dbx by HARMAN

520

500 SERIES DE-ESSER



OWNER'S MANUAL

Warranty

1. Please register your product online at www.dbxpro.com. Proof-of-purchase is considered to be the responsibility of the consumer. A copy of the original purchase receipt must be provided for any warranty service.

2. dbx warrants this product, when purchased new from an authorized U.S. dbx dealer and used solely within the U.S., to be free from defects in materials and workmanship under normal use and service. This warranty is valid to the original purchaser only and is non-transferable.

3. dbx liability under this warranty is limited to repairing or, at our discretion, replacing defective materials that show evidence of defect, provided the product is returned to dbx WITH RETURN AUTHORIZATION from the factory, where all parts and labor will be covered up to a period of two years. A Return Authorization Number must first be obtained from dbx. The company shall not be liable for any consequential damage as a result of the product's use in any circuit or assembly.

4. dbx reserves the right to make changes in design or make additions to or improvements upon this product without incurring any obligation to install the same additions or improvements on products previously manufactured.

5. The foregoing is in lieu of all other warranties, expressed or implied, and dbx neither assumes nor authorizes any person to assume on its behalf any obligation or liability in connection with the sale of this product. In no event shall dbx or its dealers be liable for special or consequential damages or from any delay in the performance of this warranty due to causes beyond their control.

Technical Support & Service

If you require technical support, contact dbx Technical Support. Be prepared to accurately describe the problem. Know the serial number of your device – this is printed on a sticker attached to the chassis.

Before you return a product to the factory for service, we recommend you refer to this manual. Make sure you have correctly followed installation steps and operating procedures. For further technical assistance or service, please contact our Technical Support Department at (801) 566-8800 or visit www.dbxpro.com. If you need to return a product to the factory for service, you MUST first contact our Technical Support Department to obtain a Return Authorization Number.

NO RETURNED PRODUCTS WILL BE ACCEPTED AT THE FACTORY WITHOUT A RETURN AUTHORIZATION NUMBER.

Please refer to the Warranty information, which extends to the first end-user. After expiration of the warranty, a reasonable charge will be made for parts, labor, and packing if you choose to use the factory service facility. In all cases, you are responsible for transportation charges to the factory. If the product is still under warranty, dbx will pay the return shipping.

Use the original packing material if it is available. Mark the package with the name of the shipper and with these words in red: DELICATE INSTRUMENT, FRAGILE! Insure the package properly. Ship prepaid, not collect. Do not ship parcel post.

Table of Contents

Overview **2**
Introduction 2
Features 2

Installation **3**

The User Interface **4**

Technical Information **5**
Specifications 5
Recall Sheet 6

Overview

Introduction

The 520 is a 500 series compliant de-esser that utilizes the same circuit used in the industry-standard dbx 902. It can be used for naturally and transparently controlling excessive high-frequency energy in vocals, acoustic guitars, and other audio sources. The 520's unique features make it possible to achieve the exact amount of de-essing desired regardless of variations in signal levels.

The 520 examines the differences in level between the high frequency and full-bandwidth portions of the signal, allowing de-essing of signals which change in level by as much as 60 dB. Conventional de-essers require readjustment of their threshold control when, for example, a vocalist drops from singing voice to a whispering voice. By contrast, the 520 does not have a threshold control and allows for consistent de-essing even as source signal level changes occur.

The two-pole, maximally-flat filter design used by the 520 in separating high frequencies from low frequencies can be user adjusted over a range of 800 Hz to 8 kHz. This, in conjunction with the HF Only mode, allows the 520 to also be used for de-essing of instruments and other special applications, such as reducing fret and string noise in guitar and bass, de-essing send signals pre reverb/delay/modulation effects, and reducing cymbal and hi-hat bleed in tom drum mics.

We hope the 520 serves as an indispensable creative tool for your sound processing and music production needs. Thank you for choosing dbx.

Features

- *Utilizes the Industry-Standard dbx 902 Circuit*
- *Selectable Broadband or HF Only Mode*
- *User-Defined Crossover Frequency Control*
- *Range Control for Setting Exact De-Essing Amount*
- *20dB Gain Reduction Meter*
- *Hard-Wired Bypass Button*

Installation

FOR 500 SERIES CHASSIS MOUNT USE ONLY!

To install the 520 into a 500 series chassis:

1. Turn off the power to the 500 series chassis.
2. Unpack the module and ensure the rear connector is free of debris.
3. Align and slide the module into the 500 series chassis, ensuring the connectors on the back properly seat with the connectors in the chassis.
4. Install the included screws to secure the 520 to the chassis. Both metric and standard screws are included. Use the correct screw type for your chassis.
5. Power on the chassis.
6. Enjoy!

WARNING! Do not hot swap 500 series modules! Doing so can potentially cause damage to the 500 series module or chassis. Always power down the chassis when installing or removing 500 series modules.

The User Interface



1. **GAIN REDUCTION Meter**
   This LED meter shows the amount of gain reduction applied by de-essing and can display up to 20dB of gain reduction.

2. **FREQUENCY Control**
   Selects the frequency at which the 520 splits the audio signal into high and low frequency portions for evaluation. The 520 detects sibilant material by comparing differences in the high frequency level of an audio signal and the full bandwidth level of the signal. When the high frequency level is excessive relative to the full bandwidth level, the 520 will de-ess.

   For normal vocal de-essing, this control should be set around the 12:00 (2.5 kHz) position. For special processing of instrumental material, the control should be swept back and forth with gain reduction applied until the optimum setting is obtained.

3. **RANGE Control**
   Sets the amount of de-essing effect produced when a sibilant is detected. For normal vocal de-essing, leave this control in the NORM region. Turning the RANGE control clockwise beyond the NORM region will cause vocal sibilants to be excessively attenuated. More extreme settings are useful for special effects and for processing instrumental material.

   Since the 520 is effectively inaudible in normal “de-essing” operation (sibilants simply sound normal) there may be a tendency to turn the range control clockwise beyond the NORM region. Prolonged listening will, however, reveal the extra de-essing effect as unnatural for vocals.

4. **ENABLE Button & LED**
   When this button is engaged, the LED will light and the signal will pass through the 520’s processing circuit. When disengaged, the signal will not light and processing will be bypased. Note that this is a hard-wired bypass for optimum signal integrity when bypassing the processor. Use this button to audition the difference between the processed and unprocessed signals.

5. **MODE Button & HF Only LED**
   Allows the 520 de-essing action to affect either the entire audio bandwidth or the high frequencies only. For vocal de-essing, it should be left in the normal (BROADBAND) mode. For instrumental or special applications, such as those discusssed in the introduction section of this manual, it should be put in the HF ONLY mode (MODE button engaged and HF ONLY LED on).

Technical Information

Specifications

INPUT

Type:	Electronically balanced/unbalanced, RF filtered
Impedance:	20 kΩ balanced, 10 kΩ unbalanced
Maximum Input Level:	+22 dBu
CMRR:	>40 dB; typically >55 dB at 1 kHz

OUTPUT

Type:	Electronically balanced/unbalanced, RF filtered
Impedance:	Balanced 30 Ω, unbalanced 15 Ω
Maximum Output Level:	+22 dBu

PERFORMANCE

Frequency Response:	20 Hz – 20 kHz, + 0/-0.5 dB 0.5 Hz – 100 kHz, +0/-3 dB
Noise:	<-92 dBu, Unweighted (22 Hz – 22 kHz)
THD+N:	<0.006% typical, No compression, 1 kHz input at 0 dBu
Dynamic Range:	>114 dB

DE-ESSING

Gain:	Unity
Crossover Point:	Variable 800 Hz to 8 kHz
Crossover Filter Type:	12 dB/octave, phase coherent
Range:	Operates uniformly over input range of -40 dBu to +22 dBu without requiring adjustment
Maximum Attenuation:	Variable 0 to 20 dB
Attack Rate:	Program-dependent, 2 ms for 10 dB above threshold, 600 µs for 20 dB above threshold, to achieve 63% gain reduction
Release Rate:	925 dB/sec
Controls:	Frequency, Range
Switches:	IN/OUT, Mode (HF ONLY/NORMAL)
Indicators:	IN/OUT, HF ONLY
Metering:	LED Column: 1, 2, 3, 4, 6, 8, 10, 12, 15, 20 dB gain reduction

POWER

Requirements:	+/- 16V DC
Current Draw:	76 mA per power rail
Power Draw:	2.4 watts

PHYSICAL

Rack System:	500 Series Compatible Power-frame
Rack Space	1 Slot
Dimensions (H x W x D)	5.25" x 1.5" x 6" (13.34 cm x 3.81 cm x 15.24 cm)
Weight:	1.3 lbs (0.59 kg)
Shipping Weight:	1.7 lbs (0.77 kg)

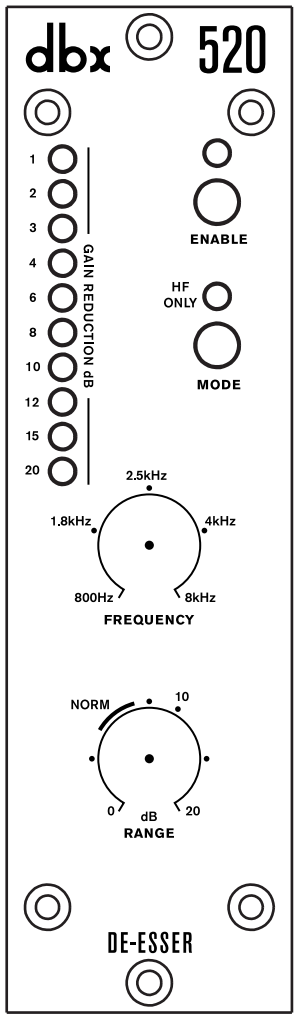
Notes: Noise and frequency response specifications are at unity gain.
0 dBu=0.775V rms

Specifications are subject to change without notice.

520 RECALL SHEET

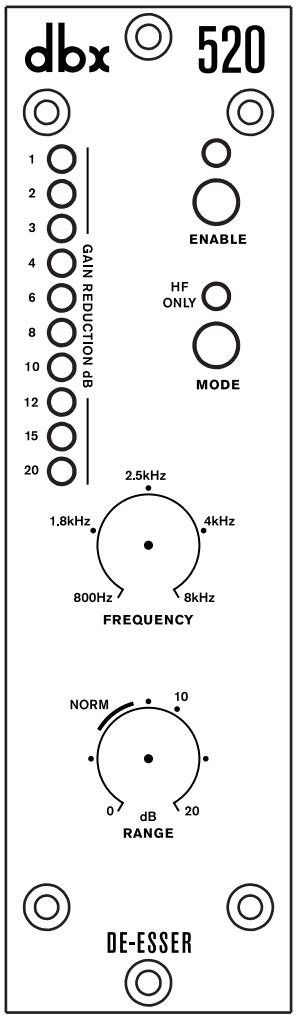
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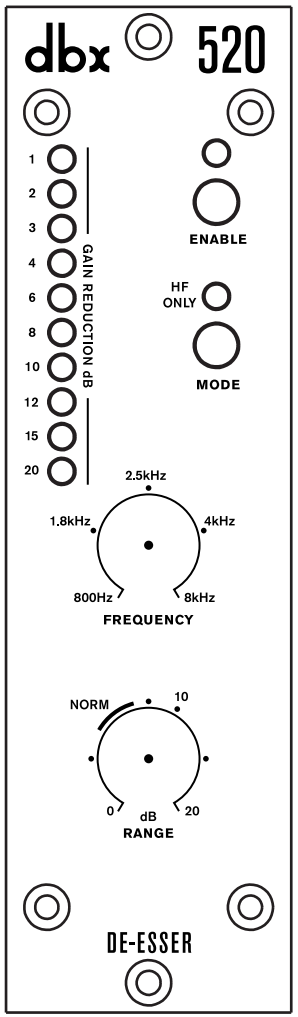
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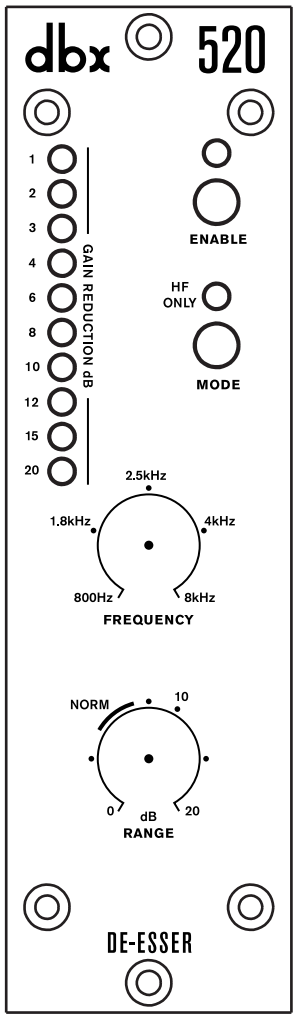
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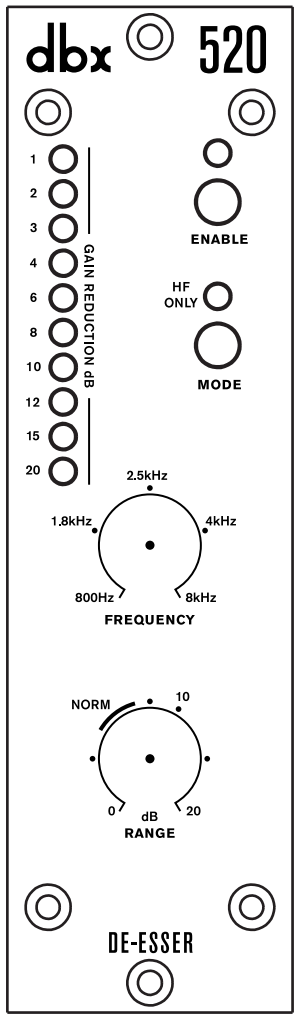
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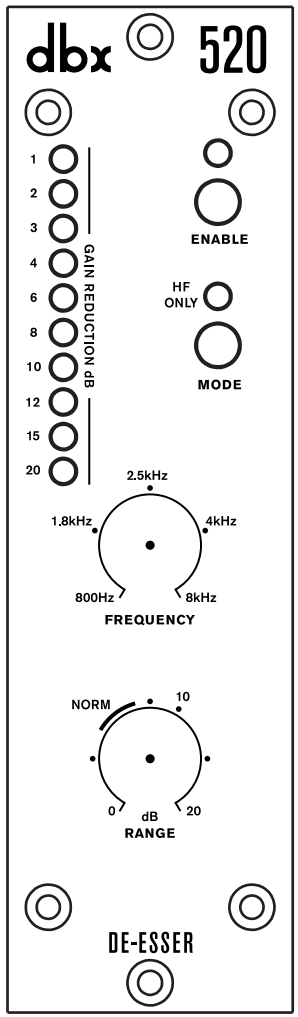
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Phone: (801) 566-8800
Website: dbxpro.com
Support: dbxpro.com/en-US/support

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520 Owner's Manual
Rev A

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