

M-SERIES

DIGITAL MIC/VOICE PROCESSORS



- M-1 DIGITAL MIC/VOICE PROCESSOR
- M-2 TWO-CHANNEL DIGITAL MIC/VOICE PROCESSOR
- M4IP-USB 4-CHANNEL DIGITAL MIC/VOICE PROCESSOR BLADE-3



Wheatstone
BROADCAST AUDIO PERFECTIONISTS®

Wheatstone Processing

Whether it's a single voice or every piece of audio in your facility, 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.

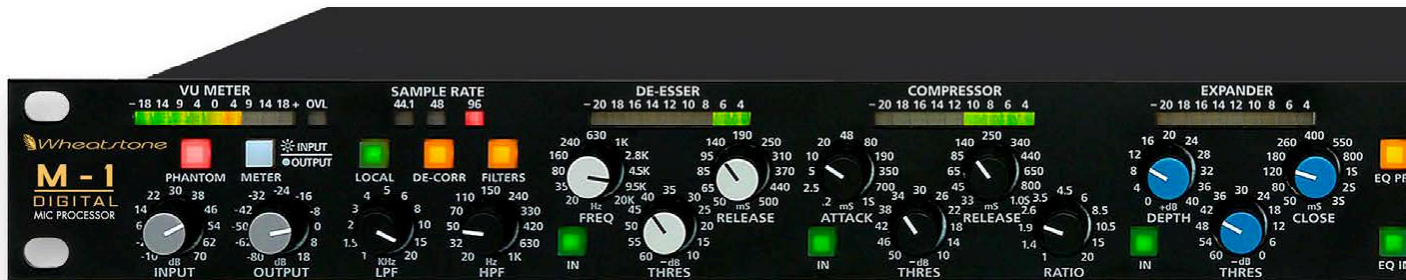
To achieve this goal Wheatstone has developed Vorsis Ultra-High Resolution Processing technology to provide completely clean, high quality 'draw you in' sound that even the best ears in the business love to hear. This proven Vorsis technology is embedded in every Wheatstone processor to create the cleanest sound, as loud as you want it.

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!



M-1 mic/voice processor

experience YOUR voice enhanced by great processing



The M1 is a flexible digital microphone processor. It offers unlimited presets, security and networkability in an all-digital framework, with parameters that are easy to set up. Either from the front panel, or from the GUI - all parameters of the M1 can be controlled to give each voice talent his or her own personal sound at the press of a button.

The M1 microphone processor is equipped with a Super-Quiet (SQ) microphone preamplifier featuring an extremely low noise floor, very wide dynamic range, faithfully accurate transient response, and ruler flat frequency response. Operating in harmony with high quality 24-bit A/D converters and a 96kHz base sample rate, the M1 adds absolutely no undesired coloration to the signal and faithfully preserves the sound of any microphone and talent combination.

The features on the M1 include four-band parametric EQ, high- and low-pass filters, de-esser and expander and of course, our proprietary Vorsis dynamics processing. The unit comes loaded with factory designed presets, and designing your own is easy, thanks to features such as "Quick Save" and "Quick Compare" that allow you to toggle back and forth between different presets as you adjust them. From one GUI, an entire group of M1's can be controlled, making multiple microphone processor management easy.

Wheatstone-designed EQ

Very high quality parametric and shelving equalization is available to sweeten the sound of any microphone as desired without adding noise or undesirable artifacts to the signal.

Wheatstone-designed Dynamics Control

A high performance de-esser and a smooth sounding, very low distortion compressor/limiter dynamics control section round out the M1's offerings to create powerful and authoritative presence on production or on-air microphones.

Processing Presets

A variety of ready-to-use factory processing presets are provided, carefully tailored for different processing goals and formats. You can select a factory preset, confident that it will sound great just as it is. Or use a factory preset as a starting point and create a custom sound for each announcer, then save the new settings as a personalized user preset. In a facility with multiple microphone processors, presets saved in one unit can be easily copied to the others.

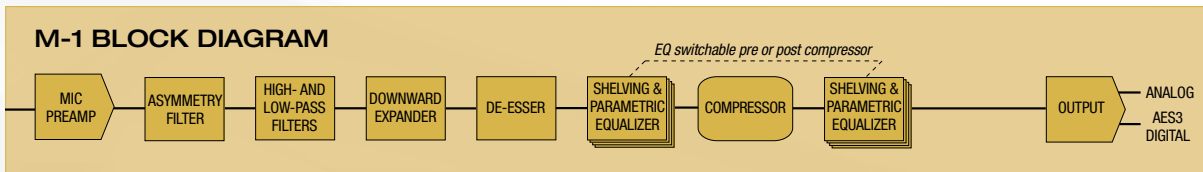


Wheatstone Talent Control Interface and GUI

Voice talent can activate his or her own personal sound at the press of a button using the Talent Control Interface, a special GUI designed for preset recall only. The Wheatstone Talent Control Interface software can reside on an air studio/control room PC and gives talent the ability to recall presets from any Wheatstone microphone processor without allowing processing adjustments. It also offers a high-resolution display of input and output levels as well as an FFT display of the talent’s voice either pre or post processing.

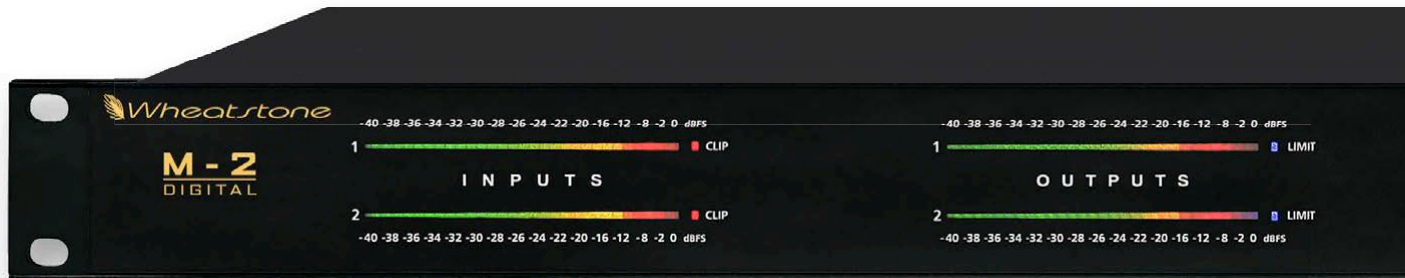
All parameters of the M1 are adjustable using the included Windows-based GUI which can control as many as 254 M-1 devices (see page 10).

- Control of all audio parameters
- Intuitive PC graphical user interface (GUI)
- High quality, low noise microphone preamp
- Phantom power
- Metering: In/Out, de-esser, compression, expansion
- Password based security
- 44.1, 48 or 96 kHz AES3 output sample rates
- Mic or line level out, selectable from rear panel
- 24-bit A/D, D/A converters
- Preset storage/recall via GUI
- Variable frequency de-esser
- Voice phase scrambler
- Adjustable compression
- Downward expansion
- EQ: two-band parametric plus variable high and low shelving
- Tunable high and low pass filters
- FFT voice energy display via GUI
- Quick save/compare function
- TCP/IP Ethernet remote control
- Takes up only one rack space



M-2 dual-channel mic/voice processor

double your pleasure by processing two voices at once



The M2 is a dual-channel DSP-based voice processor. The M2 is able to operate in completely independent dual channel mode or in linked-stereo mode.

The M2 microphone processor is equipped with twin, matched Super-Quiet (SQ) microphone preamplifiers featuring extremely low noise floor, very wide dynamic range, faithfully accurate transient response, and ruler flat frequency response. Operating in harmony with high quality 24-bit A/D converters and a 96kHz base sample rate, the M2 adds absolutely no undesired coloration to the signal and faithfully preserves the sound of any microphone and talent combination. It features twin high-bandwidth, very low noise microphone preamplifiers, a four-section equalizer with high and low shelving EQ and two bands of fully parametric EQ, high and low pass filters, de-esser and expander functions.

The signal path of the M2 may be operated as a dual channel microphone processor with completely independent channels or as a linked-stereo pair.

Included in the M2 dual-channel voice processor is Wheatstone's smooth-sounding Vorsi dynamics processing, configurable to up to three bands of processing. Adjustable from anywhere on your network, the M2 offers the security of password protected TCP/IP-based remote control and no front panel controls.

Wheatstone-designed Equalization

Based on great-sounding designs built for Wheatstone's high performance professional audio applications, the M2's equalization section operates predictably and adds no noise, ringing, phasing or other undesirable coloration to the sound.

Wheatstone-designed Dynamics Processing tools

A high performance and fully adjustable downward expander, de-esser, and smooth sounding broadband or multiband compressor and low distortion final limiter round out the M2 to create powerful and authoritative presence on production or on-air microphones.

Processing Presets

A variety of ready-to-use factory processing presets are provided, carefully tailored for different processing goals and formats. You can select a factory preset, confident that it will sound great just as it is. Or use a factory preset as a starting point and create a custom sound for each announcer, then save the new settings as a personalized user preset. In a facility with multiple microphone processors, presets saved in one unit can be easily copied to the others.

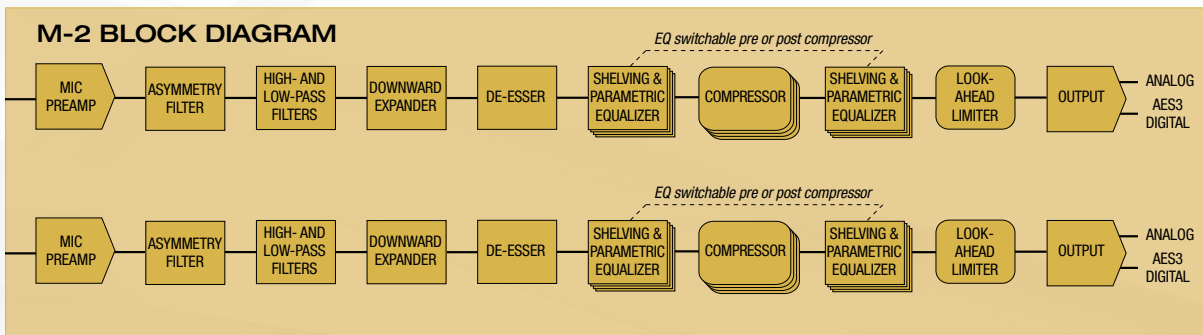


Wheatstone Talent Control Interface and GUI

Voice talent can activate his or her own personal sound at the press of a button using the Talent Control Interface, a special GUI designed for preset recall only. The Wheatstone Talent Control Interface software can reside on an air studio/control room PC and gives talent the ability to recall presets from any Wheatstone microphone processor without allowing processing adjustments. It also offers a high-resolution display of input and output levels as well as an FFT display of the talent’s voice either pre or post processing.

All parameters of the M2 are adjustable using the included Windows-based GUI which can control as many as 254 M-2 devices (see page 10).

- Extremely high performance microphone preamplifiers with 48V phantom power
- Two completely independent processing channels – may be operated as a linked-stereo pair
- All digital, field proven Wheatstone-designed advanced processing algorithms
- Phase Scrambler to correct asymmetrical voice waveforms
- High- and low-pass filters as well as an adjustable High-Q notch filter
- Fully adjustable downward expander
- Precision de-esser sibilance controller
- Four-bands of EQ: low-frequency shelving, two-band parametric, high-frequency shelving
- Compressor: broadband, two, or three bands
- Final precision peak limiter – can be defeated if desired
- TCP/IP-based remote control from anywhere via VORSIS Remote Control Software
- Talent Control Interface software for preset recall without processor control
- Password controlled access and control-less front panel for keeping settings secure
- Full metering of input and output levels and all signal processing
- FFT and oscilloscope displays of pre and post processing audio
- Requires only one rack space



M4IP-USB 4-channel mic/voice preamp/processor

dramatic Voris sound improvement in a full-function WheatNet-IP BLADE-3



This single rack unit BLADE-3 gives you four mic processors that are accessible from anywhere in your WheatNet-IP network. The M4IP-USB offers four completely independent channels of DSP-based high quality voice processing as well as four independent USB ports.

The M4IP-USB Microphone Processor BLADE combines four high-quality microphone preamps, four channels of Voris Embedded microphone processing, four independent USB ports, and a WheatNet-IP BLADE interface, allowing you to place four microphone inputs anywhere in your WheatNet-IP Intelligent Network (although it also works just fine as a standalone processor). The preamps and processors are accessed and controlled from any point on the network via its Windows-based GUI.

The M4IP-USB is a great way to maximize your investment in on-air talent by combining four mic processors into a single rack space, accessible from anywhere.

The M4IP-USB microphone processor is equipped with four matched Super-Quiet (SQ) microphone preamplifiers featuring an extremely low noise floor, very wide dynamic range, faithfully accurate transient response, and ruler flat frequency response. Operating in harmony with high quality 24-bit A/D converters and a 96kHz base sample rate, the M4IP-USB adds absolutely no undesired coloration to the signal and faithfully preserves the sound of any microphone and talent combination. It also features a four-section equalizer with high and low shelving EQ and two bands of fully parametric EQ, high and low pass filters, and de-esser and expander functions.

The signal path of the M4IP-USB includes four completely independent channels of Wheatstone's smooth-sounding Voris dynamics processing. Adjustable from anywhere on your network, the M4IP-USB offers the security of password protected TCP/IP-based remote control and no front panel controls.

Wheatstone-designed Equalization

Based on great-sounding designs built for Wheatstone's other high performance professional audio applications, the M4IP-USB's equalization section operates predictably and adds no noise, ringing, phasiness or other undesirable coloration to the sound.

Wheatstone-designed Dynamics Processing tools

A high performance and fully adjustable downward expander, de-esser, and smooth sounding broadband compressor and selectable low distortion final look-ahead limiter round out the M4IP-USB to create powerful and authoritative presence to production or on-air microphones.

Processing Presets

A variety of ready-to-use factory processing presets are provided, carefully tailored for different processing goals and formats. You can select a factory preset, confident that it will sound great just as it is. Or use a factory preset as a starting point and create a custom sound for each announcer, then save the new settings as a personalized user preset. In a facility with multiple microphone processors, presets saved in one unit can be easily copied to the others.

WheatNet-IP Native

The M4IP-USB is a WheatNet-IP BLADE which gives it a great deal of additional functionality. All Wheatstone's BLADEs are single rack-space interfaces that talk directly to WheatNet-IP control surfaces, other BLADEs and compatible third-party equipment. They contain features such as router control, logic control, gain control, two 8-channel utility mixers, silence detection and switching (among other things).



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All parameters of the M4IP-USB are controlled using the included Windows-based GUI (see page 10).

- Four extremely high performance microphone preamplifiers with 48V phantom power
- Four completely independent processing channels
- Four independent USB ports
- Four stereo analog line level outputs
- Four stereo AES outputs
- All digital, field proven Wheatstone-designed advanced processing algorithms
- Phase Scrambler to correct asymmetrical voice waveforms
- High- and low-pass filters
- Fully adjustable downward expander
- Precision de-esser sibilance controller
- Four-bands of EQ: low-frequency shelving, two-band parametric, high-frequency shelving
- Broadband compressor
- Final precision peak limiter – can be defeated if desired for lower latency
- TCP/IP-based remote control from anywhere via M4IP-USB Remote Control Software
- Talent Control Interface software for preset recall without processor control
- Front panel metering of input and output levels
- WheatNet-IP BLADE-3 features include:
 - 12 Universal Logic ports (GPIO)
 - Front panel headphone jack
 - Front panel LED bargraph metering
 - Built-in routing control
 - Two built-in 8-channel utility mixers
 - Gigabit Ethernet
 - Silence sensing can be applied to any output
 - Built-in Audio Clip Player
 - Front Panel Logic Indicators
 - LIO/SLIO Logging
 - Aliases
 - Associated Connections
 - Dual OLED Displays
 - Clock/Sync Indicators and more

the bigger picture

our GUIs give you the tools needed to dig in and OWN the sound of your voice



M-1 & M-2 Control Software

The Vorsis Control Software – separate versions for each of the voice processors – loads on an external PC. You can connect the PC directly to the processor, or install the processor on your station’s Ethernet LAN and access it from anywhere in your network (or remotely over VPN).

With Vorsis Control Software no adjustment is more than two mouse clicks away. And unlike other processors, every processing control is available and labeled for exactly what it does, giving you ultimate power to create your ideal sound.

The remote control screen is divided into an upper control area and a lower dynamic section that includes real-time display of gain reduction as well as a frequency-domain graph that shows the spectral characteristics of your audio. Every screen also includes accurate metering of input and output peak and average levels. Tabs across the top of the GUI software allow immediate access to each section of the processing – parametric EQ, de-esser, filters, compressor and downward expander.



M4IP-USB Control Software

For the M4IP-USB, the control screen has tabs for each of its four channels, making it exceptionally quick and easy to set up each of your announcers and see the differences in the settings.

You have control over parametric EQ, de-esser, filters, compressor and downward expander. There are also high and low pass filters and an overall output limiter (so you are ready if a screamer steps behind the mic).

M4IP-USB’s Vorsis Control Software runs on an external PC and can be controlled remotely from anywhere there is an internet connection.



the nitty gritty

specifications and other little things that make the difference



FACTORY PRESETS

Factory presets are pre-installed and write protected. New factory presets can be downloaded from the Wheatstone-Processing.com web site and installed via the Windows-based GUI software.

USER PRESETS

M-1: unlimited preset storage on the host PC
 M-2: storage for 80 presets in on-board non-volatile memory, unlimited storage on host PC.
 M4IP-USB: storage for 80 presets in on-board non-volatile memory, unlimited storage on host PC.

AUDIO INPUTS

Microphone XLR-F connector (one on M-1, two on M-2, four on M4IP-USB)
 Electronic differential >2K Ω (bridging)
 Optimum source impedance 200 Ω
 Phantom Power 48VDC, switchable on/off
 Gain -10dB to +70dB in 1dB steps
 Frequency response \pm 0.2dB 20Hz-20KHz
 Equivalent input noise (EIN) -128dBu
 THD+N <0.03%, 20Hz-20KHz, -50dBu input
 SMPTE DIM 0.00007%

AUDIO OUTPUTS

Mic or line level output selectable (M-1 only)
 Line-level output (M-2 and M4IP-USB only)
 Digital XLR-M connector (one on M-1, two on M-2)
 Two RJ45 to StudioHub standard (M-2 and M4IP-USB only)
 Reference Level: 0VU=-20dBFS
 Output Sample Rates:
 M-1: 44.1 kHz, 48 kHz and 96 kHz
 M-2: 48 kHz fixed
 M4IP-USB: 44.1kHz or 48kHz
 Balanced 110 Ω AES-3 0VU=-20dBFS
 Analog XLR-M connector (one on M-1, two on M-2)
 Electronically balanced <10 Ω source impedance
 Optimum load impedance >600 Ω
 Maximum output level +24dBu

FILTERS

Asymmetry filter Phase rotator, 4th order allpass, switchable in/out
 High-pass 24dB/octave Butterworth
 Adjustable 20Hz-1kHz
 Low-pass 24dB/octave Butterworth
 Adjustable 1-20kHz
 Notch (M-2 only) Fixed bandwidth
 Adjustable 20Hz-20kHz

DOWNWARD EXPANDER

Threshold Adjustable -60dBFS to 0dBFS
 Depth Adjustable 0-40dB
 Close Adjustable 50ms-3s

DE-ESSER

Control Recursive-style
 Threshold Adjustable -10dBFS to -60dBFS
 Attack time (M-2 only) Adjustable 0.1ms-100ms
 Release time Adjustable 50ms-500ms
 De-ess frequency Adjustable 20Hz-20kHz
 Bandwidth (M-2 only) Adjustable 0.15-4 octave

PARAMETRIC EQUALIZER

Routable Pre or post compressor
 Band 1 Shelving
 Adjustable 20-200Hz
 Boost/cut \pm 14dB
 Bands 2 and 3 Parametric
 Adjustable 20Hz-20kHz
 Boost/cut \pm 14dB
 Bandwidth 0.2-3.0 octave
 Band 4 Shelving
 Adjustable 2kHz-20kHz
 Boost/cut \pm 14dB

COMPRESSOR - M-1 and M4IP-USB

Control Broadband
 Threshold -10dBFS to -50dBFS
 Attack time 0.2ms-1s
 Release time 33ms-1s
 Ratio 1:1-20:1

COMPRESSORS - M-2

One, two, or three processing bands
 Crossover frequencies:
 Band 1-2 adjustable 20Hz-1kHz
 Band 2-3 adjustable 1kHz-20kHz
 Threshold 10 to -50dBFS
 Attack time 0.2ms-1s
 Release time 33ms-1s
 Ratio 1:1-20:1

FINAL LIMITER (M-2 and M4IP-USB only)

Control Zero-overshoot look-ahead limiter
 Threshold -50 to -10dBFS (fixed at -6dBFS in M4IP-USB)
 Attack 0-100ms (automatic in M4IP-USB)
 Release 10ms-330ms (automatic in M4IP-USB)

LOGIC I/O, M-1 and M-2

Remote control RJ45 connector (two on M-2)
 For M-1 and M-2 Optional Wheatstone Announcer Panel or custom interface
 Connections ON, OFF, Cough, ON tally, OFF tally, power and ground
 GPI input (M-2 only) DB9 connector
 Eight opto-isolated ports for external switching of presets (M-2 only)

LOGIC I/O, M4IP-USB

12 opto-isolated and fully configurable GPIO logic ports

CONTROL

M-1 and M-2 Ethernet 10-100BASE-T, RJ45 connector
 M4IP-USB 1000BaseT Gigabit Ethernet

USB

M4IP-USB only Four independent USB ports

PHYSICAL - M-1

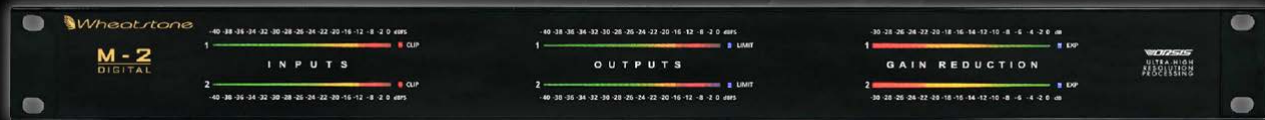
Dimensions 19"/48.3cm wide
 1.75"/4.5cm high
 10"/25.4cm deep
 (allow 3.25"/8.25cm for rear connectors)
 Weight 8.1lbs/3.68kg
 Shipping weight 13lbs/5.9kg
 Power Requirements 90-260VAC, 50-60Hz, 24VA

PHYSICAL - M-2

Dimensions 19"/48.3cm wide
 1.75"/4.5cm high
 16"/40.6cm deep
 (allow 3.25"/8.25cm for rear connectors)
 Weight 11.35lbs/5.16kg
 Shipping weight 15lbs/6.8kg
 Power 90-260VAC, 50-60Hz, 19VA

PHYSICAL - M4IP-USB

Dimensions 19"/48.3cm wide
 1.75"/4.5cm high
 13.25"/33.7cm deep
 (15.25"/38.7cm deep w/rear connectors)
 Weight 10.35lbs/4.69kg
 Shipping weight 14lbs/6.4kg
 Power 90-120VAC, 50-60Hz, 22VA



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