 50's high-quality hardware design and software algorithms produce a detailed, crystal clear sound on any speaker system, always preserving original audio signature.

NEAR ZERO LATENCY

FALCON 50 features one of the shortest latency in its category, as low as 4 msec, thus allowing talent in the studio to listen to the live on air feed without any annoying delay.

Comfortable listening appreciated by anyone...

BEST VOICE PROCESSING

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 & BASS

FALCON 50 delivers 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.



FALCON 50 FM

STEREO ENHANCER

Built-in Stereo Enhancer adds life and sparkle to any sound material.

By sensing and processing differences between left and right channels, stereo image is largely widened for an improved separation and surround sensation.

MULTIPLE CONTROL MODES:

FALCON 50 includes a wide range of control capabilities.

Two USB ports, an Ethernet port, a standard RS232 port (supporting any Dial-Up or GSM modem as well) let You control Yr **FALCON 50** from anywhere, anytime.

In addition, 6 opto GPI ports and 2 opto GPO ports give easy and direct access to many functions and warnings.

A dedicated Pc software comes free of charge with **FALCON 50**, giving total control over all processing parameters.

Features include user rights management with five security levels from guest to admin.

Selective file import and export of a single preset as well as the whole set of curves plus the general equipment configuration and status.

A free of charge, light version of the remote software for PDA is included, allowing easy and comfortable management of the current on-air curve, especially with the **FALCON 50** 'blind' version, suitable for installation at remote transmitter sites.

I/O CONNECTIVITY AND SYSTEM INTEGRATION:

FALCON 50 is designed to fit in perfectly in any broadcasting chain system.

Whether signal management contains analog, digital or both formats, **FALCON 50** provides multiple and redundant connectivity.

Both analog and digital AES/EBU stereo inputs and outputs enable the **FALCON 50** connect to almost any audio source and load gear.

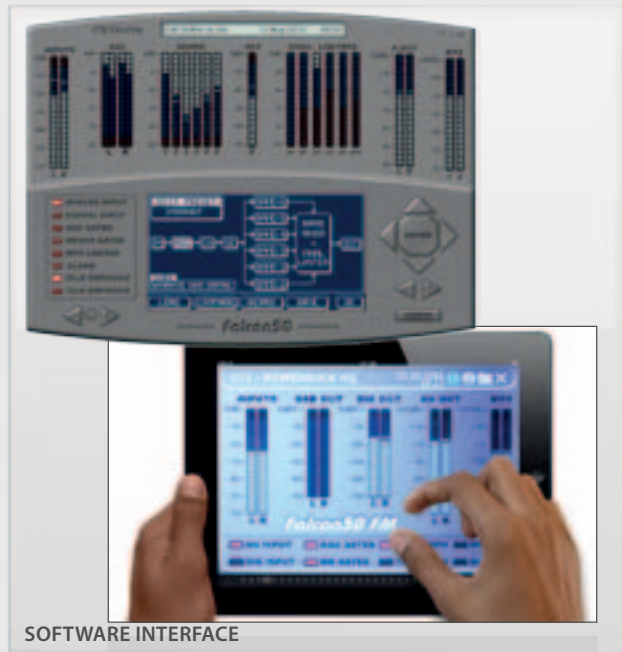
32/44.1/48/64/88.2/96KHz sample rate are fully supported in the digital domain.

Input section features an automatic audio changeover to keep You always on the air.

Furthermore, input stage design assures plenty of headroom for all applications.

Output stage provides two MPX outputs to feed at the same time two FM transmitters or links, while the HD digital output is used to connect to DAB or HD Radio transmitters.

An headphone socket is available on the front panel, for easy monitoring of signal tapped at the output of main processing steps.



SOFTWARE INTERFACE



FALCON 50 FM REAR



FALCON 50 FM BLIND

FALCON 50 TECHNICAL SPECIFICATIONS

GENERAL

| | |
|------------------------|-----------------------------|
| Dimensions: | 3 rack unit, 352x483x132 mm |
| AC Rate: | 230/115 Vac 50/60 Hz +-10% |
| Operating temp. range: | -5 to +50 °C |

COMMUNICATION

COMPUTER INTERFACE

| | |
|-----------------------------|---|
| Modem | Any dial-up modem - either GSM or POTS - can be connected to Serial Port for remote control |
| Serial Port: | 1 Standard RS-232 opto-isolated, 38400 Baud |
| TCP/IP Ethernet: | RJ45 connector for 10-100 Mbps networks using CAT5 cabling |
| Universal Serial Bus (USB): | Two opto-isolated USB 2.0 ports (front + rear) - B type |
| Pc Control Software: | Dedicated, running on Windows XP SP2 or Windows 2000 Pro SP4. PDA software included |

REMOTE CONTROL - GPI/O INTERFACE

| | |
|------------|--------------------------------|
| I/O: | 6 opto Inputs + 2 opto outputs |
| Connector: | SubD 25 pin, EMI suppressed |

AUX IN (1,2, AND 3)

| | |
|-----------------|--------------------------|
| Connector Type: | floating BNC, EMI suppr. |
| Level: | -20 or 0 dB Gain |
| Impedance: | 10 KΩ |

AUDIO PROCESSOR

SYSTEM PERFORMANCE

| | |
|--------------------------|---|
| Frequency Response: | 30 Hz - 15 KHz (-0.1 dB) - Analog Processing Chain |
| Sample Rate: | Depending on processing being performed, from 47.5 to 760 KHz |
| Total System Distortion: | 0.008% - (0.005% at 1 KHz) |
| Output Noise: | The Falcon 50's noise floor, in bypass mode, is primarily governed by the dynamic range of CS8420 digital rate converter, which has a specified Dynamic Range of 126 dB |
| Stereo CrossTalk: | >-80 dB (from 30 Hz to 15 KHz) |

6-BAND PROCESS

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|----------------------------|---|
| Band controls: | Crossover Frequency & slope, coupling. L/R Linkage 0 to 100% |
| AGC Main controls: | Drive, Gate Thr., Attack & Release Speed, Idle Compression & Speed |
| General Multiband Conrols: | Gate Thr., Attack & Release Speed, Agc Coupling, Solo for each Band |

SOUND ENHANCING

| | |
|------------------|------------------------------|
| Stereo Enhancer: | Band, Depth, Fx Lim & Drive |
| Super Bass: | On/Off, Bass Type & Drive |
| Brilliance: | On/Off & Level |
| Speech Detector: | Automatic, 9 operating modes |

INPUT & OUTPUT

ANALOG AUDIO INPUT

| | |
|----------------------------|---|
| Connectors: | Two EMI-suppressed XLR female. 600 Ohm / 10 KOhm impedance, jumper sel. |
| Input Configuration: | Stereo / Mono / L+R / Mono R / Mono L. Flat, 50 microsec or 75 microsec pre-emphasis sel. |
| Additional input controls: | Swap L/R; Phase Inversion channel Left / Right, Phase Rotator, 30 Hz High Pass Filter |
| Nominal Input Level: | adjustable from -10.0 dBu to 15.0 dBu; +24 dBu max |
| Input Signal-to-Noise: | 112 dB (A weighted) |

DIGITAL AUDIO INPUT

| | |
|----------------------------|---|
| Connector Type: | XLR female & optical tos/link. XLR transformer balanced & floating. 110 Ohm impedance |
| Input Configuration: | Stereo / Mono L+R / Mono R / Mono L. Flat, 50 or 75 microsec pre-emphasis |
| Additional input controls: | Swap L/R; Phase inversion channel Left/Right, Phase Rotator, 30 Hz High Pass Filter |
| Formats: | AES3/EBU/ & Spdif |
| Input Rates: | 32/44.1/48/64/88.2/96 KHz with automatic selection and jitter correction, 16/20/24 bit res. |
| Nominal Level adj: | From 0.0 dBFs to -25 dBFs (0.1 dBu step) |
| Dynamic Range: | 125 dB (Typ), 122 dB (Min) |

PROCESS ARCHITECTURE

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|----------------------------|--|
| Min. Processing Delay: | As low as technically possible: max 4 msec for all processing curves |
| Number of Presets: | 50 Factory Presets + 50 User Presets |
| Preset Memory type: | Non volatile memory, factory presets protected against accidental deletion |
| Preset Import / Export: | Import / export from and to a file, either in groups or individually |
| Wizard procedure controls: | Density, Compression, Equalization, Expansion |

2-BAND AGC STAGE

| | |
|--------------------|--|
| Band controls: | Crossover Frequency & slope, coupling. L/R Linkage 0 to 100% |
| AGC Main controls: | Drive, Gate Thr., Attack & Release Speed, Idle Compression & Speed |

PARAMETRIC EQUALIZER

| | |
|----------------------------|----------------------|
| Low & Hi controls: | On/Off, Gain & Slope |
| Mid Range Filter controls: | On/Off, Gain & Width |

ANALOG AUDIO OUTPUT

| | |
|-------------------|--|
| Connectors: | Two, EMI-suppressed XLR-male. Balanced or unbalanced. 600 Ohm |
| Configuration: | Stereo. Flat or pre-emphasized (50 or 75 microsec). +3 microsec pre-emphasis correction (100% peak mod.): adj -5 dBu to +20 dBu peak, into 600 Ohms load, 120% Peak Mod. allowed |
| Output Level: | >-70 dB, 20 Hz - 15 Hz |
| Stereo CrossTalk: | >-70 dB, 20 Hz - 15 Hz |
| Signal-To-Noise: | >100 dB (A Weighted Full Range) |
| Distortion: | 0.005% THD, 20 Hz - 15 Hz |
| Hardware bypass: | Internal relays connect to respective analog audio input in the event AC Power drops |

DIGITAL AUDIO OUTPUT

| | |
|--------------------------|--|
| Connector Type: | XLR male & optical tos/link. 110 Ohm impedance |
| Formats / Configuration: | AES3/EBU, flat or pre-emphasized (50 or 75 usec) |
| Sample Rates: | 32/44.1/48/64/88.2/96 KHz internal or synchr. to audio or SYNC input. 16/20/24 bit |
| Output Level: | From 0.0 dBFs to -25.0 dBFs (0.1 dBFs Step) |

MPX (STEREO) CODING

| | |
|----------------------------|---|
| Pilot Frequency: | 19 KHz +- 1 Hz |
| Pilot Injection: | Adj from -14.0 dB to -26.0 dB (5% to 20%) - 0.1 dB step - Ref. to 100% Mod. |
| Pilot Phase: | Adjustable +- 12 deg. (1 deg. step) |
| Pilot THD + Noise: | 0.06% (THD 0.005%) |
| Stability: | +/-10 ppm (-5 to +55 °C) |
| Power Limiter: | Adj from -1.0 dB to +12 dB according to ITU/R BS.412 normative |
| S/N: | >85 dB (on 60 KHz bandwidth) |
| Distortion: | <=0.02% THD (Bypass mode, de-emphasized, referenced to 100% modulation, unweighted) |
| Stereo Separation: | Greater than 70 dB, 30 Hz - 15 KHz |
| Linear Crosstalk: | <-80 dB, main channel to sub-channel or sub-channel to main channel (ref. to 100% modulation) |
| Pilot Protection: | <=-65 dB relative to 10% pilot injection, +-500 Hz |
| Crosstalk M to S / S to M: | 70 dB |
| 38 KHz suppress.: | >80 dB |
| Pre-emphasis: | 50uS, 75uS (+-3 uS adjust) |
| RDS Protection: | -55 dB at 56 KHz; -65 dB at 57 KHz (Mpx clipper disabled) |
| Sine Wave Generator: | Feeds each output for test. 30,100,400 Hz, 1,5,10,15 KHz; 0 to 120% of mod. L=R, L=-R, L, R |

MPX & SYNC OUTPUTS

| | |
|--------------------------|-----------------------------------|
| Mpx Connectors: | Two BNC, floating, EMI suppr. |
| Mpx Levels: | -6.0 dBm to +12 dBm, 0.1 dB step; |
| Mpx Level Controls: | independent for each output |
| Mpx Load Impedance: | 600 Ohm or greater |
| Sync-Out Connector Type: | floating BNC, EMI suppressed |
| Sync-Out Level: | TTL-level 19 KHz Pilot Ref. Out |

Pictures and technical specs in this leaflet are provided for information purpose only and are subject to change without further notification (Ver. 3.1)