

Falcon VS

BROADCAST AUDIO PROCESSOR



5-BAND DIGITAL AUDIO PROCESSOR

HIGHLIGHTS

1. 5-Band Digital Audio Processor
2. AES/EBU and analog I/O Over XLR
3. Automatic audio input changeover
4. 2 composite outputs and 2 AUX inputs
5. Stereo Generator with composite Clipper
6. Mpx power control - ITU-R BS.412
7. Digital RDS Encoder, 2 Dataset
8. Multiband AGC, speech detector, 3-Band EQ, stereo Enhancer
9. Brilliance control, expander and Superbass enhancer
10. Usb, Serial, 4 GPIIn-4 GPOut
11. Front headphone output
12. Hardware bypass

MAIN DESCRIPTION

Falcon VS is a Digital Audio Processor, a Stereo Generator and an RDS encoder, all in one. It has been specifically designed for the broadcast radio FM, Webradio and Satellite market.

Falcon VS audio processor is based on a dedicated DSP technology with a 5-band audio processing architecture. The Stereo Generator is fully digital and can create a perfect Multiplex signal. Falcon VS allows the creation of your own soundprint, unique and noises free.

AUDIO FEATURES:

The features available on the Audio Processor are multiple and fully customizable: 5-band compression control, dual-band AGC, a 3-band EQ and brightness control. The parameterized Stereo Enhancer command provides to the radio station sound a spacing effect and large stereo horizon openings. The *Expander* control allows to minimize backgrounds and unwanted noises, while the *Overdrive* and *SuperBass* deal to make an important sound at low and medium-low frequencies, creating an impressive sensation of loudness. The phases control of monophonic audio, gives the sound of the human voice a more natural and pleasant listening, while the final limiter drive maximizes the presence of sound. Falcon VS makes the sound of any single broadcaster unique without creating an artificial sound.

The soundprint of each channel can be created from one of ten preset audio files already on Falcon VS, from rock to classical, country, talk show, or preset audio while preserving the original sound; it enhances features and unique details. It can also recall a preset by the logic state on the port or protocol GPIn ASCII serial / ethernet (on OPT).

STEREO GENERATOR:

The Composite Clipper installed in the Stereo Generator provides the highest level of modulation, while the 'MPX Power Control allows to use the processor in full compliance with the ITU-R BS.412 about a density reduction while maintaining the same level of deviation. In order to calibrate and set up correctly the audio network, a digital tone generator is available on Analog, Digital and MPX outputs with variable sample frequency and amplitude.

FRONT PANEL:

The Falcon VS front panel has two large LCD displays: the first LCD shows the whole input/output process from the audio processor, including the amount of intervention on each single compressor band; the limiting introduced by the multiband limiter; the AGC level; input and output levels of audio sources analog, digital and MPX. The second display shows all Falcon VS parameters such as preset on the air, RDS station name, GPIn and GPOut status. On the front panel there is a headphone output for monitoring the audio processes introduced by Falcon VS. This is the simplest way to hear the difference between the original audio and the processed one.

RDS ENCODER:

The internal RDS encoder -available as an option-, provides two DataSet, each with a wide range of services including 60 static programmable PS messages, 16 RadioText messages, Alternative Frequency (AF) to receive the best frequency as a function of 'coverage area and Traffic Program (TP) / Traffic Announcement (TA) to listen to traffic information and functions such as EON, M/S, DI, CT, PI, PTY, PIN. The switching between the DataSet can occur by serial commands, GPIO or TCP/IP from a radio automation system. The RDS encoder complies with UECF SPB490.

REMOTE CONNECTION:

The connectivity of Falcon VS is complete and manifold. The rear panel features balanced XLR connectors for the connection of the inputs and outputs, in analog and digital AES / EBU. As regards the MPX part there are two outputs individually buffered and independent for the signal MPX+RDS, plus two additional inputs AUX (SCA) with different functionalities. The first one is an AUX input (SCA) expressly intended for an external RDS encoder, while a second input is able to switch the audio from another processor MPX and create a subnet managed by an automation system. All outputs are equipped with hardware bypass in case of fault of the apparatus.

For remote connections there are an Ethernet TCP/IP (as option) a RS232 serial port, a USB port and a connection port GP In and GP Out to optocouplers and open collector representing the operating states and alarms. Falcon VS can be controlled remotely via Windows-based client software or through a common http thanks to the web server (*on option*). Universal power supply 90-264Vac 47-63Hz included to operate worldwide. Falcon VS occupies 1 19 "rack unit.

APPLICATIONS

- RADIO BROADCASTING FM/WEB/SAT
- RECORDING ROOMS
- LEVEL CONTROL BY STL
- MASTER CONTROL ROOM
- OB VAN / S.N.G

ORDERING INFORMATION

MODEL	COMMERCIAL DESCRIPTION	NOTE
FALCON VS	Digital FM Audio Processor 5-Bande, MPX stereo generator, Multiband AGC, Stereo Enhancer, Brilliance control, Limiter LookAhead, Expander, Overdrive. Audio changeover, I/O Analog-Digital e MPX, doppia MPX Out. Split MPX. 4 GPin e 4 GPOut. Porta USB e Seriale. Software di controllo remoto.	Interfaccia LAN opzionale. Encoder RDS opzionale

OPZIONI DISPONIBILI SULLA SERIE FALCON AUDIO PROCESSOR

MODEL	COMMERCIAL DESCRIPTION	NOTE
F-RDS	Codificatore RDS/RBDS digitale. Generazione servizi statici: 60 messaggi PS programmabili per DataSet, RadioText, Alternative Frequency (AF), Traffic Program (TP), Traffic Announcement (TA), EON, M/S, DI, CT, PI, PTY, PIN. 2 DataSet intercambiabili via comando remoto. UECP SPB490 compliant.	Disponibile su tutti i modelli Falcon Audio Processor.
F_VS-LAN	Opzione porta Ethernet per connessioni di tipo LAN (TCP/IP e UDP) e Rs232 (Parser ASCII) solo per Falcon VS	<u>Solo per Falcon VS</u>

TECHNICAL SPECS

GENERAL	VALUE
Dimension	434x351x44mm (1 rack unit)
AC Rate	230Vac / 110Vac 50 Hz / 60 Hz 30VA
Type of power supply	Switching power supply
Processing architecture	Fully digital, based on DSP 24bit/100Mhz. Signal processing is performed by phase linear filter
Weight	≈ 3 Kg
Operating Temperature	-5°C / +50°C
ANALOG INPUT MODULE	
A/D Conversion	24bit Sigma-Delta Conversion (Crystal CS4272)
Connectors:	XLR, female - Electronically balanced
AD Clipping Point	+20.0dBu
Operative Nominal Level:	From -12.0dBu to +12.0dBu (0.1dBu Step)
Line Impedance	10 kΩ (Electronically balanced selectable) EMI-suppressed
Distortion:	less than 0.01% TDH+NOISE (0.0dBu 1Khz)
AD Dynamic Range:	108 dB RMS (110 dB A weighted)
Input Modes:	Stereo, Mono (Left), Mono (Right), Mono (Left+Right)
DIGITAL INPUT MODULE	
Connectors:	XLR, female – Electronically balanced
Format	AES3/EBU
Sample rates	32 kHz / 44.1 kHz / 48 kHz / 64 kHz / 88.2 kHz / 96 kHz with src and jitter correction
Operative Nominal level:	From 0.0 dBFs to -24dBFs (0.1 dBu step)
Dynamic Range:	125 dB (Typ), 122 dB (Min)
Distortion	less than 0.01% TDH+NOISE (0.0dBu 1Khz)
Input Modes:	Stereo, Mono (Left), Mono (Right), Mono (Left+Right)
ANALOG OUTPUT MODULE	
D/A Conversion	24bit Sigma-Delta Conversion (Crystal CS4272)
Connectors	XLR, male - Electronically balanced
Output Level	-12.0dBu to +14.0dBu (0.1dBu Step) – Max (+19dBu)
Impedance Source	10 Ω
Load Impedance	600 Ω or greater
Distorsion	Less than 0.01% TDH+NOISE (0.0dBu @ 1Khz)
DIGITAL OUTPUT MODULE	
Connectors:	XLR, Male – Electronically balanced
Format	AES3/EBU
Sample rates	32 kHz / 44.1 kHz / 48 kHz / 64 kHz / 88.2 kHz / 96 kHz with src and jitter correction
Resolution	16 bit – 20 bit – 24 bit
Operative Nominal level:	From 0.0 dBFs to -24dBFs (0.1 dBu step)
Dynamic Range:	125 dB (Typ), 122 dB (Min)
Distortion	less than 0.01% TDH+NOISE (0.0dBu 1Khz)
Input Modes:	Stereo, Mono (Left), Mono (Right), Mono (Left+Right)
REMOTE INTERFACE	
Digital Inputs GPIIn	4x GP In optocoupled
Digital Outputs GPOut	4x GP Out Open Collector optoisolated
Serial Interface	1x RS-232 Serial protocol ports EMI filtered
USB	1x Universal Serial Bus port – B type EMI filtered
Ethernet Port and Parser ASCII protocol	Ethernet port by option, over RJ45 connector with web server interface.

COMPARISON TABLE

General Features	Falcon 3i	Falcon VS	Falcon XT	Note
Price List / MSRP				
Audio processor band management	4	5	5	
Audio process architecture	24Bit-120Mhz DSP-Based audio process			
Stereo Generator – MPX Encoder	✓	✓	✓	
RDS Encoder	<i>by option</i>	<i>by option</i>	<i>by option</i>	
Input and Output				
Analog XLR In/Out	✓	✓	✓	
Digital AES/EBU XLR In/Out	✓	✓	✓	
2 BNC MPX Out and 2 BNC AUX IN	✓	✓	✓	
Hardware bypass I/O XLR/XLR–BNC/BNC	✓	✓	✓	
MPX Split Mode	✓	✓	✓	
Audio Management				
Band management	4	5	5	
3-Band Equalizer	✓	✓	✓	
Remote preset changer	✓	✓	✓	
Final Limiter Drive	✓	✓	✓	
Test tone generator	✓	✓	✓	
Brilliance control	✓	✓	✓	
Double band AGC (LO/HI)	✓	✓	✓	
AGC control	✓	✓	✓	
AGC power control	-	✓	✓	
Audio Fault input changeover	-	✓	✓	
MPX ITU-R BS.412 Control	-	✓	✓	
Stereo Enhancer	-	✓	✓	
Limiter LookAhead mode	-	✓	✓	
Expander (<i>noise reduction</i>)	-	✓	✓	
Overdrive power control	-	✓	✓	
Super Bass control	-	✓	✓	
Super Bass Harmonizer	-	-	✓	
Final Main Band Limiter Drive	-	-	✓	
Final Low Band Limiter drive	-	-	✓	
Preset clock-based manager	-	-	✓	
Remote Control				
GPIO Connector – Type	SubD 15p HD - 4x GP In opto coupled, 4x GP Out Open Collector opto isolated			
USB	1x USB – B Type EMI Filtered			
Serial	1x Rs232 EMI Filtered			
Software Remoter	✓	✓	✓	
Ethernet Port /Web Server	-	<i>by option</i>	✓	
Parser ASCII protocol via TCP/IP UDP/IP	-	<i>by option</i>	✓	