88R LBC

User Manual

527-418

Issue 1

Health & Safety Notice

FOR YOUR OWN SAFETY AND FOR THE PROTECTION OF OTHERS
PLEASE OBSERVE THE FOLLOWING HEALTH AND SAFETY INSTRUCTIONS

- READ THESE INSTRUCTIONS AND KEEP THEM HANDY
- 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
- USE ONLY ACCESSORIES SPECIFIED BY THE MANUFACTURER

  REFER ALL SERVICING TO QUALIFIED PERSONNEL ONLY
- NO USER SERVICEABLE PARTS INSIDE

FAILURE TO OBSERVE THESE PROCEDURES AND RECOMMENDATIONS
WILL INVALIDATE THE MANUFACTURER'S WARRANTY

Avertissements de Santé & Sécurité

POUR VOTRE SECURITE ET CELLE DES AUTRES MERCI DE RESPECTER LES INSTRUCTIONS DE SANTE ET SECURITE SUIVANTES

- LISEZ CES INSTRUCTIONS ET GARDEZ-LES À PORTÉE DE MAIN
- TENEZ COMPTE DE TOUS LES AVERTISSEMENTS DE SÉCURITÉ
- NE PAS UTILISER PRÈS D'UNE SOURCE D'EAU
- NETTOYER UNIQUEMENT AVEC UN CHIFFON SEC
- NE PAS INSTALLER PRÈS D'UNE SOURCE DE CHALEUR
- NE PAS BLOQUER LES BOUCHES D'AÉRATION
- N'UTILISER QUE LES ACCESSOIRES SPÉCIFIÉS PAR LE FABRICANT
- CONFIER TOUTES LES OPÉRATIONS DE MAINTENANCE À DU PERSONNEL QUALIFIÉ UNIQUEMENT
- AUCUNE PIÈCE INTERNE N'EST RÉPARABLE PAR L'UTILISATEUR

LE NON-RESPECT DE CES PROCÉDURES ET RECOMMANDATIONS INVALIDERA LA GARANTIE DU FABRICANT

Important Safety Instructions

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

1) Read these instructions.

2) Keep these instructions.

3) Heed all warnings.

4) Follow all instructions.

5) WARNING: To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture

6) Clean only with dry cloth.

7) Do not block any ventilation openings.

8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9) Unplug this apparatus during lightning storms or when unused for long periods of time.

10) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped

WARNING:

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE.

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Instructions Importantes sur la Sécurité:

Pour votre sécurite et celle des autres merci de respecter les instructions de santé et sécurité suivantes :

1) Lisez ces instructions.
2) Gardez ces instructions.
3) Tenez compte de tous les avertissements.
4) Suivez toutes les instructions.
5) ATTENTION: afin de réduire les risques d'incendie ou de choc électrique, n'exposez pas cet appareil à la pluie ou à l'humidité
6) Nettoyez uniquement avec un chiffon sec
7) Ne pas bloquer les bouches d'aération
8) Ne pas installer à proximité d'une source de chaleur telle qu'un radiateur, une bouche d'air chaud, des plaques de cuisson (ou cuisinière), ou n'importe quel autre appareil producteur de chaleur (y compris un amplificateur)
9) Débranchez cet appareil pendant les orages ou de longues périodes d'inactivité.
10) Confiez toutes les opérations de maintenance à un technicien qualifié. Un entretien est nécessaire lorsque l'appareil a été endommagé de quelque manière que ce soit, comme par exemple si le cordon d'alimentation ou la fiche sont endommagés, du liquide a été renversé ou des objets sont tombés dans l'appareil, si l'appareil a été exposé à la pluie ou à l'humidité, s'il ne fonctionne pas correctement ou a subi une chute de hauteur.

ATTENTION:
AFIN DE RÉDUIRE LES RISQUES D'INCENDIE OU DE CHOC ÉLECTRIQUE, N'EXPOSEZ PAS CET APPAREIL À LA PLUIE OU À L'HUMIDITÉ.

Contents

88R LBC Introduction

VCA Legacy

Neve designed VCA (Voltage Controlled Amplifier) compressors were first installed in the early 1970s in the 50 Series consoles. Offering more precise and flexible compression than the classic, gentle, and coloured compression of the Neve Diode Bridge design, VCA compressors have remained a staple in Neve consoles for decades, including the legendary VR and 88R series.

Iconic Sound Quality

Building on this rich legacy, the Neve 88R dynamics section is renowned for its warm, smooth, and musical compression. It delivers a signature sound that enhances clarity and punch, all while preserving the natural tone of your recordings.

Versatile Control

With adaptive attack, release, and ratio settings, the dynamics section provides precise control over transient response and overall dynamics. This versatility makes it an ideal choice for a wide range of musical genres and recording scenarios.

Legendary Character

The 88R's dynamics processor imparts a subtle yet distinctive character to your tracks, offering a professional, polished finish that is highly sought after in high-end studios. This makes it an essential tool for achieving a polished mix.

500-series Design

Now, the legendary 88R dynamics section is available in a compact 500-series format. With extra features like the HPF sidechain and Auto Makeup Gain, true Neve magic has never been more accessible or convenient

Quick Start Guide

The 88R LBC, delivered in premium packaging, contains the following-

- **88R LBC 500-Series unit**
- **Neve Outboard Product Brochure**
- **Quick Start Guide QR Link**
- **Neve Sticker**

Installation Instructions

- Remove the 88R LBC module from all packaging.
- Switch off the 500-series enclosure and remove mains power.
- Locate an empty slot in the 500-series enclosure and remove the 2 fastening screws, one from the top of the enclosure and one from the bottom of the enclosure.
- Carefully insert the 88R LBC module into the empty slot in the 500-series enclosure, ensuring the rear edge connector on the 88R LBC module mates correctly with the edge connector of the 500-series enclosure.
- Ensure LINK is off (see section on LINK).
- Replace the two fastening screws through the top & bottom holes in the 88R LBC module and screw into the 500-series enclosure to secure the module into the enclosure.
- Apply mains power into the 500-series enclosure and switch on.

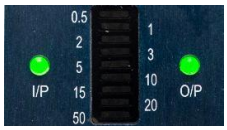
Note: The module is not designed to be hot-plugged, so please ensure the power to the 500-series enclosure is OFF before inserting or removing a module.

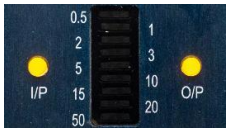
Audio Connections

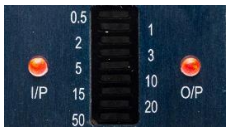
The 88R LBC module is designed to be compliant with a standard 500-series enclosure input and output connections (VPR Alliance spec). These connections should be used to connect the 88R LBC to your existing studio equipment.

Compressor Controls

Input/Output Signal Metering







The **I/P** and **O/P** LED indicators uses a true analogue LED system to display incoming audio signals visually. The I/P LEDs are fed directly from the input signal before the Compressor's controls. The O/P LEDs are post Makeup Gain control.

At **-30dBu** and above the LEDs are lit **GREEN** to show that signal is present and detected.

When an input signal crosses **+5dBu** the LEDs are lit YELLOW.

For signals over **+18dBu** the LEDs are lit **RED** to indicate when the unit is approaching its maximum input level.

Threshold

The '**THRESHOLD**' potentiometer (pot) selects the level at which compression begins to take place.

The threshold pot has a range of **+20** to **-30dBu**.

The minimum threshold of **+20dBu** is indicated at the 7 O'clock position.

0dBu is indicated at the 11 O'clock position.

The maximum threshold of **-30dBu** is indicated at the 5 o'clock position.

Ratio/Limiting

The **RATIO** pot determines the amount which the compressor will act upon (reduce) the signal above the Threshold. These two controls are used to form the overall gain reduction of the input signal.

Ratios of **1**, **1.5**, **2**, **4**, **8 :1** and **LIM** (limiting) can be selected via the indication surrounding the pot.

A Ratio of 1:1 would mean no compression is applied to the input signal, regardless of the threshold setting.

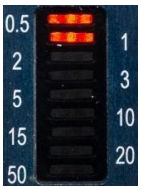
A ratio of 2:1 would mean that any signal above the threshold setting is halved.

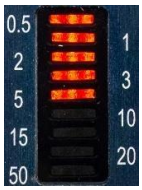
Turning the pot completely clockwise to 'Lim' (limiting) would mean that the audio above the threshold is completely reduced.

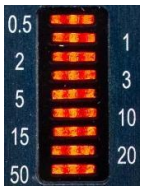
For signals requiring gentle compression such as Mix Bus signals, setting the ratio to 1.5 or 2 may be ideal.

For more aggressive compression for instruments, higher ratios of 4 or 8 may be required for complete transient control.

G/R Metering







The gain reduction meter displays the total amount of **G/R** (Gain Reduction) applied to the signal due to the threshold and ratio settings.

The G/R meter uses an optimised scaling for gentle to heavy compression settings, providing a finer resolution at the lower end of the scale.

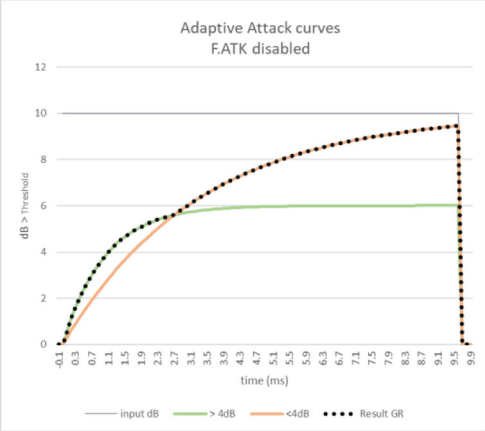
LEDs display G/R in dB of **0.5, 1, 2, 3, 5, 10, 15, 20** to a maximum of **50dB** of gain reduction.

Attack

The 88R LBC follows the core topology of the 88RS console's compressor/limiter, using its **Adaptive Attack** technology.

Adaptive attack is program-dependant. The circuitry allows the compressor attack to adapt to the input signal transients.

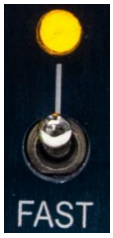
Without **FAST** (Fast-Attack) selected, levels that surpass the threshold by 4dB or less, will have an attack time of **5ms** applied. For levels greater than 4dB above the threshold setting, a program dependent attack time is applied, ranging from **1.5 to 5ms**.



This adaptive attack mode allows louder transients to receive a faster attack time, and quieter transients to receive a slower attack time.

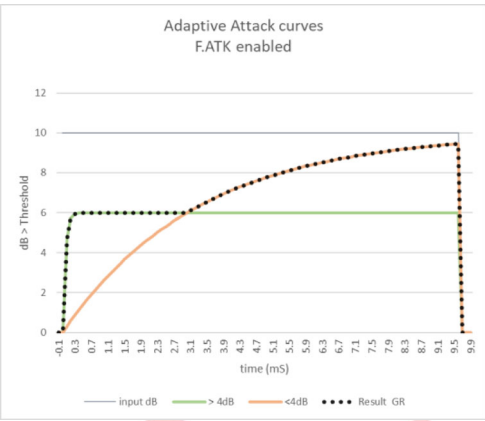
The total combined attack time for any transient falls within the 1.5-5ms range. This design provides an organic, musical response to a variety of program material.

FAST (Fast Attack)



The 88RS compressor Fast attack mode is one of the fastest analogue compressor attack times available at 0.1ms (100µs) and is included as a key feature of the 88R LBC.

FAST (Fast Attack) is activated by pressing the **FAST** switch. A YELLOW LED will illuminate once engaged.



Once activated, **FAST** increases the range of combined adaptive attack time to provide an even faster response to the louder transients.

Levels that surpass the threshold by 4dB or less, will have an attack time of **5ms** applied. For levels greater than 4dB above the threshold setting, a program dependent attack time is applied, ranging from **0.1 to 5ms**.

Level above Threshold	Fast Attack Off	Fast Attack On
>4 dB	1.5ms	0.1ms
<4 dB	5ms	5ms

Release

The compressor release time determines the rate at which the gain reduction is removed once the input level above the threshold begins to decrease.

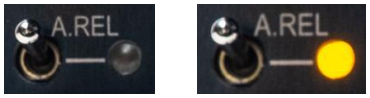
The release pot is used to manually adjust this rate and can be set within a **0.03s** and **3s** range.

For example, if the unit is set as a limiter with the threshold at 0dBu and fast attack, a sudden +10dBu input transient followed by a quiet level would result in 10dB of gain reduction being applied to the signal.

In this situation, if a release time of 3 seconds is selected, the gain reduction amount would decay gradually for 3 seconds until no G/R is present, or until a new input level above the threshold appears. This means that audio elements that are not above the threshold but that are present within this 3 second window will still be affected by compression.

If a setting of 0.03s is selected, the gain reduction would decay quickly for 0.03 seconds until no G/R is present, or until a new input level above the threshold appears.

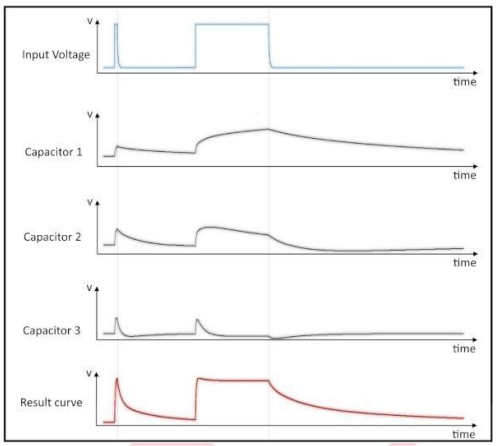
Auto Release



In some cases, and depending on the program material, manually applied release times, in particular fast release times can result in audible compression artifacts, such as 'breathing' effects. This can be useful as a creative tool, however if completely transparent compression is required, the 88R LBC Auto Release feature can be employed.

A.REL (Auto Release) can be activated by pressing the **A.REL** switch. A YELLOW LED will illuminate once engaged.

When activated, the manual release pot is removed from the release circuit and release times are controlled automatically.



Much like the 'adaptive attack' feature, **Auto Release** is program dependant. This unique design utilizes a stack of three capacitors that are optimised for short, medium, and long, time constants. Their combination means that the faster the input transient, the faster the release time. The longer a signal remains above the threshold, the longer the resulting release time.

The resulting effect of the auto release feature produces an organic response to the signal, ideal for a variety of instrument sources or complete program material.

Anti-Breathe Technology

The 88RS console utilises anti-breathe technology in its compressor circuit which is included in the release circuitry of the 88R LBC. This feature is automatically activated when there is a sudden drop in audio, 30dB or more below the threshold.

Enabled only at extreme level drops, this feature prevents 'breathing' recovery effects produced by other compressors, producing a natural response.

Makeup Gain

Once compression has been applied, the **MAKEUP GAIN** pot can be used to increase the output signal of the unit, allowing for a balance of input and output levels.

The Makeup gain pot ranges from **0** to **30dB.**

Note: aggressive use of the Makeup gain pot can result in analogue distortion of the output signal.

IN (Bypass)

Press the **IN** button to engage the module. The LED will be lit **GREEN** to indicate that the module is active.

When not engaged a 'true' bypass circuit ensures that the input signal passes directly to the output of the unit and is completely unaffected by the compressor.

When in Bypass, the output meters display the input level, unaffected by the compressor controls.

Engaging and disengaging the **IN** button allows for A/B referencing of the compressed output signal against the uncompressed input signal, allowing for accurate output level matching.

LINK

The gain reduction of different units can be linked together using the **LINK** button. This feature is ideal for linking multiple channel modules.

In this mode, neither of the modules is the 'master,' the channel with the highest gain reduction applied to its incoming signal at any given moment triggers the gain reduction of the other linked channels.

NOTE:
The I/O pins follow the standard pinout for 500-series specifications.

In the 88R LBC, pressing the link button will enable the linking of pin 6. When linked, the unit's sidechain control voltage output (ranging from 0v to -5v) is presented to the link bus.

It is required that the link feature should only be used with other 88R LBC 500-series modules.

500-series chassis links are usually customizable at the backplane.

When configuring the rack's link bus, the above facts should be considered when choosing the positioning of the units.

Do not under any circumstances activate LINK with any module, apart from 88R LBC.

Additional Features

The 88R compressor circuit was optimized for use in the 88RS console channel strip. The 88R LBC includes several additional features optimised for standalone use.

Sidechain HPF

Sidechain filters can be employed on a variety of signal sources to adjust the response of the compressor to specific frequency bandwidths.

The Sidechain **HPF** (High Pass Filter) can be activated by pressing the **HPF** switch.

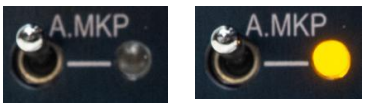
Pressing the switch will cycle through the three LEDs which indicate the cut off frequency of the HPF – **80**, **125**, and **300Hz**. Each LED will be lit YELLOW when selected.

When HPF is engaged, a second order high pass filter is applied to the compressor sidechain, before VCA compression is applied. This feature can be used to prevent sonic material below the frequencies of **80**, **125**, and **300Hz** from triggering the compressor.

For example, when applying mix bus compression, sub frequencies from kick drums etc can cause the compressor to activate heavily on the overall signal, which may produce unwanted compression artifacts such as breathing or heavy compression. By setting the HPF to 80Hz, sub signals below this cut off frequency will not trigger the compressor, allowing for the VCA compression to focus on the remaining frequency range of 80Hz-20kHz. Further filtering of low signals can be applied by setting the HPF to 125 or 300Hz, allowing for a tighter focus of compression to the higher frequency band.

Sidechain filter's may also be used to highlight the low frequency content of an instrument or mix. By using the HPF to exclude the low-end content from the compressed signal (e.g. the bass drum), the low frequency content of the signal becomes more prominent. This can be helpful if a punchier, fuller bass sound in a mix is desired.

Auto Makeup Gain



A.MKP is a new feature that is unique to the 88R LBC. It is a time-saving feature that simplifies the gain staging operation of the 88R LBC by automatically applying makeup gain when engaged.

A.MKP (Auto Makeup) can be activated by pressing the **A.MKP** switch. A YELLOW LED will illuminate once engaged.

NOTE: When A.MKP is engaged, the Makeup Gain Potentiometer is automatically disengaged.

When Auto Makeup Gain is turned on, makeup gain is applied in relation to the position of the threshold and ratio potentiometers. The A.MKP doesn't take the input program in consideration, as doing so would counteract the effects of compression.

It assumes instead that a constant signal is present at 0dBu and applies the opposite of the calculated gain reduction that the combination of threshold

and ratio create for it.

Considering this reference level, makeup gain is not applied until the threshold is set below the 0dBu position.

If the ratio is full, the auto makeup circuit will then counteract the dBs of threshold below 0. For example, if the threshold is at -30dBu then 30dB of makeup gain will be applied.

If the ratio is not full, then makeup gain will be divided by the same ratio as the gain reduction. For example, if the threshold is at 30dBu and the ratio is 2:1 then (approx.) 15dB of makeup gain will be applied.

The practical effect of this means that if the input programme is referenced around 0dBu then the A.MKP effectively compensates compression as it is applied. The output level remains virtually the same while the effects of compression can be heard in ‘isolation’ without the need of back-and-forth A/B comparisons to set the makeup gain.

This means that A.MKP offers a great set-and-forget workflow for adjusting levels between a preamp and recording device (as it is in the case of a chain with the 88R LB preamp).

Furthermore, A.MKP with the usage of the sidechain HPF produces interesting effects:

With HPF applied, low frequency material does not trigger the compressor as much, while higher frequency material gets compressed. A.MKP will then bring the overall level up, resulting in a relative increase of the low-end material. Therefore, it becomes a low frequency shelf, albeit dynamically responding to the sidechain.

Dimensions

Height	132mm / 5 ¼ inches
Width	38mm / 1 ½ inches
Depth	145mm / 5 ¾ inches
Weight	0.5Kg / 1.1Lbs

Audio Specification

General Specifications	
Headroom	Nominally: 27.8dBu @ 1kHz (0.1% THD) Better than: >+26dBu
Distortion (THD+N)	Nominally: 0.004% @ 1kHz (measured at +10dBu, 20Hz to 40kHz filter) Better Than: 0.008%
General Noise	Nominally: -88dBu (<-117dBu Bypassed) Better Than: -86dBu
Frequency Response 20Hz to 20kHz	Nominally: +/- 0.01dB Better than: +/- 0.1dB
Dynamic Range	~114dB
Input Impedance	≈24kΩ
Output Impedance	≈50Ω
Power Specifications	
Max Draw	<100mA
Surge	<120mA
Metering	
Off	<-30dBu
Green	-30 to +5dBu
Orange	+5dBu to +17dBu
Red	>+17dBu
GR meter	As stated on front panel

Dimensions

Hauteur	132mm / 5 ¼ inches
Largeur	38mm / 1 ½ inches
Profondeur	145mm / 5 ¾ inches
Poids	0.5Kg / 1.1Lbs

Spécification audio

Spécifications Générales	
Marge de sécurité	Nominalement: 27,8 dBu @ 1 kHz (0,1 % THD) Mieux que: >+26 dBu
Distortion (THD+N)	Nominalement: 0,004 % @ 1 kHz (mesuré à +10 dBu, filtre de 20 Hz à 40 kHz) Mieux que: 0,008 %
Bruit général	Nominalement -88 dBu (<-117 dBu contourné) Mieux que: -86dBu
Réponse de fréquence 20Hz à 20kHz	Nominalement: +/- 0,01 dB Mieux que: +/- 0,1 dB
Plage Dynamique	~114dB
Niveau Maximum Entrée	+21dBu
Impédance d'entrée	≈24kΩ
Output Impedance	≈50Ω
Mesure Entrée/Sortie	
Tirage maximum	<100mA
Déferler	<120mA
Mesure	
De	<-30dBu
Vert	-30 à +5 dBu
Orange	+5 dBu à +17 dBu
Rouge	>+17dBu
Mètre GR	Comme indiqué sur le panneau avant