

VOR SIS[®]

ULTRA-HIGH RESOLUTION PROCESSING

FM-4

FM-ONLY DIGITAL AUDIO PROCESSOR



 *Wheatstone*

▶ Your On-Air Sound is About to Get Awesome.™



FM-4

FM-ONLY DIGITAL AUDIO PROCESSOR

For the budget-conscious broadcaster who still wants the benefit of the very latest in broadcast audio processing technology, the FM-4 is an ideal choice. Possessing the same processing tools as its larger brethren but with fewer bands, the FM-4 gives even the smallest station the power to improve its loudness and clarity with that sought-after Wheatstone sound. Front-panel setup ability and a variety of built-in I/O make the FM-4 at home in any air chain.

Ideal for stations looking for no-frills FM-only audio processing while enjoying Wheatstone's superior Vorsis technology, the FM-4 offers everything you need to create your signature sound. The FM-4 gives you the out-of-the-box presets Vorsis is famous for, conveniently accessible right from the front panel. And you can give those presets your own spin with the included Audio Processing Guru® GUI software. Plus, it's fast and easy to integrate into your station, with analog and digital I/O, an analog MPX output, an AES digital output and an SCA input. Four limiter bands get you the performance you need at a cost you can easily afford.

Summing it up, in a few words – simplicity and great sound. That's all it takes to give you exactly what you need to make your FM station sound great.

VORSIS™

ULTRA-HIGH RESOLUTION PROCESSING

Wheatstone believes that you should have the power to shape your OWN sound – one with a completely unique sonic signature that's your sound, not the one created by a processor manufacturer. To achieve this goal Wheatstone has developed Vorsis Ultra-High Resolution Processing technology to provide completely clean, high quality 'draw you in' sound that even the best ears in the business love to hear. This proven Vorsis technology is embedded in every Wheatstone processor to create the cleanest sound, as loud as you want it.

To get there, it required taking a completely fresh approach to processing. Vorsis Dynamics Control (AGC and compression) employs multiband AGC to ensure consistent spectral balance. Its Multiband Compressor works with the AGC to provide unprecedented dynamics control.

The Vorsis Bass Management System (VBMS) extracts and reveals nuances in the program to deliver pristine, deep, distortion-free bass over the air. No other processor delivers bass this bold and clean.

Vorsis' Superior Stereo Enhancement is integral to the processing and creates a smear-free perception of a wider sound field in the cleanest possible way. Just stunning.

Our limiting and clipping are, bar none, the finest you'll ever use. Up to 31-bands ensure surgical precision and the ability to have the cleanest, loudest signal on the dial.

Vorsis' presets are also some of the finest in the world. You may never need to tweak them, but if you do, our Graphical User Interface, whether via the front panel or accessed by a PC, gives you an intuitive toolset that'll make you feel right at home.

We think Wheatstone's Vorsis Ultra-High Resolution Processing is the best you'll ever use. But don't take our word for it. Try it out. We CAN guarantee you'll be happy you did!

FM-4

D I G I T A L A U D I O P R O C E S S O R



PRESETS

HOLD FOR HDPN



VORSIS

ULTRA-HIGH RESOLUTION PROCESSING



PRESET - HDPN
CONTROL

The Wheatstone FM-4 is as easy to use as selecting a preset. Yet, using the included Audio Processing Guru® software, you can easily customize your presets to get exactly the sound you are after.

- Four band phase linear adjustable crossover feeding a four band AGC
- Four band phase linear crossover feeding a four band limiter
- Exclusive VBMS™ (Vorsis Bass Management System)
- FM peak control via oversampled lookahead limiter or distortion masked clipper
- Four band full parametric equalizer
- Variable high pass filter and voice phase rotator
- Ethernet-based remote control via 100BaseT Ethernet and rear panel RJ-45
- Eight input GPI preset triggers
- AES3 digital input accepts 32kHz - 96kHz
- AES3 digital output automatically synchronizes to AES3 digital input
- Precision FM stereo MPX generator with multiplex mask filters
- 25 specially tuned Factory presets
- Front panel setup and configuration menu eliminates the need for a PC during installation

WHEATSTONE FM-4 SPECIFICATIONS



SYSTEM

Headroom 20dB
 Nominal Operating Level -20dBFS digital, +4dBu analog
 Latency (FM Section) 9.2ms, analog in to analog out
 9.4ms, AES in to AES out
 Latency (HD/DAB Section) 5.2ms, analog in to analog out
 6.8ms, AES in to AES out

ANALOG LINE INPUT

Type electronic differential
 Input Impedance >10K ohm (bridging)
 Optimum Source Impedance <1K ohm

DIGITAL LINE INPUT

Data Standard AES3 (AES/EBU)
 Data Amplitude per AES3-2003 assuming minimum allowable output signal amplitude of 2V and minimum allowable input signal amplitude of 200mV

INPUT GAIN ADJUSTMENT RANGES

Gain Adjustment ±24dB in 0.5dB steps
 Gain Calibration a gain control setting of 0.0 aligns an external 0dBFS signal with the FM-4's 0dBFS internal reference

INPUT FAILSAFE

Type automatic
 Analog Fail Cause audio level below -48dBFS
 Response Time 30 seconds
 Digital Fail Cause audio level below -48dBFS
 Response Time 30 seconds
 Digital Fail Cause corrupted or invalid AES data
 Response Time immediate

AUDIO LEVEL BALANCE

Type common to analog and digital inputs
 Analog/Digital L/R Balance Range ±12dB in 0.5dB steps

VOICE SYMMETRY PHASE ROTATION

Operating Modes in/out
 Filter Type 4th order allpass

HIGH-PASS FILTER

HPF Filter Class 24dB/octave Butterworth
 Frequency Range 20Hz – 300Hz
 HPF Insert Modes off, stereo L/R, sum/difference

EQUALIZATION

Two sections of four-band parametric equalization
 EQ Set 1 routable to pre- or post-4-band AGC
 EQ Set 2 post-FM limiter
 Frequency 20Hz – 20kHz
 Bandwidth 0.2 – 3.0 octaves
 Lift / Cut ±14.0dB pre- or post-five-band AGC
 +3.0dB to -12.0dB post-HD/DAB and FM multi-band limiters

FOUR-BAND AGC/COMPRESSOR

Operates in sum/difference, or matrix mode with the gain linked at AGC time constants
 Drive Gain -80.0dB to +6.0dB in 0.5dB steps
 Makeup Gain Range -20.0dB to +48.0dB in 0.5dB steps
 AGC/Compressor Thresholds -50dBFS to -80dBFS
 AGC Threshold Backoff 0dB to -12dB
 AGC Attack 50ms – 1500ms (1.5sec)
 AGC Release 100ms – 7.0secs
 AGC Band Coupling 0dB to -30.0dB in 0.5dB steps
 Compressor Attack 3.0ms – 1000ms (1sec)
 Compressor Release 20ms – 1000ms (1sec)
 Ratio 1:1 – 20:1
 AGC Threshold -20.0dB to -79dBFS, plus off
 Gate Threshold Trim ±6dB per band
 Gated Modes ooze/freeze
 Gate Delay 50ms to 500ms

Dimensions: Height - 1.75" (4.5cm), Width - 19" (48.3cm),
 Depth - 13.325" (33.85cm)
 add 3.25" (8.25cm) for rear connectors

Specifications and features subject to change without notice.



Audio Processing Guru® Software

Processing is as much art as science. If you're more artist than scientist and have trouble keeping track of the dozens and sometimes hundreds of controls that modern processors offer, Audio Processing Guru® software will be the key to happiness.

It condenses the functions of the various processor controls down to just a few, easy-to-understand sliders, enabling you to concentrate on what you hear, not what you see.

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