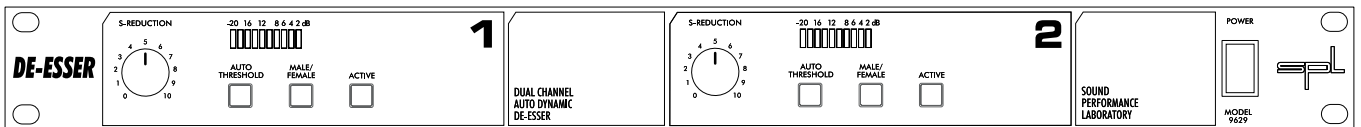




soundperformancelab.com



Manual



AUTO DYNAMIC
DE-ESSER

Model 9629

Dual-channel De-Esser

Version 4.0 – 5/2000

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Foreword

Dear customer,

congratulations on purchasing the SPL Auto Dynamic De-Esser. You have decided to use a high performance tool 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 the Auto Dynamic De-Esser.

Your Sound Performance Lab Team

Thanks

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

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 SPL's 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.

Installation & 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 directly above or below power amplifiers or near units which produce strong magnetic fields or extreme heat.

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 appropriate value.

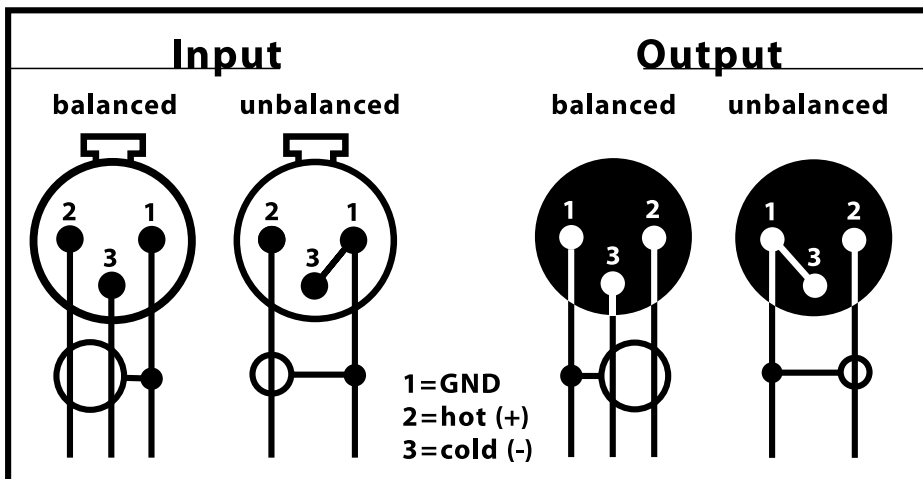
Never cover up the ventilation slots on the top of the unit. If, during operation, the sound is interrupted or indicators no longer illuminate, or if abnormal odor or smoke is detected, or if liquids are spilled on the unit, immediately disconnect the power cord plug and contact your dealer.

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

Switch off power of all units to be connected before you connect the Auto Dynamic De-Esser.

The 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!

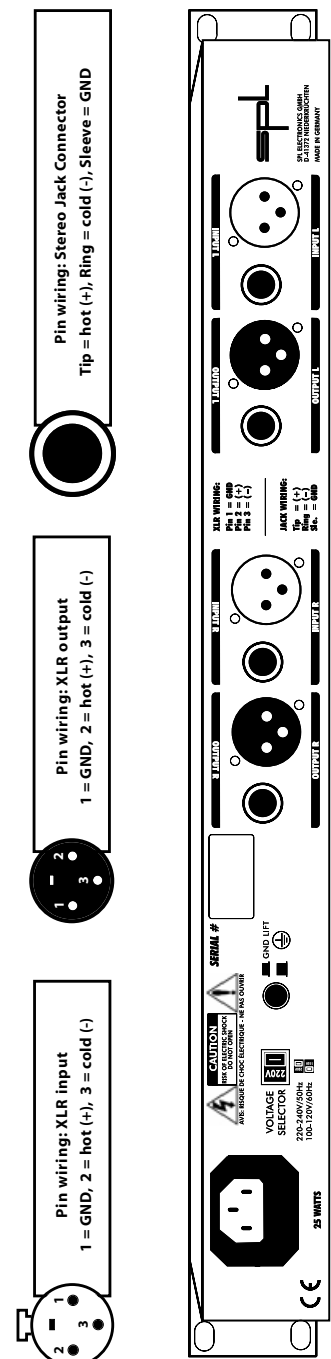
To ensure optimal signal quality, SPL has developed a new hybrid-component balanced input/output stage using all laser-trimmed resistors with a tolerance of 0.01%. This approach has resulted in an exceptionally high CCMR (common mode rejection): 100dB at 1kHz and 80dB at 10kHz. As a precaution, before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

Rear panel

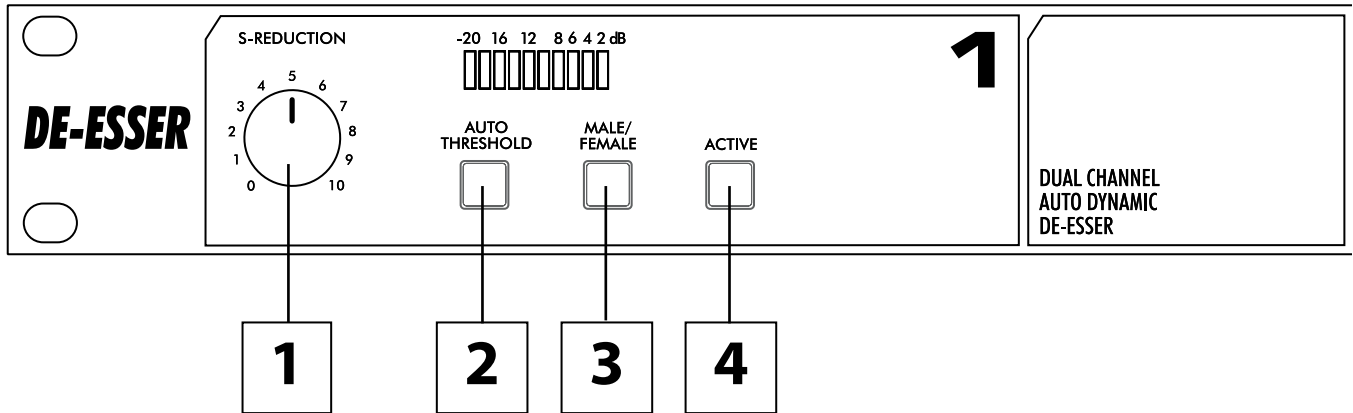
Balanced XLR and TRS stereo jack I/Os (+6 dB)

Voltage selector: 230 V/50 Hz or 115 V/60 Hz

GND Lift switch, CSA/UL approved 3-pole power plug



Control Elements



1

S-Reduction

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

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

2

Auto-Threshold

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

Especially with untrained speakers or in live applications the distance to the microphone sometimes varies dramatically. De-essers operating with common compressor technology change their de-essing intensity with 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.

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.

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.

3

Male/Female

4

Active

Power Supply

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 specifically produced 15VA toroidal 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 recessed slide switch on the rear panel. A rear-panel ground-lift switch is fitted for use where ground loops are causing hum problems. When the GND Lift switch is pressed, 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 200mA/230V and 400 mA/115 V 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 2 x 1000 µF capacitors in the positive and 2 x 1000 µF capacitors in the 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.

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 / Power Fail Safety

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-weighted -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.