

Dynamic Equaliser

DPR-901ii



With the DPR-901ii Dynamic Equaliser, BSS have created a genuinely new category of audio signal processor capable of a wide range of unique effects, previously unavailable from any other single unit or combination of contemporary products. Whether in the studio, in post-production, on the road in live sound, or in fixed installations such as Theatre, the DPR-901 II is an indispensable tool.

Level dependent parametric equalisation, frequency-selective compression and expansion, plus a variety of below-threshold modes which process only the quiet passages - these are just some of the unique capabilities of the DPR - 901 II. And because there isn't even a single VCA in the main, minimal signal path, the only thing affecting the integrity of the signal is your creative input.

Use the DPR-901 II for a multitude of applications - de-essing, de-popping, noise reduction, adding warmth to vocals, restraining harsh vocals or instruments - your creativity becomes unlimited.

This updated version of the popular DPR-901 adds a 'side chain listen' facility to allow an effect to be pre-monitored, and now has provision to be used as a one input/4-band device, or to be split into two 2-band devices. In the latter case, the lower sections could be used on bass instrument processing while the upper bands process a vocal mic.

What is the DPR-901 Dynamic Equaliser ?

Previously, conventional equalisers allowed you to set a frequency response contour which was fixed regardless of signal level or dynamics. Compressors and expanders could generally only work broadband, with the exception of a few elementary band splitting varieties.

Frequency-conscious dynamic processing, achieved by equalisation of control side-chains only, works fine for noise-gates but exhibits serious limitations in most other applications.

As the tonal quality of material can vary considerably with performance intensity and even choice of microphone, fixed EQ settings are often a compromise.

In the DPR-901 II, BSS have fully integrated parametric equalisation with dynamic compression and expansion processes to create an entirely new analogue signal processor. Developed to meet a wide range of audio production demands previously only answered but some sort of compromise, the DPR-901 II also introduces some interesting new psychoacoustic effects of its own.

Frequency-Selective Compression and Expansion

The unit consists of four (non-interactive) bands of frequency-selective compression or expansion. Each band provides a variable amount of dynamic boost (EXPAND) or cut (COMPRESS) over a given bandWIDTH around a particular FREQUENCY, whenever the input signal reaches a certain level, or THRESHOLD. This activity can be selected to occur BELOW or above threshold, thus allowing you to use certain bands to EQ just the quiet passages whilst others only affect the loud parts.

A rotary COMPRESS/EXPAND control can be set to apply varying degrees of compression to a maximum of -30dB gain reduction, or true upward expansion to a maximum dynamic boost of +16dB. Lower settings give a smooth, soft knee dynamic characteristic, which gradually progresses towards a harder feel at the clockwise/anti-clockwise extremes. Illuminated horizontal displays associated with each frequency band graphically mimic the amount of dynamic boost or cut being applied to the signal whenever it crosses that band's preset THRESHOLD. A smaller vertical column continually shows input level relative to the THRESHOLD setting to further assist precision fine-tuning and to monitor the unit's activity in use.

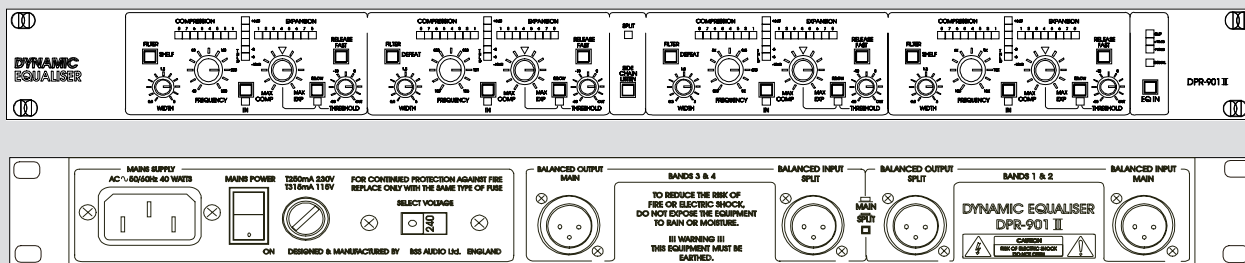
Automatic Time Constants

Attack and release time constants are programme related to ensure accurate response to signal dynamics and complete absence of distortion regardless of harmonic content. The RELEASE profile has two stages, closely tracking the programme envelope initially and then slowing down to perform gentle levelling and to avoid pumping on mixed material. Complete mixes can be enhanced in ways previously unimaginable.

A virtual remix can be achieved by expansion of an appropriate mid-range area just when the vocal is present, with a little dynamic HF shelf activity added to give some exciter-like sheen to the finished product.



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Selective compression of just the bass can allow a powerful mix to be accurately tailored to the dynamic range constraints of a mastering or broadcast medium. Similarly, a disco or PA installation could be selectively levelled to meet legal limits for environmental disturbance by threshold controlling bass transients and hence reducing building resonances. Post-production sweetening, de-essing and other notch filtering tasks become routine and simple.

Below-Threshold

Each frequency band of the DPR-901 II can also be switched to EXPAND or COMPRESS as the signal level drops BELOW a certain THRESHOLD. The EQ on whole submixes, not just individual sources, can be changed completely at lower levels in the mix, even varying gradually during a fade; invaluable in post-production to enhance music when ducked during voice-overs.

So How Does The DPR-901 II Do It ?

The key to the operation of the DPR-901 II is subtractive compression, using a unique double sidechain architecture developed exclusively by BSS for the much acclaimed DPR-402 Compressor De-Esser Limiter.

This architecture and processing technique is then extended into a multi-stage topology, with meticulous attention given to headroom and dynamic range normalisation such that flexibility and fidelity are completely assured.

TECHNICAL SPECIFICATIONS

Input Section

IMPEDANCE
HEADROOM
CMRR
CONNECTOR

Balanced 12kOhm differential
+20dBv.
>-50dB, 20Hz to 20kHz
XLR3-31 or equivalent

Output Section

IMPEDANCE
MAX OUTPUT LEVEL
CONNECTOR

Balanced and floating to drive 600 Ohm loads
+20dBv into 600 Ohm load
XLR332 or equivalent

System Performance

FREQUENCY RESPONSE
NOISE

+ 0.5dB, 20Hz to 20kHz, all sections bypassed
Measured to CCIR 468-2. Less than -90dBv, all controls set flat

DISTORTION

THD Less than 0.05%, 20Hz to 20kHz,
SMPTE IM Less than 0.02%

Operating Controls

THRESHOLD
COMP/EXP

Variable each band from +20dBv to -30dBv
Variable each band from -30dB compression to +16dB expansion. Soft knee at low settings
Switched each band for below threshold activity
Switched each band to disable second stage of two part automatic time constant
Variable from 40Hz to 320Hz
Variable from 150Hz to 1.6kHz
Variable from 800Hz to 9kHz
Variable from 1.6kHz to 18kHz
Variable each band from narrow (0.5) to wide (3).
WIDTH control inoperative in SHELF mode
Selects shelf response (BANDS 1 and 4)
Selects broadband operation (BANDS 2 and 3)
Switches each band into circuit
Enables or bypasses the whole system

BELOW
FAST RELEASE

FREQUENCY BAND 1
FREQUENCY BAND 2
FREQUENCY BAND 3
FREQUENCY BAND 4
WIDTH

FILTER SHELF
FILTER DEFEAT
BAND IN
EQ IN

General

SIZE
WEIGHT
ELECTRICITY SUPPLY

482 x 44 x 228mm (19 x 1.75 x 9in) overall
5kg (11lbs) gross shipping
Switched 120/220v + 10%-20% 50/60Hz

In keeping with our policy of continued improvement, BSS Audio reserves the right to alter specifications without further notice. This product was designed developed and produced by BSS Audio, Hertfordshire, England.

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