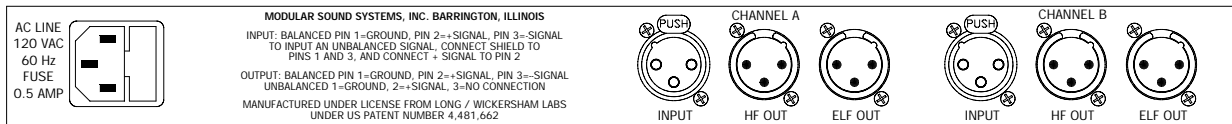
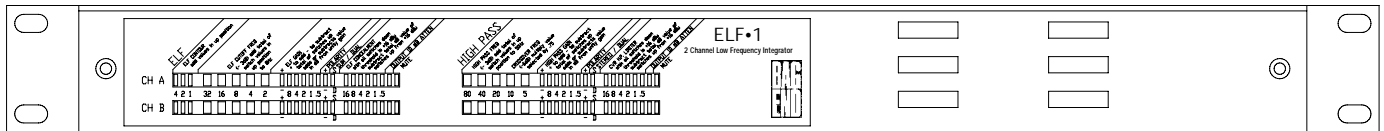


BAG END

ELF - 1

S P E C I F I C A T I O N S



GENERAL SPECIFICATIONS

Input Connectors:
XLR female

Input Configuration:
Balanced

Alternate Input Configuration:
Unbalanced

Max. Input Signal Balanced:
+20 dBu

Max. Input Signal Unbalanced:
+20 dBu

Input Impedance at 1 kHz:
>25 k Ω

Input Common Mode Rejection (Balanced):
>75 dB up to 1 kHz

Output Connectors:
XLR male

Output Configuration: Balanced

Alternate Output Configuration:
Unbalanced

Unity Gain Calibration:
Unbalanced mode
(+6 dB Balanced mode)

Output Impedance: < 50 Ω

Output Polarity Modes: +/-

10 dB Output Attenuator:
In/out

Output Line Driver Modes:
Operate/Mute

Power-on Indication:
Green LED light bars

Signal-Present Indication:
Green LED light bars brighten

Operating Line Voltages (Internally Selected):
100, 120, 220, 240 VAC

ELF SPECIFICATIONS

Max. ELF Gain: 15.5 dB

Max. ELF Attenuation:
25.5 dB

Min. ELF Cutoff Frequency:
8 Hz

Max. ELF Cutoff Frequency:
70 Hz

ELF Output Modes: Sum/Dual

Max. Concealment Threshold:
+22 dBu/+16 dBu unbalanced

Concealment Threshold Range: 41.5 dB

Max. Concealment Reduction Capability at 8 Hz: 44 dB

Concealment Threshold Exceeded Indication:
Red LED light bars

Max. Output Signal with Concealment Disabled:
+24 dBm/+25 dBu

ELF Circuit Noise:
< -85 dBu (20 Hz to 20 kHz)

ELF Dynamic Range:
110 dB (20 Hz to 20 kHz)
(bandwidth unweighted)

HI PASS SPECIFICATIONS

Max. Hi Pass Gain: 15.5 dB

Max. Hi Pass Attenuation:
25.5 dB

Min. Hi Pass Filter Frequency:
-3 dB @ 50 Hz/-6 dB @ 38 Hz

Max. Hi Pass Filter Frequency:
-3 dB @ 205 Hz/-6 dB @ 154 Hz

Max. CVR Limiter Threshold:
+21 dBu/+15 dBu unbalanced

CVR Limiter Threshold Range:
41.5 dB

CVR Limiter Reduction Capability: 27 dB typical

CVR Limiter Threshold Exceeded Indication:
Yellow LED light bars

CVR Limiter Modes:
Stereo/Dual

Max. Output Signal With CVR Limiter Disabled:
+24 dBm/+25 dBu

Hi Pass Circuit Noise:
< -85 dBu (20 Hz to 20 kHz)

Hi Pass Dynamic Range:
110 dB (20 Hz to 20 kHz)
(bandwidth unweighted)

PHYSICAL SPECIFICATIONS

Front Panel Switches:
90 (45 per channel)

Line Connector:
3-pin Grounding IEC connector

Line Protection:
Fuse, 1/2 Amp

Anti-Fiddle Feature:
Security cover provided

Enclosure:
Black powder coated steel

Enclosure Mounting:
1U EIA rack (1.75")

Dimensions:
1.75" h x 19" w x 8.5" d
5 cm x 49 cm x 22 cm

Weight:
10 lbs.
4.5 kg

Shipping Dimensions:
6" x 22" x 12"
16 cm x 56 cm x 31 cm

Shipping Weight:
11 lbs.
5 kg

Applications:

Recording Studios
Film Post Production
Video Editing Suites
Mastering Labs
Concert Sound Reinforcement
Theatrical Production
Cinema Reproduction
Musical Inst. Reproduction
Home Theater/Home Stereo
Laboratory Reference

Features:
8 Hz ELF dual integrator
Flexible convenient adjustments
CVR hi pass limiting
ELF Concealment
Wide dynamic range
Balanced in & out
Security cover

Models:
ELF-1-100
Factory set for 100 Volt operation
ELF-1-120
Factory set for 120 Volt operation
ELF-1-220
Factory set for 220 Volt operation
ELF-1-240
Factory set for 240 Volt operation

Use ELF output with ELF Loudspeakers only.

BAG END Loudspeakers
22272 Pepper Road
Barrington, Illinois
60010 USA
Voice 847 382 4550
Fax 847 382 4551
www.bagend.com



ELF-1

Upon detailed evaluation and analysis of an ELF system, it is clear that the fundamental impression of power and impact is greater with an ELF system when compared to conventional bass systems. This is true even when the two systems will measure the exact same calibrated dB sound pressure level. We believe this is because an ELF system compacts the bass energy into a tight packet aligned with the upper range signal rather than the typical time smears inherent in conventional bass systems. Objectively, the ELF system meets within the Time-Align® specification and exhibits superior phase response.

Description: The Bag End ELF-1 system module is a two-channel loudspeaker controller. Designed for either stereo or two independent channel operation, the ELF-1 incorporates the ELF dual integrators, frequency dividing, and system protection in an advanced configuration where the system parameters are digitally selected via a series of switches on the front panel under a security cover.

The ELF-1 includes an array of advanced features which are easily adjustable via the front panel switches providing the user absolute system calibration, repeatability and documentation. The audio path within the ELF-1 is kept to a minimum audiophile design whereas no audio signals travel through the front panel control switches.

The ELF-1 requires no connection to the output of the amplifier. To set the Concealment and CVR Limiter protection thresholds, refer to the amplifiers input sensitivity and adjust the front threshold switches accordingly.

The Guide to ELF Systems comes with the ELF-1 and provides complete set up instructions and additional technical information.

Additive switch controls: The front switch controls follow a simple additive system allowing very fine adjustment of all parameters. For example, the gain controls have 8, 4, 2, 1, and .5 switches which may be on (up) or off (down). First, select the +/- on the left of the gain switches to determine whether you want to add or subtract gain from unity. Then, switch up the

appropriate dB switches, for example, with the first switch to + and the 4, 1, and .5 switches up, you will have 5.5 dB of gain added to the signal. There is no audio present on the front panel control switches. They may be switched while the unit is on and working, without causing any noise.

Concealment: The Concealment circuit is a complimentary technology to the ELF. Set to the proper threshold, it insures that unexpectedly large signals will not overload the system resulting in possible damage or audible distortion. This allows high level operation close to the maximum system capabilities without fear of accidental overload. Concealment is not a band limiter. It dynamically reduces the low frequency extension.

CVR Limiter: The Continuous Variable Recovery limiter provides a limiting circuit with a high level of system protection and very minimal audible effects. The CVR circuit provides a fast attack time with a variable recovery time dependent upon the amount of limiting originally called for. In operation, it resembles a human operator who corrects large level changes rapidly, but carefully, and slowly returns the gain to full, anticipating that if reduction was needed then the gain shouldn't be rushed back to full, as it is likely that another reduction is necessary.

Contour: The Contour feature adds a small boost in increments from 1 to 7 dB via the same additive switch system used throughout. This has proved to be a valuable tool in various custom applications for tailoring the low end response to fit a room or a custom ELF enclosure.

Polarity: The polarity of each output is referenced to DC. In audio, we listen to AC signals and the best actual polarity determination is made at the crossover point with an asymmetrical signal. Under these conditions, please note that the normal correct polarity is + for the hi pass and - for the ELF output. If the hi pass filter is set correctly, this will provide the most even blend between the upper range system and the ELF speakers. Reversing the ELF polarity to + will add energy in the upper bass region near crossover and may mask the lower bass output.

What is ELF™?

ELF™ (Extended Low Frequency) was invented by Ron Wickersham and Ed Long and represents the first significant advancement in low frequency reproduction since 1953. The ELF™ system insures that the lowest 3 octaves of the audio and sensory spectrum are reproduced acoustically in the same time and frequency relationship as the electrical input to the system.

A fundamentally new approach to low frequency reproduction, the ELF™ employs electronic compensation to the uniform response that a sealed box loudspeaker system exhibits below its resonance frequency. The resultant frequency response can be extended well below the audible range while at the same time greatly reducing the influence of the system resonance. An ELF™ system reproduces each note with precision and uniformity while maintaining a flat frequency and phase response, eliminating the tendency to emphasize the notes around resonance as in conventional bass systems. The patented ELF™ dual integrator provides both a very flat response below resonance and the high frequency roll-off above resonance, for crossover to the midrange driver, without the use of conventional low pass filters and the delay typically introduced by them. An inherent bonus of the process requires the enclosures to be small. For example, a double 10-inch ELF™ system measures only 13" x 13" x 22" (1.5 ft³).

