



AUTO DYNAMIC

DE-ESSER

Manual

Model 9629



SOUND PERFORMANCE LAB

Manual

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Foreword

Dear customer,

Thank you for the confidence you have shown towards SPL electronics GmbH by purchasing the SPL Auto Dynamic De-Esser. You have decided to use a tool of high performance which sets you in the position to have faster success and a better sound quality in your music productions.

As a typical SPL unit the Auto Dynamic De-Esser combines exemplary specifications and high manufacturing standard with excellent sound quality to provide you a precious component for studio and P.A. purposes. Please read this manual carefully to ensure you have all the information you need to use the Auto Dynamic De-Esser.

We wish you every success with your new Auto Dynamic De-Esser.

Your Sound Performance Laboratory-Team

I would like to start with my thanks to all our staff, who created what is to be described here. The importance of their exceptional qualification and talents can't be overestimated. But the biggest thanks I owe their unbelievable engagement, creativity and productivity in realizing our projects.

Our products are often tested and compared in many publications and by our customers themselves and constantly valued with best results.

I would like to pass on this broad appreciation to those, who deserve it – my excellent colleagues.

Hermann Gier

Thanks

Introduction

The Auto-Dynamic De-Esser is a highly specialized audio tool. It is used to reduce S-frequency of speakers and singers. It should perform without disturbing natural character and timbre of the voice. This is not an easy task. SPL has developed a new circuit design that combines ease of use with natural sounding and effective performance.

How do traditional De-Essers work?

Traditional De-Essers use compressor-technology. The control elements are a threshold control and a frequency control. The threshold sets the level at which de-essing starts and the frequency control sets the center frequency of a frequency band that is usually up to 3-4 kHz wide. Any S-frequency within that band causes the compressor to compress the entire frequency band. As a result the voice speaks through the noise or lisps.

How does the SPL Auto Dynamic De-Esser work?

The Auto Dynamic De-Esser utilizes a new circuit design that "scans" the frequency spectrum and automatically hones in on S-frequencies. Only these narrow-band frequencies are processed and adjacent frequencies are left untouched. The Auto Dynamic De-Esser reduces S-frequencies by feeding a phase inverted signal of the detected narrow band S-frequency back into the signal path. The S-frequency is cancelled out. Therefore the quality of De-Essing is significantly improved – the result is neutrality to the sound and an unobtrusive but very effective mode of operation. There are almost no negative side effects on the timbre and character of the voice, even while using a high intensity of S-Reduction.

Operation Safety



Important security advices

The housing of the Auto Dynamic DeEsser has the standard 19"-EIA format and occupies 1U (44.45 mm) in your rack. When installing the unit in a 19"-rack, the rear side of the unit needs some support, especially in a touring case.

The Auto Dynamic DeEsser should not be installed near units which produce strong magnetic fields or extreme heat. Do not install the DYNAMAXX directly above or below power amplifiers.

Check that the voltage details quoted on the back panel are the same as your local mains electricity supply. Use a minus (-) screwdriver to set the voltage selector to the voltage for the area in which the unit will be used.

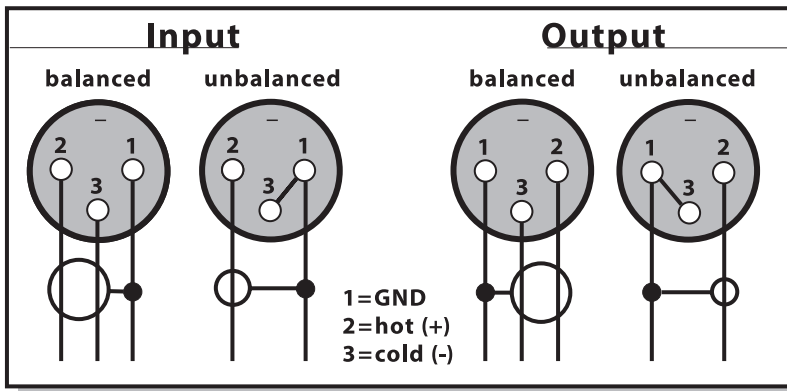
Never cover up the ventilation slots on the top of the unit. If, during operation, the sound is interrupted or indicators no longer illuminate, or if abnormal odor or smoke is detected, or if liquids are spilled on the unit, immediately disconnect the power cord plug and contact your dealer.

Only clean the Auto Dynamic DeEsser with a soft, lint-free cloth.

Before connecting the Auto Dynamic De-Esser switch the power off at all connected units.

Auto Dynamic De-Esser is fitted with both XLR-connectors and TRS stereo jacks for balanced operation, though the jacks may be used with unbalanced connections simply by plugging in mono jack-plugs. The level difference that normally occurs when a balanced input or output is used unbalanced is automatically compensated for.

Should the need arise to use the XLR connectors in an unbalanced system, pin 3 of the XLRs should be grounded. Inserting a mono jack also unbalances the XLRs.



Both output stages operate in parallel, so it is possible to connect two different destination units simultaneously, for example to record to two different media at the same time or split the output between a mixer and effects processor. However, only one type of input (jack or XLR) should be connected at a time – the Auto Dynamic De-Esser is not intended to be used as a mixer!

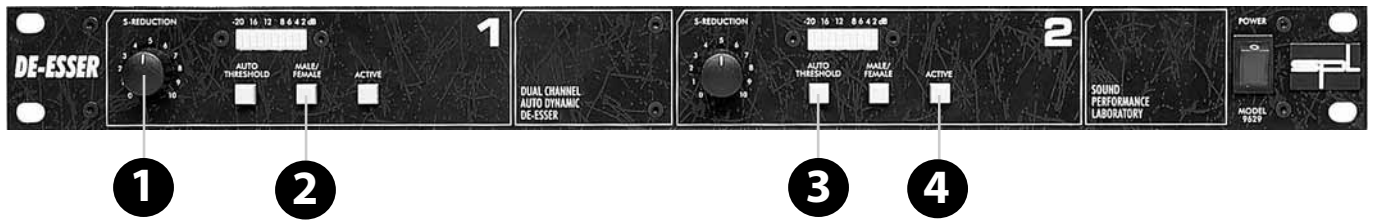
To ensure optimal signal quality, SPL has developed a new hybrid-component balanced input/output stage using all laser-trimmed resistors with a tolerance of 0.01%. This approach has resulted in an exceptionally high CCMR (common mode rejection); 100 dB at 1 kHz and 80 dB at 10 kHz. As a precaution, before connecting the Auto Dynamic De-Esser switch off the power to the unit and to all connected units.

Other rear panel connections and switches:

- Voltage selector: 220-240 V/50 Hz or 100-120 V/60 Hz
- CSA/UL approved 3-pole power plug
- GND-LIFT switch



Control elements



S-Reduction

Extremely fast handling

1

S-Reduction controls the intensity of the de-essing effect. The LED-display shows the gain reduction of S-frequencies in a range between 0 dB to -20 dB in 2 dB steps.

S-REDUCTION adjustments between 3 and 7 have proven to create best results in practical applications.

Male/Female

Choose different vocal characteristics

2

The Male/Female-switch lets you select two different operation modes: The female mode is chosen when the switch is pressed and the status-LED illuminates. The automatic S-frequency recognition is set to the characteristics of female voices. The opposite position of the button switches to the male mode. The S-frequency recognition is then set to the characteristics of male voices. However, it may sometimes be necessary to use the MALE mode and female vocals and vice versa. The selection of this switch is largely depending on the character of the S-frequency.

The center frequency of the bandwidth where the Auto Dynamic De-Esser looks for S-frequencies is located at 6 kHz for male voices and around 7 kHz for female voices.

Auto Threshold

Auto-Threshold helps when a vocalist with poor mic technique creates big level changes and a compressor would be needed. Activating Auto-Threshold creates a constant De-Essing regardless of input level.

3

AUTO-THRESHOLD activates a new function that automatically readjusts the threshold when the input gain varies due to the varying distance of the speaker to the microphone. The de-essing remains on a constant level when Auto Threshold is activated (status-LED illuminates).

Especially with untrained speakers or in live applications the distance to the microphone varies sometimes dramatically. De-essers operating with common compressor technology change their de-essing intensity with the varying input levels. As a de-esser should be used right after the microphone preamplifier and in front of a compressor/limiter, common de-essers produce negative side effects on the vocals such as speaking through the nose or lisping.

The Auto Threshold function gets rid of all these problems. No matter how much the input level varies, the de-essing is proportionally the same and a following compressor/limiter works better and more efficient.

ACTIVE switches each channel in and out of processing. In order to minimize switching noise and transients the circuitry is switched in and out after the balancing stages.

The POWER switch activates the relay-hard-bypass circuitry, which is also activated when a power failure occurs on the primary or secondary side of the power supply.

Hard-Bypass-Relais

Special care has gone into the design of the power supply of the Auto Dynamic De-Esser because the power supply is the heart of any electronic system, and the better it is, the better the whole system works. In an audio system, this translates into better sound quality, lower noise and lower distortion.

The power supply is based around a 15VA torroidal transformer and is designed to minimize induced hum and noise due to the lack of an air-gap.

The primary voltage may be selected between 230 V/50 Hz and 115V/60Hz by means of a recessedslide switch on the rear panel and a rear-panel ground-lift switch is fitted for use where ground loops are causing hum problems. When the Gnd Lift switch is set to off, the circuit ground is isolated from the chassis ground.

The detachable power cord is a standard 3-wire type fitted with an IEC mains connector; the transformer, power cord and mains connector have VDE, UL and CSA approvals.

The fuse has a value of 315 mA for the primary voltage.

On the secondary side of the power supply, an RC combination is used to filter out noise and hum voltages. Both half-waves are smoothed with 2200 mF capacitors in the positive and negative voltage supply path, and both lines use precision voltage regulators for optimum stability. Deviations of only a few millivolts can impair audio quality, introducing artifacts such as loss of stereo imaging or a diffuse sound character.

Particular care has gone into the circuit layout and component choice to minimize crosstalk between the audio circuitry and control voltages.

Power Supply

15 VA torroidal transformer

Voltage selector

Ground-lift switch

Transformer, power cord and mains connector with VDE, UL and CSA approvals.

FUSES: 315 mA

Positive and negative voltage paths are smoothed with 2200 mF capacitors.

Specifications

Input & Output

Instrumentation amplifier, electronically balanced
(differential), transformerless
Nominal input level..... +6 dB
Input impedance = 22 kOhms
Output impedance < 600 Ohms
Max. input level +24 dBu
Max. output level +22,4 dBu
Minimum load ohms 600 Ohms
Hard Bypass Relay yes
Power Fail Safety yes

Measurements

Frequency response 20 Hz - 50 kHz
(50 kHz = -3 dB)
CCMR (common mode rejection) -80 dBu @1kHz
THD & N 0,002% @ 1kHz
S/N CCIR 468-3 -93 dBu
S/N A-weightened -106 dBu

Power Supply

Torroidal transformer 15 VA
Fuse 200 mA
Ground-Lift switch yes
Voltage selector yes

Dimensions

Housing Standard EIA 19"/1U
482 x 44 x 237 mm
Weight 3,4 kg

Note: 0 dBu = 0.775 V

Subject to change without notice.

SPL electronics GmbH (hereafter called SPL) products are warranted only in the country where purchased, through the authorized SPL distributor in that country, against defects in material or workmanship. The specific period of this limited warranty shall be that which is described to the original retail purchaser by the authorized SPL dealer or distributor at the time of purchase.

SPL does not, however, warrant its products against any and all defects:

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SPL agrees, through the applicable authorized distributor, to repair or replace defects covered by this limited warranty with parts or products of original or improved design, at its option in each respect, if the defective product is shipped prior to the end of the warranty period to the designated authorized SPL warranty repair facility in the country where purchased, or to the SPL factory in Germany, in the original packaging or a replacement supplied by SPL, with all transportation costs and full insurance paid each way by the purchaser or owner.

All remedies and the measure of damages are limited to the above services. It is possible that economic loss or injury to person or property may result from the failure of the product; however, even if SPL has been advised of this possibility, this limited warranty does not cover any such consequential or incidental damages. Some states or countries do not allow the limitations or exclusion of incidental or consequential damages, so the above limitation may not apply to you.

Any and all warranties, expressed or implied, arising by law, course of dealing, course of performance, usage of trade, or otherwise, including but not limited to implied warranties of merchantability and fitness for particular, are limited to a period of 1 (one) year from either the date of manufacture. Some states or countries do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state, country to country.

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