THE IBANEZ MSP1000 MULTI SIGNAL PROCESSOR

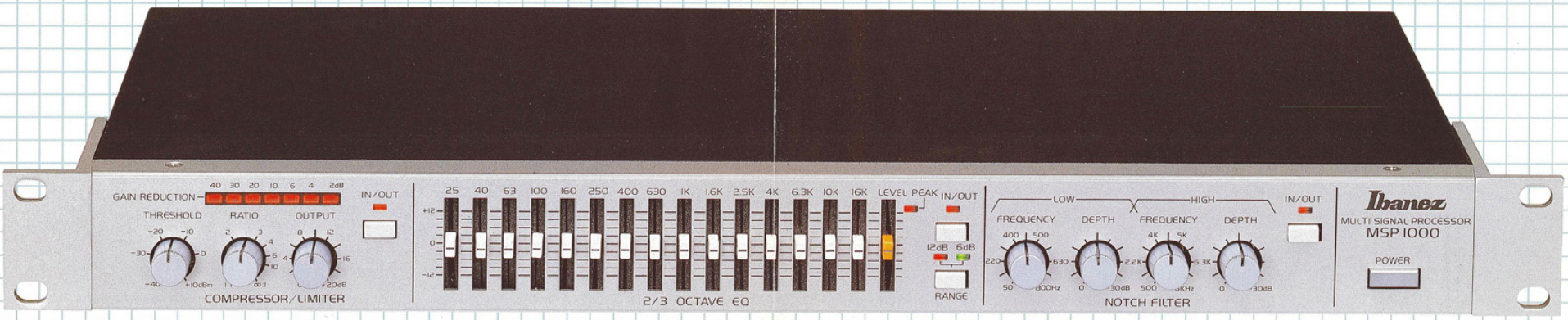
AS VERSATILE AS YOUR IMAGINATION

The Ibanez MSP1000 Multi-Signal Processor is three (3) signal processors packaged in a single rack space unit. A compressor/Limiter, Graphic Equalizer, and a Notch Filter section combine to make the MSP1000 the most versatile signal processor available. Each section may be used independent of the others or they can be used in series (without using patch cords).

The Graphic Equalizer section features a 2/3 octave graphic EQ with 15 separate band filters ranging from 25Hz to 16KHz. The range of boost and cut is selectable between +/−6dB for subtle EQ curves and +/−12dB for more extreme control. The EQ circuit can be switched in or out independently and LED'd indicate status as well as unit overload.

The Compressor/Limiter circuit features RMS detection and a 'soft knee' type limiting circuit for natural sounding compression. The compression ratio is continuously available from 1 : 1 to infinity : 1. The threshold level can also be varied between −40dBm to +10dBm. Bar type LED'd display the amount of gain reduction while the output control enables up to a 20dB boost in signal level.

The two (2) band notch filter section enables up to 30dB or cut at the selected frequencies. This type of cut differs from a graphic EQ in that the frequency that is cut is very narrow or high "Q". This enables the unwanted frequency to be cut without effecting the other frequencies around it. This extremely useful in eliminating unwanted feedback while leaving the original sound virtually unchanged.



PORTABLE SOUND REINFORCEMENT (MAINS)

One popular use for the MSP1000 is to connect it to the main output of the mixing console (or use two (2) MSP1000's for stereo). Use the Compressor/Limiter section for hard limiting for system protection or for soft compression to smooth out peaks. The Graphic EQ can be used for general equalization and the notch filters can be set to eliminate unwanted feedback.

Another way to hook the MSP1000 up would be to connect the mixer output to the graphic input. Use the graphic and notch filters as above. Now patch one of the mixers channel inserts (send and returns) into just the compressor section. This enables you to have compression or limiting on just one channel (ex. limiting on the kick drum input), without altering the overall mix.

The MSP1000 in portable sound systems can be an amazing tool. Use all the units in series or each section individually. Use the notch filters in a channel insert to eliminate an annoying ring in one of the tom tom mics without effecting the overall EQ on that channel. Experiment with different ways to use the MSP1000 and find which are best for your needs.

ON STAGE MONITOR MIXING

Imagine having a compressor/limiter, a graphic eq, and a notch filter, for 8 separate monitor mixes. That could easily full up one or two bulky double wide racks as well as costing a small fortune. With the MSP1000's you can handle a separate monitor mixes in only eight (8) rack spaces! Not only do you save valuable truck and rack space but you also save a lot of money over individual units.

Use the notches to eliminate unwanted feedback and leave the graphic for shaping the sound. Set the limiter for either protection or for controlling feedback squeels.

The MSP1000 can also be used for monitor mixes from the house console as well. Or use the Graphic EQ and notches for your monitors while using the Comp/Limiter for your House (main) PA mix.

FIXED INSTALLATIONS (SOUND REINFORCEMENT)

As an installation piece the MSP1000 really shines! By com bining three (3) units in one you save patching and get reliability (the cables always break first). Use limiting for speaker protection, EQ for shaping the sound and notch filters to eliminate feedback. The notch filters can add several db or gain before system feedback which is a real plus when the podium microphone is way out in front of the house speakers.

RECORDING (STUDIO OR REMOTE)

For recording, the Multi-Signal Processor will find many uses. One such use is for playback (or mixdown) over studio monitors. The limiter can be set for protection, the graphic can be used in conjunction with a real time analyzer to set the speakers for a flat response, and the notches can be used to eliminate any room resonances.

As in PA usage the compressor can be set to smooth out a bass line or vocal track during recording or mixdown. Equalization can be used to alter the tonal structure to get that 'just right' sound. The notch filters can be used to eliminate ringing toms or boomy bass.

INSTRUMENT PRE AMP

The MSP1000 makes an excellent pre amp for Guitar, Bass or Keyboards. With a maximum output level of +20dBm there is plenty of gain to drive almost any power amplifier. Bass players will love the compression circuit for smoothing out levels and the EQ can bring out the best in their speaker cabinet. Notch filters can correct low frequency rumble. For guitarists the compressor circuit gives sweet sustain and notch filters help prevent pickup squeel or hum. Synth players will find the limiter will protect their amps from clipping from the hot synth signals, and the graphic gives precise tonal control.

ACOUSTIC INSTRUMENTS

As electronic instruments have progressed and amps have gotten bigger and louder, the acoustic instrument player has struggled to be heard. Stringed instruments, including acoustic guitar have had pickups installed but feedback still generally occurs before sufficient volume level has been reached. Even if it has loud enough the tone has usually rumbly or thin. With the MSP1000 these problems can be solved. The notch filters eliminate feedback and thus increase gain, while the graphic adds tonal control. Compression can help smooth out levels between the plucked string (initial attack) and the natural string decay.

Brass and Woodwind instruments when miked can also benefit from compression and equalization on their individual channel.

Tomorrow's Innovations

Ibanez

A special feature of the MSP1000 is that the 3 sections of the unit are normally connected internally. That means that if you plug into the compressor input, an output signal can be taken from the notch filter section. This connects all 3 units in series and saves patch cords. If you wish to use the sections individually then just use the input and output jacks for that respective section.

MSP1000 SPECIFICATIONS

OVERALL

INPUT IMPEDANCE:	50Kohms unbalanced, 100Kohms balanced
MAXIMUM INPUT LEVEL:	+20dBm (1kHz, THD=1%)
OUTPUT IMPEDANCE:	22ohms (600 ohms loaded)
MAXIMUM OUTPUT LEVEL:	+20dBm (1KHz, 600ohms loaded, THD=1%)
FREQUENCY RESPONSE:	+/−0.5dB (600ohms loaded, 20Hz-20kHz)
TOTAL HARMONIC DISTORTION:	less than 0.02% (COMP./LIM. & GRAPH. EQ.) less than 0.01% (NOTCH FILTER)
EQUIVALENT INPUT NOISE (IHF-A, INPUT SHORTED)	less than −89dBm (COMP./LIM.) less than −95dBm (GRAPH. EQ. & NOTCH FILTER)
DIMENSIONS (W×H×D):	482x45x220mm (19.0x1.8x8.7in)
WEIGHT:	3.2Kg (7.0lbs)
POWER REQUIREMENT:	60Hz 11W 50Hz 14W 120V 220/240V

COMPRESSOR/LIMITER

THRESHOLD RANGE:	50dB Variable (−40dBm to +10dBm)
COMPRESSION RATIO:	Variable (1 : 1 to infinity : 1)
MAXIMUM COMPRESSION:	60dB
THRESHOLD:	Over Easy
ATTACK TIME:	Program-dependent: 15 ms for 10dB increase in input level (above threshold) 5ms for 20 dB, 3ms for 30 dB
RELEASE TIME:	Program-dependent: Varies automatically from 0 - 500 ms
OUTPUT GAIN:	Variable (0dB to +20dB)
INDICATOR:	IN/OUT LED:Red x1 GAIN REDUCTION LED : Red x7 (dBm: −40, −30, −20, −10, −6, −4, −2)
SWITCH:	IN/OUT

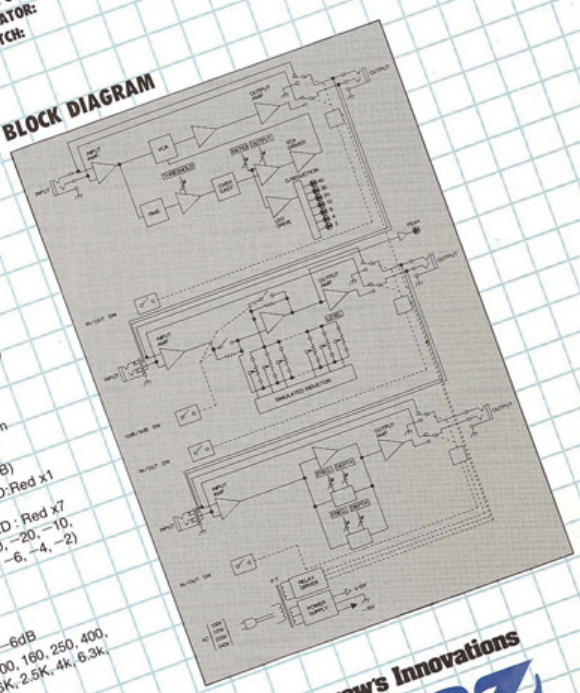
GRAPHIC EQUALIZER

GAIN:	+/−12dB, +/−6dB
CENTER FREQUENCIES (Hz):	25, 40, 63, 100, 160, 250, 400, 630, 1K, 1.6K, 2.5K, 4k, 6.3k, 10k, 16k
RANGE OF BOOST & CUT:	+/−12dB, +/−6dB
INDICATOR:	PEAK (+15dBm) LED:Red x1 IN/OUT LED:Red x1 +/−12dB, +/−6dB LED:Red x1 Green x1
SWITCH:	IN/OUT +/−12dB, +/−6dB

NOTCH FILTER

FREQUENCY CONTROL:	50Hz-800Hz, 500Hz-8KHz
NOTCH CONTROL:	−30dB
INDICATOR:	LED:Red x1
SWITCH:	IN/OUT IN/OUT

BLOCK DIAGRAM



Tomorrow's Innovations

Ibanez