Model V610
Operation Manual

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UNPACKING AND INSPECTION

Before accepting the Model V610 “COMPLIMITER” from the shipper, inspect the shipping carton for external damage. Any sign of external damage must be noted by both customer and shipper, and should be called to the attention of the insurance investigator. After the equipment is unpacked, inspect the unit for any damage in shipping. Check for scratches or dents, damaged knobs, or connectors. If damage is noted, do not use the unit unless instructed by the insuring agency.

NOTICE

The Spectra Sonics Model V610 contains no user serviceable parts. Removal of top or bottom cover plates shall void product warranty. See warranty section for additional warranty information, page 20.

INTRODUCTION

The Model V610 “COMPLIMITER” is a compressor/limiter system with performance both measurably and audibly discernable as “beyond the state of the art”. Because of extremely low noise characteristics of the design, the system has a very low input level threshold of -40 dBu, thus providing the greatest input sensitivity and compatibility with the widest range of system levels available on the professional audio market. Depending on the program content, the Model V610 “COMPLIMITER” will accept an input signal from -50 dBu to -40 dBu just prior to beginning compression, as well as standard line level input signal.
Control functions are provided on the front panel for input level threshold, continuously variable compression slope (ratio), release time, power, and output level. Visual LED indicators for peak limiting and system overload are provided, in addition to Vu and LED gain reduction meter monitoring. This manual, as well as the quick start guide is provided to aid the operator in obtaining maximum performance from the Model V610 “COMPLIMITER”. READ THE INSTRUCTION MANUAL, especially the QUICK START GUIDE, before using the unit.

SPECIFICATIONS

Input Impedance……..…….600 ohms

Output Impedance……..…….....Approximately 120 ohms (1kHz), floating

Output Loading……..……...600 ohms to Infinity, balanced or unbalanced

Maximum Gain……..……..65 dB

Input Level……..……Typically -50 dBu to +10 dBu

Threshold Attack Level……..……-40 dBu

Output Level……..……Typically +21 dBu

Signal-to-Noise Ratio……...…..Not less that 80 dB below +4 dBu output with -40 dBu input (threshold), 20 Hz to 20 kHz, unweighted.

Frequency Response……..…. ± .1 dB, 20 Hz to 40 kHz, at +18 dBu (High Z load)
± .5 dB, 20 Hz to 20 kHz, at + 18 dBu (600 ohm load)

Harmonic Distortion…….…..…….Less than 1/10th of 1%, 20 Hz to 20 kHz, at +18 dBu dBu, up to 30 dB compression, with release time such that attack and release does not occur on successive peaks of the lowest frequency utilized. (Typically less than 5/100ths of 1%)

Compression/Limiting Ratio.....Continuously variable from approx. 1.1:1 to 100:1

Attack Time……..Automatically Variable
Limiter…….100 nanoseconds to 2.0 microseconds
Compressor……...100 nanoseconds to 1.2 milliseconds

Release Time……For 90% Recovery
Limiter……..Less than 90 nanoseconds
Compressor……Continuously variable from 50 milliseconds to more than 10 seconds

Maximum Temperature……..140 degrees Fahrenheit

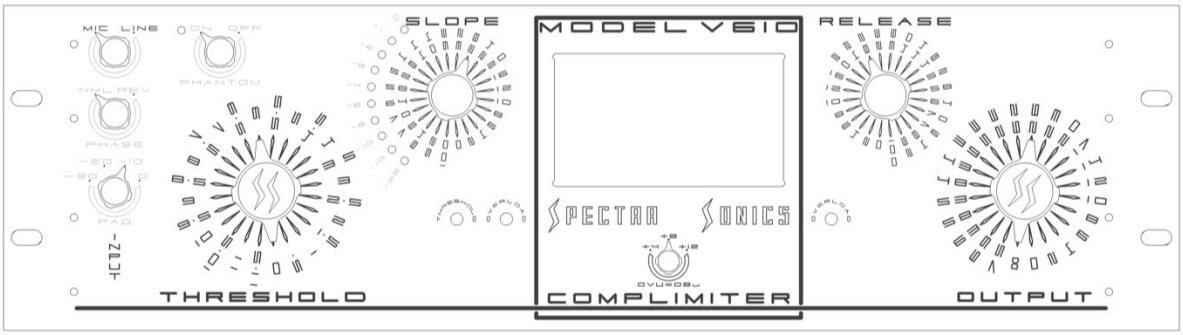
Power Requirement…….105-120 VAC, 60 Hz, 6 watts

Physical Dimensions…….5 1/4” high x 19”wide x8 1/2” deep for standard rack mounting

Weight……Net, 9 1/2 pounds, Shipping, 14 pounds

Stereophonic Interconnection……TRS or mono 1/4" type

The V610 Quick Start Guide



Input Level Control (Threshold)

PROPER SETUP OF THIS CONTROL WILL ALLOW FOR CONSISTENT AND REPEATABLE PERFORMANCE

The V610 compressor circuit is designed to operate levels of -40dBu or greater. The input level control allows for 2dB, incremented adjustment to attain -40dBu level. As gain is increased beyond the -40dBu input level, resulting compression follows incrementally. The amount of input level compression may be readily viewed on the V610. A separate LED gain reduction meter simultaneously shows gain reduction. In gain reduction mode, the meter will deflect top to bottom, thus indicating the amount of gain reduction, in dBu. Adjusting the input level will give a visual demonstration as to the relation of input gain versus gain reduction.
Note: Three, 10dB pad ranges allows for up to 30dB input pad. The line input has an additional 20dB of input pad.

The V610 is capable of signal levels 30dBu above the -40dBu input reference level, (-10dBu). Levels beyond this reference standard may be easily attenuated with the input level control.

Independent Peak Limiting/Compression

A unique and important design feature of the V610 is to eliminate the "peak" transient information independent of the compression function. Audio program peaks, as defined by Spectra Sonics over four decades ago, operate at frequencies well beyond 20 kilohertz and contain no music program material. Conversely, conventional analog peak limiter circuits that operate in the 20-kilohertz range will affect program material content in terms of frequency response, distortion and headroom.
In addition, the compression function on conventional analog compressors will be determined by peak content. The greater the peak/average ratio, the greater the compression and loss of dynamic range and increase in system noise.
The V610 eliminates the peaks and allows for improved dynamic range and system noise by increased compressor gain.

<u>Peak Limiting Only</u>

For maximum dynamic range, and no compression, this configuration is required:
-Set the input level whereby the "threshold" LED occasionally flashes. The "threshold" LED should not be illuminated on a constant basis. This setting indicates at peaks only. The "threshold" circuit is like no other in the industry and operates an extremely high frequency similar to an oscilloscope.

Compression and Limiting Simultaneously

Both compression and limiting of audio program material whereby dynamic range can be maximized as well as elimination of audio program peaks.
-The gain reduction, LED meter Vu meter indicates gain reduction. At this input level, the “threshold” LED will be illuminated intermittently and not occasionally flicker.

-The amount of compression will be determined by the input level control setting. A visual representation, using the Gain reduction LED meter indication should be readily apparent.

-This mode is used whenever a small to intermediate amount of compression is desired.

Compression Only

When the average level of the input signal to the V610 is continually above the full illumination "threshold" level, then compression only occurs.

- Under this mode only “GR”, gain reduction occurs, (under this condition, longer release times are recommended.)

Output Level Control

The V610 utilizes two independent modules/circuits for audio signal compression and gain.
The compressor limiter function is controlled by the Model 601 Complimiter module.

The output control is a stepped, 24 position detent switch that is calibrated for log operation starting at 2db increments. It is important that the user understands the relationship between input level, (gain), and output level, (make up gain).

Improper level adjustment can result in loss of dynamic range and possibly increased system distortion.

The V610 Complimiter has a gain of 65dB. Of the total, approximately 40dB of gain is provided by the second, 110A amplifier module.

The sole purpose of the 110A module is to make-up gain for the unit. The output knob of the 610 controls the 110A module gain. If the input gain is set at -40dBu as described earlier, then the amount of undistorted gain available is 65dB with 1.1-1 compression. This is referenced at+24dBu maximum output, and indicated via the red overload indicator on the M610. Decreases in gain will result as compression is increased.

Threshold

A flashing LED indicates transients, (peaks), at -40dBu and below. A constant LED indicates -40dBu and above for program material. The threshold circuit operates at high frequencies well beyond conventional peak indicators. As a result, the V610 will indicate peak amplitude material without the use of a specialized measurement device.

Overload Input

Complimiter Circuit Input overload

Overload Output

The red overload indicator LED will illuminate whenever excessive input or output signal level overload, (+22 dBu), occurs. In some applications it is particularly desirable to utilize the overload indicator LED as a guide to obtaining additional limiting with the output of the Model V610 Complimiter

Release Control

The release control knob affects the signal release time after initial signal compression.
Maximum release time, marked "100" on the front panel, will slowly restore gain to the original level. Long release times are often used for multiple source program material, main program channel material, mastering, or very slow source material from a single source.

Slope Control

The slope control provides the widest range of compression/limiting ratios available, from 1.1:1 to 100:1. When the slope control is set for minimum compression, the knob is set at "10", thus providing peak limiting and linear amplification of 20dBu. When the slope is set for maximum compression, the knob is set at "0", for a flat slope of up to 100:1, or 20dB of compression.

Phantom Power

48 volt switchable terminated to the microphone input only.

Phase

180 degrees, switchable.

Gain Reduction Meter (LED)

LED type, calibrated 20 dBu segment type design. Shows gain reduction/compression real time.

Vu Meter

0vu = +12 dBu, output level monitor type meter.

Mic / Line Input

Switches between microphone and line input. Line Input has 20 db pad. Line Input will accept balanced or unbalanced source.

MODES OF OPERATION

Principal of Operation

The Model V610 "COMPLIMITER" is the first compressor/limiter that allows for the professional the widest range of separate and distinct mode of operation. The attainment of this flexibility is based upon being able to easily and precisely set the input and output level controls. This is a result of interaction among the following principals of operation:

1. Accurate monitoring of peak vs. average input signal levels using visual "threshold" LED indication and Vu meter, respectively.

2. Constant threshold attack level for any compression slope setting.

The following modes of operation result from interaction of the above principles and are recommended for actual use to demonstrate the simplicity of obtaining both maximum performance and maximum versatility with the Model V610.

1. Normal linear amplification.
2. Peak limiting only (maximum level below fixed amplitude without affecting dynamic range).
3. Compression and limiting simultaneously.
4. Compression only.
5. Limiting and compression with additional fixed amplitude protection, (maximum percent modulation).

Through variations of these separate and distinct modes of operation, innumerable audio signal combinations are obtainable. For each mode of operation there follows an explanation of the interaction of the principals of operation, control settings and typical applications.

Normal Linear Application

This mode of operation always occurs when both the average and peak level of the signal waveform are below the threshold attack level of -40 dBu. Since neither the compression nor limiting functions of the Model V610 will be activated, the slope control and release time settings will have no effect on the output, and 20 dB of normal linear amplification will be provided. In addition, whenever the slope control is set to the minimum compression/limiting ratio of 1.1 to 1 ("100" slope control setting = fully clockwise), normal linear amplification occurs for all input signal levels above the -40 dBu threshold attack level. This latter condition of operation above the threshold attack level provides the maximum signal-to-noise ratio for the device.

Microphone and Line Level Settings

Control settings: For low signal levels (e.g. Microphone, etc.), no attenuation of the input signal is required and the threshold attack LED will occasionally flash whenever input levels are above threshold. For higher signal levels (e.g. Line, etc.), it is preferable to operate above the point of threshold and thus maximize the signal-to-noise ratio of the system. The slope control is set to approximately normal linear amplification ("100" slope control setting = fully clockwise), the release control setting is not critical and may be set at maximum time. The input level control is adjusted so the threshold attack LED is continually illuminated. For either of these two conditions, adjust the output level control to obtain the level required.

Typical Application: This mode provides amplification for input signal levels below the -40 dBu threshold attack level, such as when normal microphone output levels, (-50dBu), are terminated directly to the Model V610. For higher level input signals, setting the slope control to approximately normal linear amplification has the practical equivalent of switching the Model V610 out of the circuit.

Peak Limiting Only

For all levels of the input signal waveform where peak signals are above threshold, and average level is below threshold, peak limiting occurs.

Peak waveforms or transients, by definition, are high amplitude, short time-base, and are beyond the audible range, (20 kHz). Thus, the independent limiting function will attack, instantaneously, to provide complete peak overload protection. The limiting curve approximately follows the compression curve and, a continuously variable limiting curve is obtainable. For positive amplitude protection, a flat compression slope provides a flat limiting protection line.

Control Settings: Increase the input level control until the threshold attack LED occasionally begins to flash, indicating peaks are beginning to cross threshold. The control setting will approximately represent the maximum amplitude of the peak material for this audio program selection. The maximum amount of peak limiting will occur just prior to the point where the VU meter begins to indicate gain reduction. The slope control is set for minimum, (flat), slope of the limiting, (and compression), curve (fully clockwise). Since compression is not being activated, the release control setting is not critical and would be set for maximum release time, (fully clockwise). Adjust the output level control to obtain the level required.

Typical Application: Maximum Vu output without affecting dynamic range is obtained with maximum peak limiting. With no compression of audio program source material, no peak program material will be transferred through the Model V610, thus allowing improved audio level. As a result, increased headroom will be realized without associated "peak overload", (typically 10dB). In addition, an improvement in signal to noise ratio will be achieved in proportion to the increase in signal level.

Compression and Limiting Simultaneously

This mode of operation occurs when the average level continually alternates above and below the constant threshold attack level.

When the audio program waveform initially crosses threshold, the limiter will attack and hold until the compression function takes over. The cycle will repeat each time the average level crosses the threshold.

The compression slope does not change the threshold attack level or the threshold indication. The release time will determine how long the function will hold.

Control Settings: Increase the input level control until the Vu meter begins to indicate compression. The threshold attack LED indicator will be illuminated continuously since the average signal level will now be above threshold. The amount of additional compression is dependent upon the input level control setting. When the release control is set for the shortest release time, maximum average level will be obtained with an increase in audio level and distortion. Longer release time will provide the smoothest action with minimum audio level changes, minimum distortion and average level slightly lower than the maximum. Adjust the output level control to obtain the level required.

Typical Application: This mode is used whenever a small or intermediate amount of compression is desired.

Compression Only

When the average level of the input signal to the compressor/limiter is continually above the threshold attack level, this mode occurs.

Control Settings: Increase input level until the LED gain reduction meter indicates compression. Generally, longer release times should be used.

Typical Application: Wherever a large amount of compression is required, operate in this mode.

Limiting and Compression with Additional Output Limiting/Broadcast Application

This mode is the same as the previous "Compression and Limiting Simultaneously" mode, except that additional amplitude protection at a fixed level is provided by driving the output amplifier to maximum output, (peak clipping).

The system provides "limiting-on-limiting," which assures maximum power output or maximum percent modulation. When utilized in this manner, an external pad after the Model V 610 is needed to reduce the higher output level to line level.

The red overload lamp indicator is set to illuminate for output amplifier signals of approximately +22 dBu, well in advance of the actual output amplifier limiting of +18 dBu or greater. Under normal circumstances, this is the preferred operation. However, additional precise laboratory lamp indication at the point of output amplifier limiting may be preferred. Calibration of the overload light for this function is available at a nominal charge from the factory.

Control Settings: Set the controls in the same manner as described in the previous "Compression and Limiting Simultaneously" mode except that the output level control should be set so the red overload lamp begins to flash. Thus, a final fixed amplitude protection line is provided to prevent subsequent overload distortion, over-modulation, etc.

Typical Applications: This mode is particularly applicable to broadcast applications where a maximum percentage of modulation is required. A resistance in series, (e.g. 600 ohms, 1000 ohms potentiometer, etc.) where signal output is sufficient to pad the signal positive down to standard +8 dBm broadcast line

(e.g. 600 telephone lines etc.) level. This mode may be used for any application where maximum level is to be obtained without crossing above a maximum amplitude protection line.

CONTROL AND MONITOR FUNCTIONS

Constant Threshold Operating Advantages

The constant threshold attack level provides a significant operating advantage by eliminating the need to continually reset the input level for each new variation of compression ratio. Thus, comparison analysis on simplified "A-B" basis is possible and the selection of the desired slope of the compression curve is easier, more accurately determined, and requires less time.

No "De-Ess" Roll-Off

The need for "de-ess" or "de-emphasis" has been eliminated through the advanced design dual function, independent compression and limiting of the Model V610. Conventional single function analog compressor/limiters are not capable of reacting in time to protect against higher frequency sibilant sounds without markedly sacrificing the performance of audio program material. Considerable engineering design effort was required to develop a sophisticated dual function system. "De-ess" or "de-emphasis" controls frequencies irrespective of whether or not transients or sibilant peaks are present. The professional audio engineer is no longer in control of the final program output from such competitive conventional units due to either "roll-off" of all high frequencies to avoid sibilant distortion from only a few high frequencies, or tolerate sibilant distortion from high frequency peak overload.

THE FREQUENCY RESPONSE OF THE MODEL V610 DOES NOT CHANGE UNDER

NORMAL LINEAR AMPLIFICATION, LIMITING AND/OR COMPRESSION.

Input and Output Level Controls

THE INPUT CONTROL REGULATES THE AMOUNT OF COMPRESSION/LIMITING DESIRED. The system is capable of receiving input signals 30 dB above the constant threshold attack level without degradation in performance. The output control regulates the system output level and is located after the compression/limiting plug-in module and before the final amplifier plug-in module. Continuously variable control of the input and output signal levels is provided to allow any value of attenuation. The Vu meter may be used to monitor accurately this attenuation.

Slope (Compression/Limiting Ratio) Control

The Model V610 provides both:

1. The widest range of compression/limiting ratios – from approximately 1.1:1 (approaching linear amplification) to 100:1 (flat slope).

2. Continuously variable selection of compression ratios – which may be changed during use to obtain any desired slope of the compression curve without producing transients, pops, clicks, etc., or changing the threshold attack level.

For inputs up to the point of threshold (-40 dBu), the compressor/limiter provides 20 dB of gain. Thereafter, the output is dependent upon the compression/limiting ratio selected. The unit restricts/limits any program material from exceeding, in amplitude, the selected compression/limiting ratio curve. Distortion and gain decreases as the compression/limiting ratio is reduced from the extreme flat setting.

When the slope control is set to the maximum compression/limiting ratio of approximately 100 to 1 ("0" slope control setting = fully counterclockwise), the compression/limiting curve is flat. Hence, the maximum amplitude output is held to a constant -20 dBu for any input level up to 30 dB above threshold. This extremely flat slope is very useful whenever a positive protection line limit is required.

Conversely, when the slope control is set to the minimum compression/limiting ratio of approximately 1.1:1 ("100" slope control setting = fully clockwise), the slope of the compression curve approaches the linear amplification curve. The Model V610 approximates the operation of a normal linear amplifier, and provides approximately 20 dB of gain for input above threshold.

For typical intermediate slope control settings, refer to Figure 1, Compression Curve Slope vs. Slope Control Settings. For slope control settings of approximately "50" (50% open), a signal input increase of 15 dB above threshold, will increase the output approximately 7.5 dB, which is a 2:1 compression/limiting ratio.

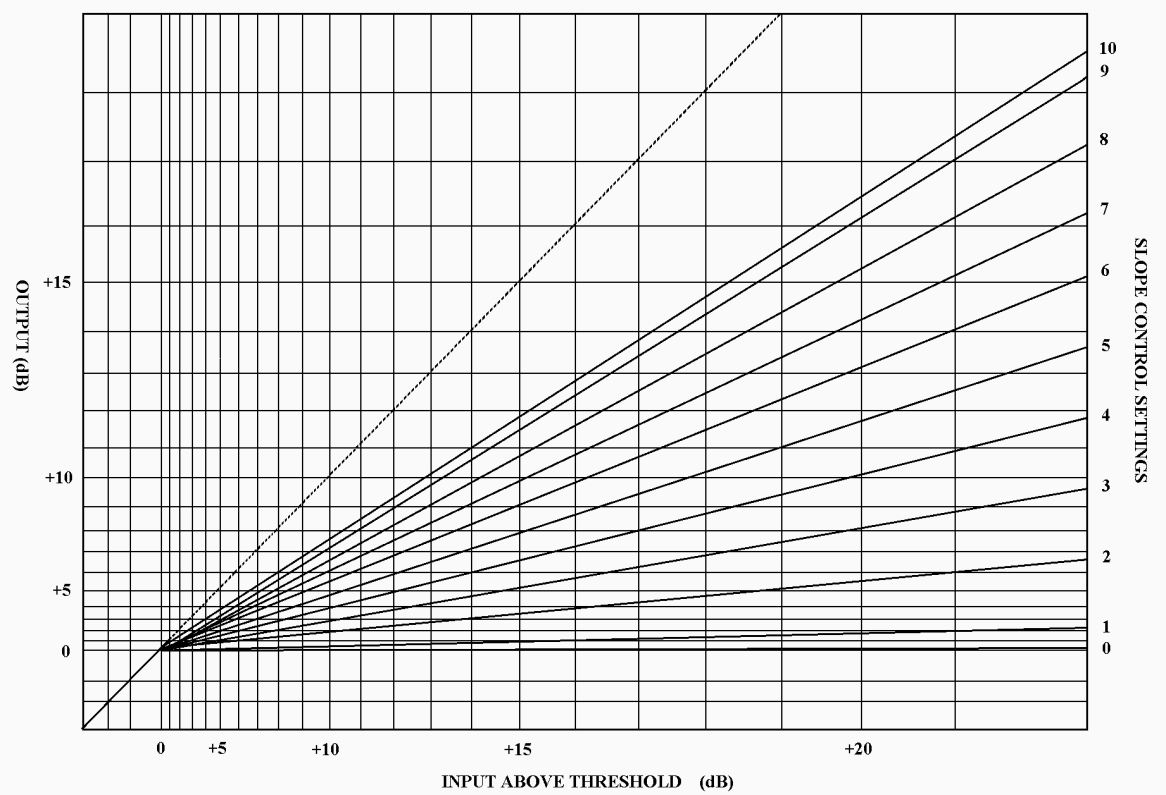


FIGURE 1
COMPRESSION CURVE SLOPE
VS. SLOPE CONTROL SETTINGS

Release Control

The continuously variable release time control regulates only the compressor release function. Distortion is a function of release time and the amount of compression/limiting.

Maximum release time ("100" on the panel, fully clockwise) will slowly restore gain back to its original level. For lowest distortion and smoothest response, the release time should be at least an order of magnitude greater than the time of one cycle of the lowest frequency to be processed. Longer release time settings are often used for multiple source program material, main program channel material, mastering, or very slow music from a single source.

Minimum settings of release time, ("0" on the panel, fully counterclockwise), will quickly restore gain back to its original level. For maximum average level below a fixed amplitude output, the release control should be set at the shortest time; however, distortion and level change variations will be greater. Minimum release times are often used for single source, vocal or solo source material with low background noise and/or low background program material. As the background level increases, the quick release to normal level, (short release time), will be audibly detectible as a rapid change in background program level.

Figure 2, Actual Release Time, (90% signal recovery) vs. Release Control Settings, illustrates the wide degree of continuous release time variation available. In addition, all the release times may be reduced if required. Please consult the factory for adjustment procedures.

FIGURE 2

ACTUAL RELEASE TIME VS. RELEASE CONTROL SETTINGS

		Release Control Settings (Panel Markings)					
		0	20	40	60	80	100
Actual Release Time (Seconds)	5 dB Comp.	0.05	0.4	0.7	1.2	3.5	5.5
	10 dB Comp.	0.08	0.6	1.0	3.0	5.7	8.5
	15 dB Comp.	0.14	0.7	1.4	3.5	6.2	9.2
	20 dB Comp.	0.16	0.9	1.8	4.5	10	10
	25 dB Comp.	0.18	1.5	2.8	6.0	10	10

NOTE: LISTED DATA MAY VERY SLIGHTLY DUE TO
COMPONENT TOLERANCE VARIATION WITHIN THE MODEL 610

In summary, the optimum release control setting for maximum level below fixed amplitude will be the shortest possible release time commensurate with the minimal amount of distortion and/or level changes. Judicious listening and selection of release times for various program selections is recommended, using this information as a guide.

Threshold Attack Indicator LED

The Vu meter needle mechanism cannot respond to instantaneous peak limiting of the Model M610 system on high amplitude, short time base transients. A Vu meter is capable of indicating longer time base signal. When illuminated, the clear threshold attack LED indicates that audio signal (e.g. transients, peak program material, etc.) have crossed the constant -40 dBu threshold attack level of the Model M610.

The frequency of the illumination, (e.g. flash, flashing, steady, etc.) from the LED indicator gives the user an approximate representation of the peak limiting taking place, without the task of monitoring with an auxiliary oscilloscope.

If the input signal remains above threshold for a longer time, the threshold attack indicator LED will remain illuminated and the Vu meter, (meter switch set to “GR”), will indicate the amount of GAIN REDUCTION, (compression), that will automatically occur.

Overload Indicator LED

The red overload indicator input LED will illuminate whenever excessive input or output signal level overload, (+22 dBu), occurs.

In some applications it is particularly desirable to utilize the output overload indicator LED as a guide to obtaining additional limiting with the output of the Model V610.

Dimensions and Mounting

The Model V610 is designed to fit a standard 19 inch electronics equipment rack, cabinet or console, and requires 5 ¼" inches of vertical rack space. The unit may be mounted in any position. The 4 oval cutouts on the ends of the front panel are provided for mounting. The front panel is 1/8" x 3 1/2" x 19". Behind the front panel, the unit is 5 ¼" high, 17" wide and 8 1/2" deep. The net weight is 10 pounds. The unit is completely self contained and does not require forced air cooling.

Design Schematics and Physical Layout

The Model V610 Block Schematic Design is shown in Figure 5.

The Model 101 Audio Amplifier, Model 601 Compressor/Limiter and Model 603A Gain Reduction Meter Amplifier modules must be repaired only by the factory due to the precise and critical parameter requirements of the components utilized. Arbitrary insertion of standard components cause catastrophic failure of the plug-in modules and should not be attempted. It is for this reason that the plug-in module schematics are not provided.

Please contact the factory for additional service information and schematics on non critical components.

EQUIPMENT WARRANTY

The following warranty is effective for all Spectra Sonics, LLC (Manufacturer) products. Spectra Sonics warrants that this product is free of defects in both materials and workmanship. Should any part of this product be defective, the Manufacturer agrees at its option, to:

A. Repair or replace with a like new replacement any defective part free of charge (except transportation charges) for a period of one year for all products. This warranty period begins on the date the end user is invoiced for the product, provided the end user provides proof of purchase that demonstrates that the product is still within the warranty period and returns the product within the warranty period to Spectra Sonics, LLC, according to the Product Return and Repair Policy set forth below. All inbound shipping costs are the responsibility of the end user; Spectra Sonics, LLC will cover all outbound shipping costs.

Product Return and Repair Policy

Return to Manufacturer

1. An RMA (return merchandise authorization) number must be obtained by the end user from Spectra Sonics, LLC.
2. The user must return the product to Spectra Sonics, LLC with proof of purchase (showing purchase date) for a warranty claim, and display the RMA number on the outside of the shipping package.

THIS WARRANTY IS VOID IF:

- The product has been damaged by negligence, accident, act of God, or mishandling, or has not been operated in accordance with the procedures described in the operating and technical instructions, or
- The product has been altered or repaired by other than the Manufacturer or an authorized service representative of the Manufacturer; or

- Adaptations or accessories other than those manufactured or provided by the Manufacturer have been made attached to the product which, in the determination of the Manufacturer, shall have affected the performance, safety or reliability of the product; or
- The product's original serial number has been modified or removed.

NO OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE, APPLIES TO THE PRODUCT. MANUFACTURER'S MAXIMUM LIABILITY HEREUNDER SHALL BE THE AMOUNT PAID BY THE END USER FOR THE PRODUCT.

No person or entity authorized to assume any obligation or other liability in connection with the products. No action, regardless of form, arising out of or relating to the product or this warranty, may be brought by end user more than one (1) year after the cause of action has accrued.

Manufacturer shall not be liable for punitive, consequential, or incidental damages, expenses, or loss of revenue or property, inconvenience, or interruption in operation experienced by the end user due to a malfunction in the purchased product. No warranty service performed on any product shall extend the applicable warranty period.

In case of unsatisfactory operation, the end user shall promptly notify the Manufacturer at the address set forth below in writing or call (801) 593-9813 giving full particulars as to the defects or unsatisfactory operation. Upon receipt of such notice, the Manufacturer will give instructions respecting the shipment of product, or such other matters as it elects to honor this warranty as above provided. This warranty does not cover damage to the product during shipping and the Manufacturer assumes no responsibility for such damage. All shipping costs shall be paid by the customer.

This warranty extends only to the original end user and in not assignable or transferable. This warranty is governed by the laws of the State of Utah, without regard to the conflicts of interest's provisions thereof.

STEREO INTERCONNECTION OF THE C610, V610, AND THE 611

Located at the rear of the 600 series Complimiter unit, is a connector, (labeled "link"), used for two channel, "stereophonic" interconnection of two units. Since only the tip portion of a ¼" connector is used, both mono and TRS connector type cables will work. Vintage 610 models require a Model 610SI interconnect cable. Please contact the factory to purchase the cable.

The link interconnection couples the attack and release action of the limiting and compression functions of two units. The input (compression/limiting) and slope controls on either unit may be independently set for the desired mode of operation. However, when the attack action of either unit is activated, the other will follow so as to maintain the stereophonic perspective. The release action will follow the fastest setting on either unit. Prior to differing applications, the accessory may be switched in or out of the circuit as desired.

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