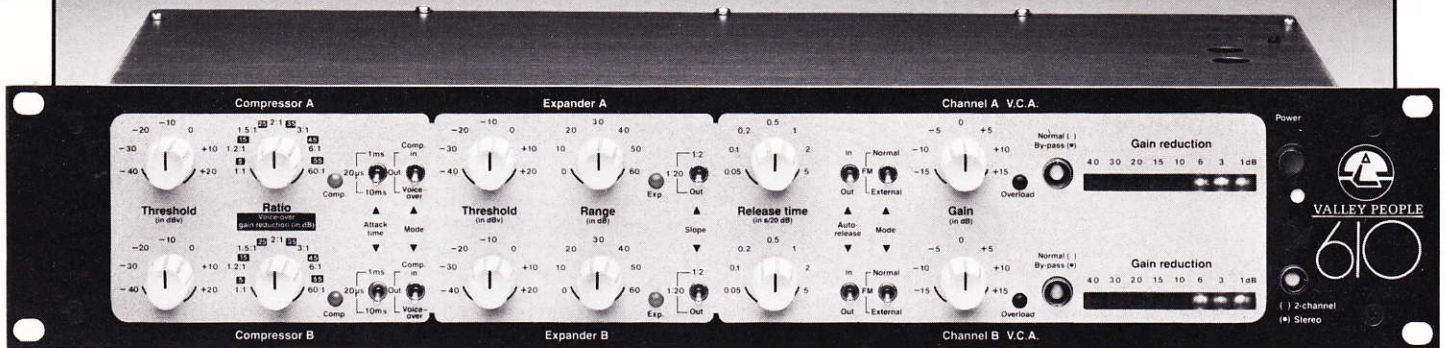


DAVE JEI  
MARTIN AUDIO CORP.  
423 WEST 55th STREET  
NEW YORK, N. Y. 10019  
(212) 541-5900

Preliminary Product Information

# MODEL 610

## Dual Compressor/Expander



The Model 610 Dual Compressor/Expander offers the convenience of two high quality compressors with the flexibility of multi-function dynamics processing in an attractive, rugged 3½" x 19" (88 mm x 482 mm) rack package.

Each of the two channels consists of a compressor section and an expander section both controlling a common channel VCA. A special release coupling circuit provides symmetrical release characteristics for both the compressor and expander making interactive processing possible, thus eliminating the problems associated with using separate dedicated-function units.

The compressor control section threshold is continuously adjustable from -40 dB to +20 dB, and in conjunction with continuously variable ratio and selectable attack times, allows the compressor section to perform the functions of a peak limiter, or a compressor with fast, medium or slow attack characteristics. The compressor section may also be configured as a voice-over device wherein the ratio control sets the amount of signal gain reduction in response to an external audio source.

An unique threshold/ratio/output coupling scheme automatically computes the amount of make-up gain necessary to maintain a preset nominal output level while compressing low-level signals under varying combinations of threshold and ratio settings. A "compress" LED indicator signals when the compressor section is active.

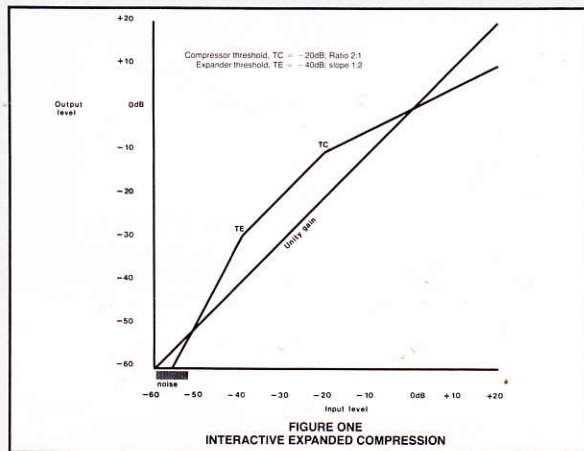
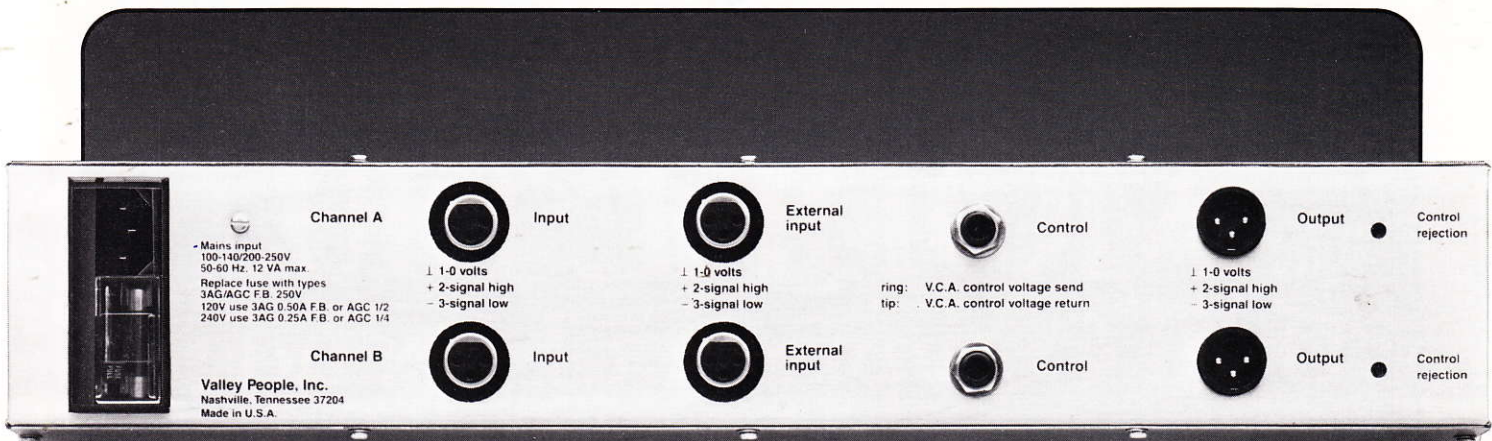
The expander control section features continuously adjustable Threshold and Range controls, and allows selection of two commonly used slopes; 1:2 for expansion and 1:20 for "gating". An "expand" LED indicates operation of the expander section.

The channel VCA release time is variable from 50 ms to 5 s for 20 dB of recovery and may be modified by selecting "auto-release", using Valley People's exclusive Anticipatory Release Computer, which modifies release time in response to program content. The VCA mode control allows FM pre-emphasis compensated operation, with internal jumpers to select 25, 50, or 75  $\mu$ s pre-emphasis signals. Operation of the VCA section by external signals allows the device to produce effects such as envelope following and keying.

A simple LED bar-graph display allows monitoring of gain reduction, and an overload warning indicator glows to alert the operator to signal levels approaching clipping. Channel bypass switches prevent loss of signal in the event of component failure and a stereo coupling feature allows both the compressor control sections and expander control sections to be interconnected for stereo processing.

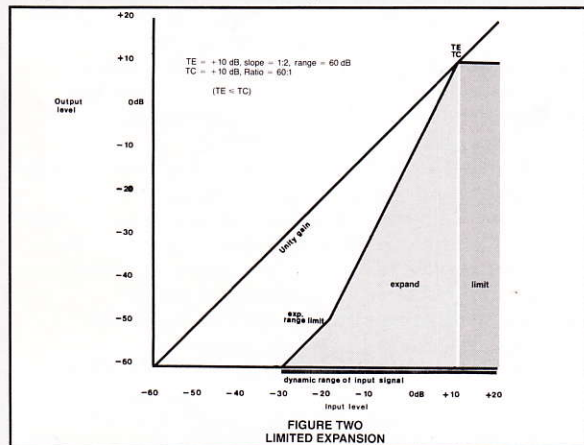
Among the many functions of the Model 610 are two of particular interest. In the interactive Expanded Compression mode, the audio signal may be compressed to reduce dynamic range, and the expander may be used to reduce the residual noise which would otherwise be "pumped up" or accentuated by the compression process in the presence of low-level passages or pauses.

The unique coupling employed in the VCA release circuit makes the transition between compression and expansion imperceptible. The chart of Figure One indicates the transfer characteristics of interactive Expanded Compression.



The example given is typical of cassette or cart program material being compressed for transfer or broadcast. As the program is compressed, the residual noise level is raised, in this case by 10 dB. The action of the expander reduces both the signal below the expand threshold, TE, and the residual noise as perceived at the output.

The Limited Expansion mode allows the limiter function of the 610 to complement the operation of the expander. This is highly desirable when expansion is being used to process highly compressed material for transfer. The chart of Figure Two indicates the transfer characteristics of this mode of operation.



As can be seen by the graph, the compressor, operating in its limit mode (TC > 0 dB) places an upper level upon the output signal to avoid clipping at the following stage. The resulting function controls the maximum output level and adds 30 dB to the dynamic range of the signal.

Judicious use of the range control allows expansion of the program and (relative) attenuation of the noise floor.

Among the other specific modes of operation for the Model 610 are: Expanded Voice-over, wherein the expander reduces residual noise level or increases the dynamic range of background material while the compressor reduces the gain or "ducks" the background material in the presence of an announcer's voice; FM pre-emphasis compensated compression, limiting, and expansion which allows the control sections to anticipate FM pre-emphasis thus reducing the frequency of "hits" at the transmitter limiter while providing increased perceived loudness; and Compressed Limiting which both increases "loudness" and performs the function of a peak limiter. Additionally, the 610 performs the function of a peak limiter. Additionally, the 610 performs Envelope Following, Inverse Envelope Following, Gated Compression and Limiting, Noise Gating, Keying, "Companding" and other variations for over 20 modes of operation.

## SPECIFICATIONS

### INPUT:

Input Impedance: >47 kohm  
Maximum Input Level @ 1 kHz: +25 dB balanced, +21 dB unbalanced  
Usable Input Level Range for Compression or Expansion: -40 dB to +26 dB  
Input C.M.R. @ 50-60 Hz: >60 dB typical

### OUTPUT:

Output Source Impedance: <40 ohm balanced, <27 ohm unbalanced

Nominal Output Level into 600 ohm: 0 dBm to +8 dBm  
Maximum Output Level into 600 ohm: +24 dBm balanced, +21 dBm unbalanced

Static THD @ 1 kHz, 0 dB in, unity gain, into 600 ohm: 0.01% typical

Static SMPTE IMD, 0 dB in, unity gain, into 600 ohm: 0.01% typical

Dynamic THD @ 1 kHz, +20 dB in, 20 dB gain reduction, ratio 60:1, attack time 20  $\mu$ s, release time 0.5 s with auto release in: 0.15% typical

(Dynamic distortion is affected by release time, as in all dynamics processors.)

Output Noise & Hum, 20 Hz-20 kHz @ unity gain, RMS: -84 dB typical

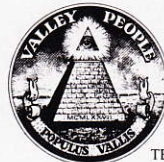
Residual Noise referenced to maximum output level (dynamic range) 1 kohm @ input, 600 ohm load at output: -108 dB typical

Power Requirement: 100, 120, 200, 220, 240 Vac, 50-60 Hz, 12 VA maximum

IEC power connector standard

FEATURES: XLR connectors for all audio inputs and outputs standard. RF suppression on all inputs and outputs. RF and transient suppression in power supply.

NOTES: 0 dB = 0.775 Vrms.  
0 dBm = 1 mW/600 ohm.



**VALLEY PEOPLE, INC.**

P.O. Box 40306/2820 Erica Place  
Nashville, Tenn. 37204  
615-383-4737

TELEX 558610 VAL PEOPLE NAS