



# 2264ALB Limiter Compressor



## User Manual

527 – 402  
Issue 1.2

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**Health & Safety Notice**

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**For your own safety and for the protection of others,  
please observe the following safety precautions:**

- Read these instructions.
  
- Keep these instructions.
  
- Follow all instructions.
  
- Only use attachments/accessories specified by the manufacturer.
  
- Heed all safety warnings.
  
- Do not use near water.
  
- Clean only with a dry cloth.
  
- Do not install near heat sources.
  
- Do not block ventilation openings.
  
- Unplug when unused for long periods of time.
  
- Refer all servicing to qualified personnel only.

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In the unlikely even that this unit should malfunction or develop a fault, then please register the fault details on our website, by clicking the link below.

You will also need to enter the unit's serial number when you do this, so please have this to hand.

[http://www.ams-neve.info/crm/fault\\_report.html](http://www.ams-neve.info/crm/fault_report.html)

Once the fault details have been registered, one of our technical support team will be in touch via email.

This link should also be used for further operational or technical help, or any general enquiry about the unit.

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## Introduction

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The **2264A LB Limiter / Compressor** facilities and performance are similar to those of a 2254/R Limiter Compressor.

The main advantages of the 2264A LB are its smaller size and compatibility with Lunchbox™ racks, plus it uses a more advanced circuit technique, and the response curves it produces are more precise than those of a 2254/R.

Also it has a switchable Slow Attack feature for applications such as Bus Compression.

The **2264A LB Limiter / Compressor** has been designed for use in sound broadcast and recording studios where a requirement exists for a high quality instrument for the control of programme dynamic range.

The unit may also be used for the protection of transmitters from overloading when the limiter is adjusted for a shorter attack time.

The operational controls and metering are mounted on the front panel of the unit.

## Front Panel Controls

### LIM THR, REC, LIM I/O (Limiter Section)

This is a 3-function group of controls comprising the following functions:

- **LIMit THRe**shold

The inner grey knob, variable from +4dBm to +15dBm, controls the threshold at which the limiting effect takes place.

- Limit **RECO**very

The outer metal knob, a switched attenuator with notched settings from 50ms to 800 ms, controls the recovery time of the Limiter. There are also two *Auto* settings, **A1** and **A2**.

- **LIMit In/Out**

Push the inner grey knob to place the Limiter in/out of circuit. The **LIM I/O** LED lights when the Limiter is in circuit.



### COMP THR, REC, COMP I/O (Compressor Section)

This is a 3-function group of controls comprising the following functions:

- **COMP**ressor **THRe**shold

The inner grey knob, variable from -20dBm to +10dBm, controls the threshold at which the compression effect takes place.

- Compressor **RECO**very

The outer metal knob, a switched attenuator with notched settings from 100ms to 1500 ms, controls the recovery time of the Compressor. There are also two *Auto* settings, **A1** and **A2**.

- **COMP**ressor **In/Out**

Push the inner grey knob to place the Compressor in/out of circuit. The **COMP I/O** LED lights when the Compressor is in circuit.

### COMP GAIN, RATIO, LINK (Compressor Section)

This is a 3-function group of controls comprising the following functions:

- **COMP**ressor **GAIN**

The inner grey knob, variable from 0dB to +20dB, controls the make-up gain applied to compensate for level lost due to the compression process.

- Compression **RATIO**

The outer metal knob, a switched attenuator, runs from 1.5:1 to 6:1 in notched increments, controlling the ratio of the Compressor section.

- Control Voltage **LINK**

Push the inner grey knob to select whether the control voltage is derived internally or externally via Pin 6 of the Lunchbox™ rack buss to allow linking with other 2264A LB units. The LINK LED lights when external control is selected.

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**BYPASS / IN**

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When in **BYPASS** this switch connects the Input directly to the Output, in effect bypassing all of the unit's circuitry. When set to the **IN** position, the unit is in circuit.

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**SA (Slow Attack)**

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When this switch is in the **SA** (Slow Attack) position the attack time of the Compressor section is slowed, for applications such as bus compression. When the switch is not in the **SA** position the attack time is reverted to the standard 2264 setting.

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**SIG (Signal Presence)**

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This LED lights when a signal is detected at the input to the unit.

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**Meter LEDs**

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These LEDs show the amount of Gain Reduction being applied to the signal, and have an approximate PPM characteristic.

## 2264 Operation

### LIMITING – ATTACKTIME

This unit has a limiting attack time of 4msec.

This slow attack time is used on programme material of moderately percussive nature, such as a solo piano.

With this attack time a very narrow dynamic range can be achieved by feeding high levels into the limiter while using a low limit level.

A fast attack time is desirable for example, when the unit is used for driving a transmitter.

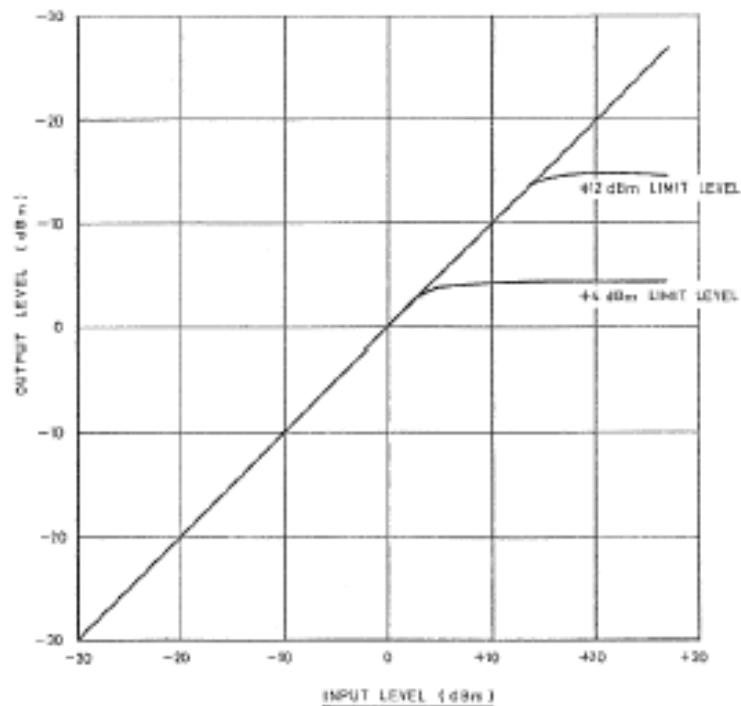
Fast attack times should be used with care when recording.

The point at which the limiting threshold occurs can be varied between +4 dBm and +15 dBm.

A range of recovery times for the limiting action is provided by the **LIMIT RECOVERY** control which may be selected according to the nature of the programme.

The **AUTO** position is used where automatic corrective action is preferred. This provides a composite control, with rapid response to isolated peaks and a slower recovery after prolonged high levels.

The figure below shows the relationship between input and output levels with the **LIMIT LEVEL** set at +4 dBm and +12 dBm.



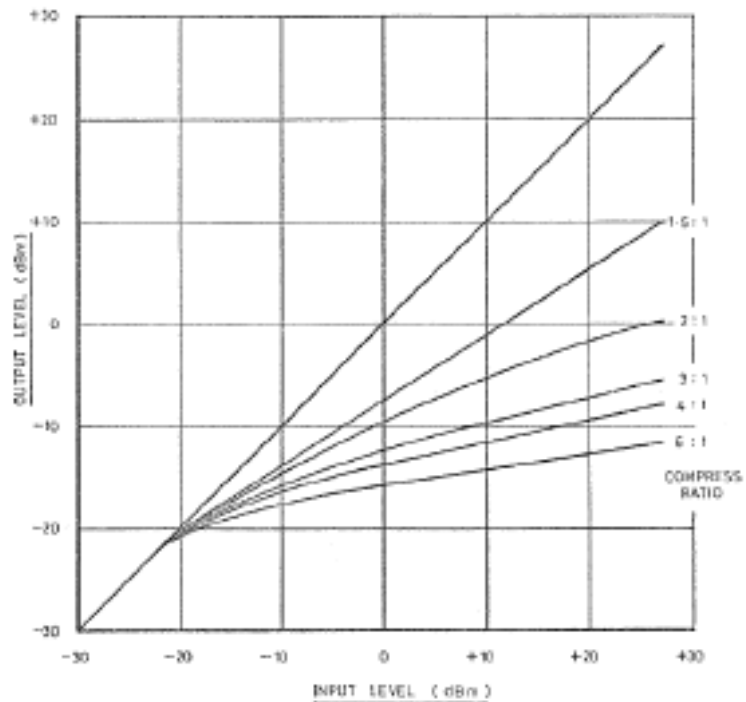
## COMPRESS RATIO

Five compression ratios are provided:

- 1.5:1
- 2:1
- 3:1
- 4:1
- 6:1

The characteristic is shaped such that the onset of compression is smooth and progressive, the true ratio being established within about 6dB above the threshold point.

The graph below shows the relationships between input and output levels for each of the five ratios, with **THRESHOLD** set to -20 dBm.



## THRESHOLD

The threshold point may be varied in from -20dBm to +10dBm giving a wide range of effects.

Low ratios operated from a low threshold will preserve the impression of dynamic range while enabling the operator to achieve a significantly better signal-to-noise ratio when recording.

A high ratio operated from a high threshold gives a partial limiting action.

## GAIN

When a threshold point below line level is chosen, it is necessary to add gain after compression so as to restore the mean programme level.

The **GAIN** control provides up to 20 dB of additional gain, and gain added in this way inevitably increases the level of all signals including noise.

Care should therefore be taken in attempting high degrees of compression, necessitating large increases of gain.



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### Limiters & Compressor in combination

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When both of the **LIMIT** and **COMPRESS** switches are set to **IN**, the sidechains controlling limiting and compressing will be operative.

Under these conditions, the compressor is effective below +8dBm only, because at this point, the limiting action will take over complete control.

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### BYPASS Switch

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When the **BYPASS** switch is set to the **IN** position, this effectively joins the input and the output together, with the unit out of circuit.

#### **NB:**

*When the source from which the instrument is fed has a significant impedance, the output level may change when the **BYPASS** key is operated, particularly if the output circuit is terminated.*

*This effect arises because the unit constitutes a buffer amplifier having a high input and low output impedance.*

The limiter / compressor may be used as a linear amplifier providing both the **LIMIT** and **COMPRESS** switches are set to **OUT**.

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### LINK

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Enables the control voltage to be derived either internally or can be externally connected in conjunction with other 2264A LB units via the Lunchbox™ pin 6 ("525") buss.

When the LINK mode is engaged and the associated LED lit the control voltage is sourced from the external buss. When the LED is off the internal control voltage is selected. When two or more units are assigned to this common buss, then it is the loudest signal in this group that causes all compressors in that group to action.

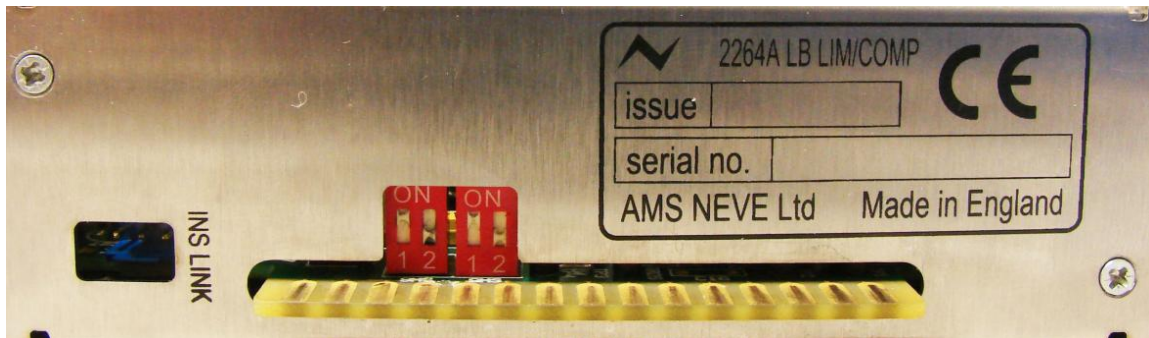
**When using the 2264A LB in LINK mode there can be no other units attached to the pin 6 ("525") buss apart from other 2264A LB units.**

## Insert Mode

It is possible to use the 2264A LB in conjunction with the 1073LB Microphone Pre-amplifier module, with the 2264A LB functioning as an inserted processor within the 1073LB.

To enable this mode, the DIP-switch settings on the rear of both modules need to be changed.

Please refer to the **1073LB User Manual** for details on configuring the 1073LB for insert mode.



2264A LB configured for **Standalone Mode** (Factory default settings)

### Standalone Mode (Factory Default)

#### Left switch block

Switch 1 (left)	On
Switch 2 (right)	Off

#### Right switch block

Switch 1 (left)	On
Switch 2 (right)	Off

### Insert Mode (for use with 1073LB)

#### Left switch block

Switch 1 (left)	Off
Switch 2 (right)	On

#### Right switch block

Switch 1 (left)	Off
Switch 2 (right)	On

- Please use a non-metallic tool to set the DIP-switches to avoid potential damage to the unit.

### Insert Mode Configuration Examples

There are four possible configurations possible when using multiple AMS Neve units in Insert Mode. Either a 2-way or 3-way **INS LINK** cable is required depending on the configuration. The signal processing order is changed by physically moving the units within the rack.

	<p>1073LB with 1073LB EQ wired as Insert</p> <p>Signal flow -</p> <p>1073LB-1073LB EQ-1073LB</p>	<p>2-way insert cable Neve p/n <b>NN5749*</b> or</p> <p>3-way insert cable Neve p/n <b>NN5790</b> with Loopback Plug fitted to S2 socket</p>
	<p>1073LB with 2264A LB wired as Insert</p> <p>Signal flow -</p> <p>1073LB-2264A LB-1073LB</p>	<p>2-way insert cable Neve p/n <b>NN5749*</b> or</p> <p>3-way insert cable Neve p/n <b>NN5790</b> with Loopback Plug fitted to S2 socket</p>
	<p>1073LB with 1073LB EQ then 2264A LB wired as Insert</p> <p>Signal flow -</p> <p>1073LB-1073LB EQ-2264A LB-1073LB</p>	<p>3-way insert cable Neve p/n <b>NN5790</b></p> <p><b>M - 1073LB</b></p> <p><b>S1 - 1073LB EQ</b></p> <p><b>S2 - 2264A LB</b></p>
	<p>1073LB with 2264A LB then 1073LB EQ wired as Insert</p> <p>Signal flow -</p> <p>1073LB-2264A LB-1073LB EQ-1073LB</p>	<p>3-way insert cable Neve p/n <b>NN5790</b></p> <p><b>M - 1073LB</b></p> <p><b>S1 - 2264A LB</b></p> <p><b>S2 - 1073LB EQ</b></p>

- The **2-way Insert Cable p/n NN5749** was previously supplied with **1073LB EQ Modules**, but has subsequently been replaced with the **3-way Insert Cable and Loopback Plug p/n NN5790**.
- The **3-way Insert Cable and Loopback Plug p/n NN5790** is supplied with the **2264A LB Module**.
- To order extra cables please contact your dealer in the first instance.

## Unit Specifications

General	
<b>Input</b>	10,000 $\Omega$ , bridging, balanced and earth-free.
<b>Output</b>	Balanced and earth-free. Maximum output into 600 $\Omega$ : 26 dBm.
<b>Gain</b>	Nominally 0 dBm. Compress & Limit thresholds are defined in relation to the output level when terminated to 600 $\Omega$ .
<b>Bypass switch</b>	In the <b>BYPASS</b> position, the output terminals are connected to the input terminals directly.
<b>Control Voltage Linking Switch</b>	Enables the control voltage to be derived either internally or can be externally connected to the Lunchbox™ Pin 6 buss.
<b>Noise</b>	Measured between 20Hz and 20kHz. RMS output noise does not exceed -75dBm with no gain make up, or -55dBm with 20dB of gain make up applied (only when <b>COMPRESS</b> is selected).
<b>Frequency Response</b>	Relative to 1kHz, response is within +0, -0.5dB over range of 20Hz to 20kHz
<b>Distortion</b>	Measured at 1kHz, distortion does not exceed the following: a) <b>COMPRESS &amp; LIMIT</b> switched <b>OUT</b> , output level at +9dBm: 0.05% b) <b>COMPRESS</b> switched <b>IN</b> , ratio 6:1, recovery 800ms, output level +9dBm: 0.2% c) <b>LIMIT</b> switched <b>IN</b> , recovery 800ms, input level +20dBm, threshold +4dBm: 0.4%

Parameters	
<b>Limit Threshold</b>	Variable from +4dBm to +15dBm.
<b>Limit Ratio</b>	Not less than 100:1.
<b>Limit Attack Time</b>	4ms, measured by increasing the input level 10dB, and measuring the time taken for the output level to decay 1dB above the limit threshold level.
<b>Limit Recovery Time</b>	Six recovery times are available: 50ms / 100ms / 200ms / 800ms / Auto 1 (100ms/2 sec) / Auto 2 (50ms/5 sec)
<b>Compression Ratio</b>	Five ratios are available: 1.5:1 / 2:1 / 3:1 / 4:1 / 6:1
<b>Compression Threshold</b>	Variable from -20dBm to +10dBm.
<b>Compressor Attack Time</b>	3ms (switchable to 10ms with SA switch), measured by increasing the input level 10dB, and measuring the time taken for the output level to decay to 1db above the limit threshold level.
<b>Compressor Recovery Time</b>	Six recovery times are available: 100ms / 400ms / 800ms / 1.5 secs / Auto 1 (100ms/2 sec) / Auto 2 (50ms/5 sec)
<b>Gain Make Up</b>	Gain make up control provides 0 to 20dB extra gain when <b>COMPRESS</b> is selected.

Other	
<b>Meter</b>	Indicates 0 to 20dB of gain reduction with approximate PPM ballistics.

