# The Most Versatile Audio Equalisation System In The World

an introduction to the **DN9340 helix digital equaliser**

flexible audio equalisation for every application



The Klark Teknik *DN9340 Helix digital equaliser* is an all-new design from the most respected name in professional audio signal processing, and continues our proud tradition of innovation and engineering excellence. Klark Teknik's heritage in audio equalisation is without equal, with units such as *DN27, DN360, DN3600* and *DN410* having become industry standards. Now we have combined all our audio engineering experience with feedback from customers all over the world to produce a completely new concept in flexible audio equalisation for every application – *Helix*.

HELIX

# DN9340
## Helix Digital Equaliser

Like all Klark Teknik DSP devices, Helix is equipped with more than enough computing power to allow all functions to be fully operative at all times. The 'Home' screen displays the composite response of the unit at any given point (i.e. the overall effect of all the currently active EQ and filter settings), whilst the individual function screens show the response of the selected facility.
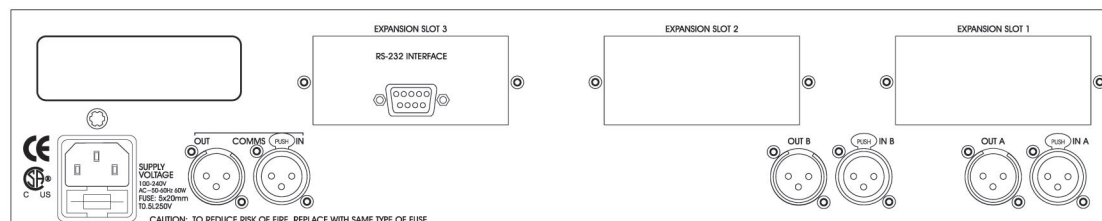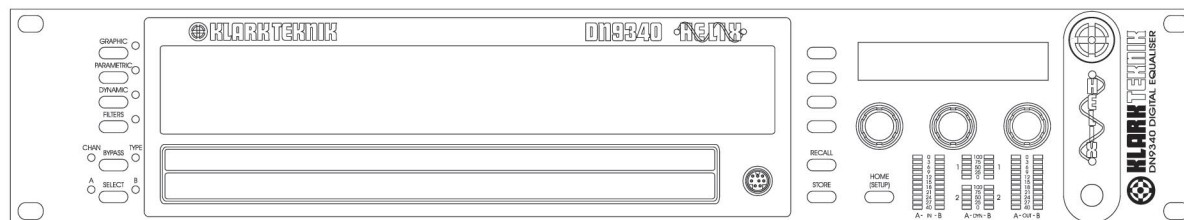
Various levels of bypass function are provided, to allow instant comparison between processed and unprocessed signals. Whilst in the Home page, the user can bypass the entire unit. In the specific function pages, both overall function types and single filters (even individual faders on the graphic EQ) can be switched in and out as required.

Helix also offers a specific advantage to owners of MIDAS Heritage and Legend consoles, in the form of an 'auto-solo' function. When suitably connected and programmed, activating a Solo function on the console (whether input or output) will cause the channel of Helix connected to it to appear in the control surface of the master unit, allowing instant access to all the Helix functions allocated to that input or output. An RS-232 connection is supplied on the rear panel for this purpose, and up to 64 channels of Helix can be interconnected using standard microphone (XLR) cables.

We have retained the very popular and unique 'auto gain ranging' function originally found in DN3600. This (defeatable) feature automatically compensates for changes in gain caused by the application of EQ (graphic function only), and causes the output signal to be exactly the same amplitude as the input signal regardless of the amount or type of EQ applied.

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Helix is a 2RU, dual channel digital audio equaliser. It has been designed to be as simple as possible to operate, and thus incorporates an extremely intuitive user interface. It features five main functions:

### Graphic Equalisation:
A dual 31-band graphic equaliser that, uniquely, offers no less than five selectable modes of operation. The 'Q' responses of the filter sets are user-definable as constant, proportional or reciprocal, or the user may select accurate emulations of our classic DN27 or DN360 units.

### Parametric Equalisation:
A dual 12-filter fully parametric equaliser. The secondary LCD display displays real time values for frequency, 'Q' and gain, keeping the main display clear and uncluttered. All 12 filters are fully configurable between 20Hz and 20kHz.

### Dynamic Equalisation (T-DEQ):
Helix offers dynamic EQ in a wholly new way, namely Threshold Dependent Equalisation (T-DEQ). This is not frequency-conscious compression - rather it allows the user to select a frequency, apply 'Q', attack and release values to it, then program upper and / or lower levels for that frequency that will be attained when the chosen frequency reaches the programmed level(s). In real life this means total real time dynamic control over any potential problem frequency. Helix features two T-DEQ filters per channel.

### Configurable Filters:
Four filters per channel, up to 8th order. These are user-definable as high or low pass, high or low shelf or notch.

### Delay:
Helix also provides a configurable delay line per channel with up to 1 second of delay available. The delay amount may be set in time (milliseconds and microseconds), or distance (feet / inches or metres / centimetres).

### System Performance:

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|---|---|
| Common Mode Rejection Ratio (CMMR): | >80dB @ 1kHz |
| Maximum input level: | +21.5dBu |
| Maximum output level: | +21.5dBu into >2kohm |
| Frequency response (20Hz to 20kHz, all EQ and filters flat): | ± 0.3dB |
| Distortion (THD+N @ +4dBu, 20Hz to 20kHz): | <0.01% |
| Dynamic range (20Hz to 20kHz unweighted): | >115dB |