



2264 Limiter Compressor



User Manual

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Issue 1.4

Health & Safety Notice

**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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Table of Contents

Health & Safety Notice	2
Introduction	4
Front Panel Controls	5
LIMIT IN / OUT.....	5
COMPRESS IN /OUT.....	5
BYPASS / IN.....	5
A / IND / B.....	5
LIMIT THRESHOLD.....	5
LIMIT RECOVERY.....	5
COMPRESS THRESHOLD.....	5
COMPRESSION RECOVERY.....	5
GAIN MAKE UP.....	5
RATIO COMPRESS.....	5
Meter.....	5
Rear Panel Controls	6
Preset Gain.....	6
Meter Preset.....	6
Limiter Preset.....	6
Modules In Transit	6
2264 Operation	7
LIMITING – ATTACK TIME.....	7
COMPRESS RATIO.....	8
THRESHOLD.....	8
GAIN.....	8
Limiter & Compressor in combination.....	9
BYPASS Switch.....	9
A / IND / B.....	9
Presets.....	9
Unit Specifications	10
Recall sheets.....	11

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

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.

Introduction

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

The main advantages of the 2264 are it's smaller size, plus it uses a more advanced circuit technique, and the response curves it produces are more precise than those of a 2254/R.

The **2264 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 meter are mounted on the front panel of the unit, and there are two preset potentiometers on the rear panel.

It comes as either a vertical or horizontal rack mount unit, but the operation of both types of unit is identical.

Front Panel Controls



LIMIT IN / OUT

Toggle switch.

Set the switch down to place the Limiter in circuit.

COMPRESS IN / OUT

Toggle switch.

Set the switch down to place the Compressor in circuit.

BYPASS / IN

This Bypass key connects the Input directly to the Output, in effect bypassing all of the unit's circuitry.

A / IND / B

This 3-position toggle switch selects where the control voltage is to be derived from: either internally (**IND**) or externally connected to one of two control voltage ganging positions (**A** or **B**).

LIMIT THRESHOLD

Switched attenuator, from +4 dBm to +15dBm

LIMIT RECOVERY

Switched attenuator, notched settings from 50ms to 800 ms.

COMPRESS THRESHOLD

Switched attenuator from -20 dBm to +10 dBm.

COMPRESSION RECOVERY

Switched attenuator, notched settings from 50ms to 800 ms.

GAIN MAKE UP

Switched attenuator, runs from 0 dBm to +20 dBm.

RATIO COMPRESS

Switched attenuator, runs from 1.5:1 to 6:1 in notched increments.

Meter

Shows the amount of Gain Reduction being applied to the signal, and has a PPM characteristic.

Rear Panel Controls

Preset Gain

This gives +/- 2dB to the input to the compression sidechain.

Meter Preset

This meter preset, mounted on the printed circuit board is used in calibrating the response of the meter at known levels of gain reduction.

Limiter Preset

This is used to set the onset of limiting to take place at +8 dBm.

Modules In Transit

Please note that the designs of the AMS Neve classic modules and racks are to the original Neve specifications and are not designed to withstand transit.

Should you wish to move the rack from one location to another (for example shipping to another studio location or returning the rack to a repair center for servicing), please remove all installed modules from the rack and package the rack and each module separately in packaging suitable to withstand the intended transit.

If modules are installed in a rack while in transit, damage to the internal edge connectors may occur.

LIMITING – ATTACK TIME

This gives 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.

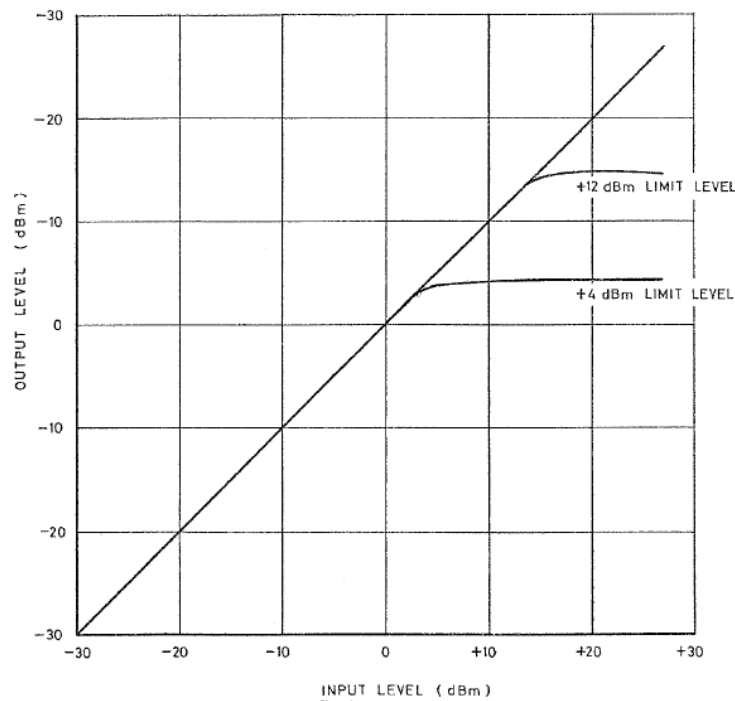
The point at which the limiting threshold occurs can be varied between +4 dBm and +15 dBm in 0.5dB steps.

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.



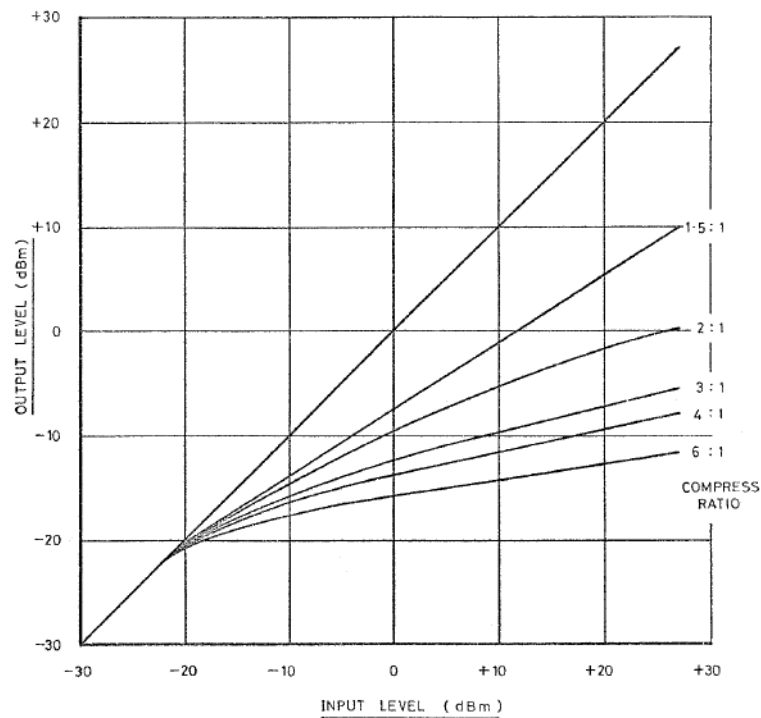
COMPRESS RATIO

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 steps of 2 dB 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 in steps of 2dB, 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.

Limiter & Compressor in combination

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.

BYPASS Switch

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**.*

A / IND / B

Enables the control voltage to be derived either internally or can be externally connected to one of two control voltage ganging positions.

Positions **A** & **B** of the switch select these buses, while the central position selects the internal control voltage.

Each module has an **A** and a **B** switch setting, so each unit can be assigned to one of two separate busses.

Once 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.

Please note that the units would need to be housed in an AMS Neve rack, as the AMS Neve rack has this extra wiring needed to form these two busses.

The unit can also work in 'standalone' mode, where you set the switch to **IND**, and the unit will action to it's own internal independent threshold.

Presets

The **SET +8** preset mounted on the rear panel enables the limiting threshold to be adjusted to the nominal level of +8dBm.

The **RV1** preset (also mounted on the rear panel) is for setting the compression threshold (nominally set at -16dBm)

NB:

Both of these presets should always be set under actual load conditions.

Unit Specifications

General	
Input	10,000 Ω , bridging, balanced and earth-free.
Output	Balanced and earth-free. Maximum output into 600 Ω : 26 dBm.
Gain	Nominally 0 dBm, with +/- 2dB gain variation available by means of a preset potentiometer mounted on the module rear panel. Compress & Limit thresholds are defined in relation to the output level when terminated to 600 Ω .
Bypass switch	In the OUT position, the output terminals are connected to the input terminals directly.
Control Voltage Ganging Switch	Enables the control voltage to be derived either internally or can be externally connected to one of two control voltage ganging positions. Positions A & B of the switch select these buses while the central position selects the internal control voltage.
Noise	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 COMPRESS is selected).
Frequency Response	Relative to 1kHz, response is within +0, -0.5dB over range of 20Hz to 20kHz
Distortion	Measured at 1kHz, distortion does not exceed the following: a) COMPRESS & LIMIT switched OUT , output level at +9dBm: 0.05% b) COMPRESS switched IN , ratio 6:1, recovery 800ms, output level +9dBm: 0.2% c) LIMIT switched IN , recovery 800ms, input level +20dBm, threshold +4dBm: 0.4%

Parameters	
Limit Threshold	Variable from +4dBm to +15dBm in 0.5dB steps.
Limit Ratio	Not less than 100:1.
Limit Attack Time	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.
Limit Recovery Time	Six recovery times are available: 50ms / 100ms / 200ms / 800ms / Auto 1 (100ms/2 sec) / Auto 2 (50ms/5 sec)
Compression Ratio	Five ratios are available: 1.5:1 / 2:1 / 3:1 / 4:1 / 6:1
Compression Threshold	Variable from -20dBm to +10dBm in 2dB steps
Compressor Attack Time	3ms, 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.
Compressor Recovery Time	Six recovery times are available: 100ms / 400ms / 800ms / 1.5 secs / Auto 1 (100ms/2 sec) / Auto 2 (50ms/5 sec)
Gain Make Up	Gain make up control provides 0 to 20dB extra gain in 2dB steps when COMPRESS is selected.

Other	
Meter	Indicates 0 to 20dB of gain reduction with approximate PPM ballistics.
Power Supply Requirement	24 volts at 50mA

Recall sheets

