

# VERTCON SERIES

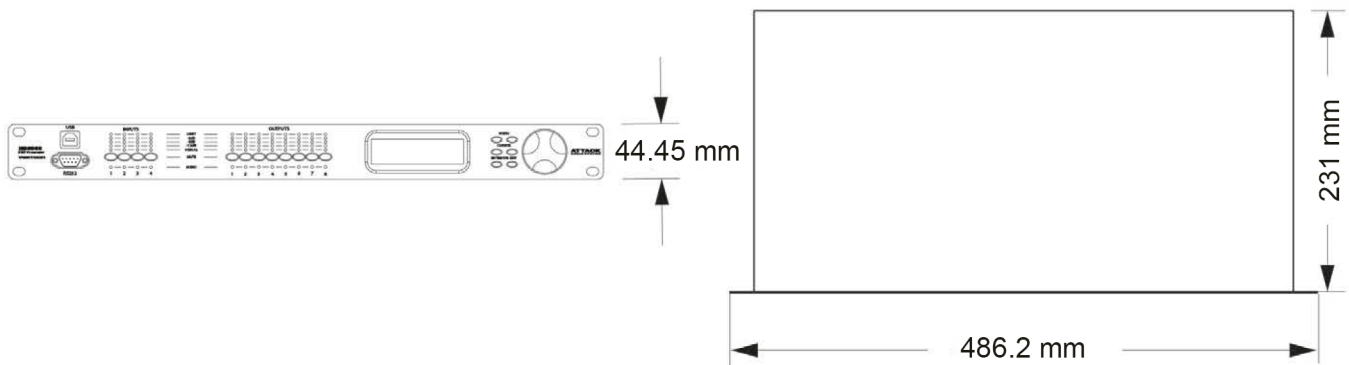
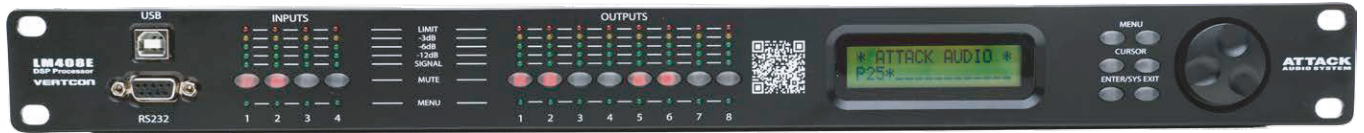


## DATASHEET

**LM408E** Loudspeaker Management System

**ATTACK**  
AUDIO SYSTEM  
|| HEARTHEDIFFERENCE ||

**SPECIFICATIONS**



The LM408E is a digital loudspeaker management system designed for the touring or fixed sound installation markets. The best available technology is utilized with 40-bit floating point processors and high performance 24-bit Analog Converters. The high-bit DSP prevents noise and distortion induced by truncation errors of the commonly used 24-bit fixed-point devices. A complete set of parameters include I/O levels, delay, polarity, 8 bands of EQ per channel, multiple crossover selections and full function limiters.

Precise frequency control is achieved with its 1 Hz resolution. Inputs and outputs can be routed in multiple configurations to meet any requirement. The LM408E can be controlled or configured in real time on the front panel or with the intuitive LMCONTROL accessed via the RS-232, USB or Ethernet interface. Software upgrade for CPU and DSP via PC keeps the device current with newly developed algorithms and functions once available. Multiple setup storage and system security complete this professional package.

**CHARACTERISTICS**

- 4 Inputs and 8 Outputs with flexible addressing
- 40-bit floating point DSP
- 96kHz Sampling rate
- High performance 24-bit A/D converters
- 1 Hz Frequency resolution
- 8 Equalizers (Magnitude or Phase) for each Input and Output
- 1 31-band graphic equalizer for each input
- Multiple Crossover types with Full Function Limiters
- Precise Level, Polarity and Delay
- CPU and DSP upgrade via PC
- Individual Channel Buttons with Linking capability
- 2-Line x 16 Character Backlit LCD Display
- Full 5-segment LED's on every Input and Output
- Storage of up to 30 Preset Setups
- Security Lock
- USB, RS232 and Ethernet interface for PC control and configuration

## DATASHEET

Parameters	Menu <<Menu>>	Field <<Cursor>>	Min	Max	Steps	Units
Level	Signal	LEVEL	-40	+15	0.25	dB
Polarity	Signal	POL	+/-			
Delay	Signal	DELAY	0	624000	1	10us steps
EQ Number	EQ	EQ#	1	8	1	
EQ Bypass	EQ	BYPASS	Off/On			
EQ Type	EQ	TYPE	PEQ/Lo-Shf/Hi-Shf/AP-1/AP-2			
EQ Level	EQ	LEVEL	-30	+15	0.25	dB
EQ Frequency	EQ	FREQ	20	30,000	1	Hz
EQ Bandwidth	EQ	BW	0.02	3.61	0.01	Octave
GEQ Number	GEQ	GEQ#	1	31	1	
GEQ Level	GEQ	LEVEL	-30	+15	0.25	dB
GEQ Bypass	GEQ	BYPASS	Off/On			
XOver Low Type	XOver	FTRL	Off/Butterworth/Linkwitz-Riley/Bessel			
XOver Low Frequency	XOver	FRQL	20	30	1	Hz
XOver Low Slope	XOver	SLPL	6	48	6	dB/octave
XOver High Type	XOver	FTRH	Off/Butterworth/Linkwitz-Riley/Bessel			
XOver High Frequency	XOver	FRQH	20	30,000	1	Hz
XOver High Slope	XOver	SLPH	6	48	6	dB/octave
Compressor Threshold	Comp	THRESH	-20	+20	0.5	dBu
Compressor Attack Time	Comp	ATTACK	0.3	100	0.1/1	ms
Compressor Release Time	Comp	RELEASE	2/4/8/16/32X Attack time			
Compressor Ratio	Comp	RATIO	1:1 to 1:40			
Limiter Threshold	Limit	THRESH	-20	+20	0.5	dBu
Limiter Attack Time	Limit	ATTACK	0.3	100	0.1/1	ms
Limiter Release Time	Limit	RELEASE	2/4/8/16/32X Attack time			
Source	Source	1,2,3,4,5,6,7,8	Off	+15	0.25	dB
Channel Name	Name	NAME	6 characters			

## TECHNICAL SPECIFICATIONS

### Inputs and Outputs

Input impedance	>10 k Ohms
Output impedance	50 Ohms
Maximum level	+20 dBu
Type	Electronically balanced

### Audio Performance

Frequency response	+/- 0.1 dB (20 Hz a 30 kHz)
Dynamic range	115 dB typ (unweighted)
CMRR	>60 dB (50 Hz a 10 kHz)
Crosstalk	<-100 dB
Distortion	0.002% (1 kHz @ +4 dBu)

### Processing characteristics

Processor	40-bit Floating Point
Sampling rate	96 kHz
Analog converters	High Performance 24-bit
Propagation delay	1.5ms

### Audio Control Parameters

Gain	-40 to +15 dB in 0.25 dB steps
Polarity	+/-
Delay	Up to 650ms per Input/Output

### Equalization

Equalizers	8 per Input/Output
Type	Parametric, Hi-Shelf, Lo-Shelf
Gain	-30 to +15 dB in 0.25 dB steps
Bandwidth	0.02 to 3.61 octaves (Q=0.3 to 72)
Graphic equalizer	1 per input, 31 bands

### Crossover

2x	Individual filters per input/output
Type	Butterworth, Linkwitz Riley, Bessel
Slope	6 to 48 dB/oct

### Compressors and Limiters

1x	Compressor per input
1x	Limiter per output
Threshold	-20 dBu a +20 dBu
Attack	0.3 to 100ms
Release	2 to 32x the attack time

### System Parameters

No. of presets	30
Delay units	ms, ft, m
Frequency modes	36 steps/oct, 1Hz resolution
Security Locks	Password
Program Names	6 character

### Front panel control

Display	2x16 characters LCD
Level Meters	5 Segment LEDs
Buttons	12x Mute, 6x menu controls, 1x encoder

### Connectors

Analog	XLR
RS-232	Female DB-9
USB	Type B
Ethernet	RJ45
Energia	NBR14.136

### General information

Power	90-240 VAC (50/60 Hz) - 20 VA
Dimension	483 x 44 x 229 mm
Weight	10 lbs / 4.6 Kg