The DN9848 is a highly configurable, digital electronic crossover/loudspeaker management system comprising four balanced analogue input channels and eight balanced analogue output channels. The user may choose from the following preset routing configurations:

Each output channel may be sourced from input channels :
None
A
B
C
D
A+B (channels summed at -3dB with balance control)
C+D (channels summed at -3dB with balance control))
A+B+C+D (channels summed at -6dB)

Though the DN9848 utilises a fully digital processor, it maintains the operational paradigm as well as the sonic integrity, of a high quality analogue unit. In addition to guaranteeing absolutely precise filter operation, the use of digital technology provides unrivalled flexibility of routing, the ability to program delays into both the input and output channels, extensive equalisation on both the input and output channels, and of course programmability. Each input channel provides eight separately configurable, fully parametric equalisation stages that may be used for room equalisation, up to 1000ms of delay, gain control and compression. Full metering with clip indication is available for all input and output channels.

Each output channel provides configurable high and low-pass filters for setting the crossover characteristics as well as six further stages of fully parametric equalisation that may be used to compensate for system or enclosure characteristics. Further delay of up to 300ms is available on each output, mainly used for system time alignment, in addition to gain control, muting and limiting. Dual all-pass phase correction sections are also included, each of which is referenced to the cut-off frequency of the low-pass filter and is adjustable in 5 degree steps.

The crossover filter types available are:
12dB/octave peaking (high-pass filter only)
24 dB/octave peaking (high-pass filter only)
Butterworth (6, 12, 18, 24, 36 and 48dB/octave)
Linkwitz-Riley (12 and 24dB/octave)
Bessel (12, 18, 24, 36 and 48dB/octave

All aspects of the unit may be programmed from the front panel or via remote control using the standard RS-232 and RS-485 coms ports. Parameters may be directly edited via rotary controls on the front panel with all values being displayed on a 2-line, 24 character LCD window with back lighting.

The operating system is held in flash ROM, enabling updates to be installed directly from a computer, and various levels of safety lockout may be applied for installation or hire system applications where unauthorised user intervention could place the connected loudspeaker systems at risk.
Passwords may use up to the full 24 characters of the display width, enabling easy-to-remember names to be used rather than PIN numbers if preferred.

Six User memories, 32 System memories and 99 Factory Presets are available. The System memories are used to store complete setups for custom loudspeaker configurations while the User memories are provided to allow a small number of patches to be stored or recalled while the main System memories are locked to prevent alteration.
A working memory area is used to store the patch currently being used or edited - no changes made to the working memory will be made permanent until the patch is stored.

The Factory presets will include crossover setups for commonly used EV and third-party loudspeaker systems as itemised in the specifications section of this manual. A blank patch is also provided for overwriting existing user patches where required. All the memory areas are monitored by an error checking system. If an error is diagnosed, the DN9848 will attempt to correct the error and also display a warning message to alert the user.

As supplied, the user patches are set to unity gain with all processing switched out and no routing.

DN9848 Loudspeaker Processor

technical specification

Architect's and Engineer's Specification

The Loudspeaker Processor shall provide four input channels and eight output channels with configurable routing in a standard 1U 19" rack mount chassis.

Each input channel shall include: input gain control, delay up to one second; eight parametric EQ stages (+6 dB boost, -18 dB cut); a compressor.

Each output channel shall include: configurable routing; delay up to 300 milliseconds; two cascaded all-pass phase correction filters, low and high pass crossover filters with slopes of 6, 12, 18, 24, 36 and 48 dB per octave and options of Linkwitz-Riley, Butterworth and Bessel characteristics where appropriate; six parametric EQ sections with up to 12 dB of cut or boost (optionally two of these stages are configurable as low frequency and high frequency shelf filters respectively); a phase invert function; an output level control and a limiter.

All delay times shall be set in milliseconds and microseconds, or in distance units (metric and imperial) with a temperature correction facility.

Each Loudspeaker Processor shall meet or exceed the following performance specifications:

Frequency response (20 Hz to 20 kHz)	**±0.3 dB**
Distortion @ +8 dBu: (20 Hz to 20 kHz)	**<0.02%**
Dynamic Range: (20 Hz to 20 kHz unweighted)	**>113 dB**

All inputs and outputs shall be electronically balanced and use XLR connectors. All parameters shall be displayed and adjusted via an alphanumeric LCD display, three rotary encoders and individual menu buttons for each input and output channel.

The Loudspeaker Processor shall be provided with RS-232 and RS-485 ports for remote control and software updates.

There shall be provision for six user memories and in addition 32 system memories and 99 factory presets with a security lock-out feature. There shall also be a security lock-out feature that is enabled when the unit is under remote control.

The unit shall be capable of operating from a 90 to 250V, 50 to 60 Hz AC power source.

The Loudspeaker Processor shall be the Klark Teknik model DN9848 and no alternative option is available.

KLARK TEKNIK

Tel: +44 (0) 1562 741515
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Inputs	***Four***
Type	Electronically balanced (Pin 2 Hot)
Impedance (Ω)	
Balanced	20k
Unbalanced	10k
Common Mode Rejection	>80 dB @ 1 kHz
Maximum level	+ 21 dBu
Outputs	***Eight***
Type	Electronically balanced (pin 2 hot)
Min.load impedance	56Ω/20nF
Source impedance	56Ω
Maximum level	> +21dBu into >2kΩ
Performance	
Frequency response (20Hz to 20kHz)	±0.3dB with all filters and EQ flat
Distortion @ + 8dBu (20Hz to 20kHz)	<0.02%
Dynamic range (20Hz to 20kHz unweighted)	113dB

Input Processing (per channel)

Input gain	+12 dB to -40 dB in 0.1 dB steps plus Off
Parametric EQ 1-8	Frequency range: 20 Hz to 20 kHz in 21 steps per octave Boost/cut: +6/-18 dB in 0.1 dB steps Q: 3.0 to 0.08
Compressor	Threshold: +21 dBu to - 10 dBu in 0.1 dB steps Attack: 40us to 100ms Insert: On/Off Release: 10ms to 2000ms Ratio: 1:1 to 5:1 Knee: Hard/Soft
Delay	0 to 1 second (342.25 m or 1122' 10" at 20°C in 20.8 us steps)

Output Processing (per channel)

Routing	Route from inputs: A, B, C, D, A+B, C+D, A+B+C+D
Delay	0 to 300 ms (102.68m or 333'10" at 20°C in 5.02 us steps)
Phase correction filters (x 2)	0° to 180° in 5° steps

Low pass filter
The following configurations are supported:-

Butterworth
(6dB/Oct, 12dB/Oct,18dB/Oct, 24dB/Oct, 36dB/Oct, 48dB/Oct)

Linkwitz-Riley
(12dB/Oct, 24dB/Oct)

Bessel
(12dB/Oct, 18dB/Oct, 24dB/Oct, 36dB/Oct, 48dB/Oct)

DN9848 Loudspeaker Processor

Loudspeaker Processor

technical specification

High pass filter
The following configurations are supported:-

12 dB/Oct Peaking

24 dB/Oct Peaking

Butterworth
(6 dB/Oct, 12 dB/Oct, 18 dB/Oct, 24 dB/Oct, 36 dB/Oct, 48 dB/Oct)

Linkwitz-Riley
(12 dB/Oct, 24dB/Oct)

Bessel
(12 dB/Oct, 18 dB/Oct, 24dB/Oct, 36dB/Oct, 48dB/Oct)

Frequency Range 20Hz to 15kHz
in 21 steps/octave
Peaking Filter Boost 0dB to +6dB
in 0.1dB steps.

Parametric EQ1/ Low shelf filter	Frequency range 20Hz to 20kHz in 21 steps per octave Boost/cut ±12 dB in 0.1 dB steps Parametric EQ Q: 3.0 to 0.08 Shelf slope 6dB/Oct and 12dB/Oct
Parametric EQ 2-5	Frequency range: 20 Hz to 20 kHz in 21 steps per octave Boost/cut: ±12 dB in 0.1dB steps Q: 3.0 to 0.08
Parametric EQ 6/ High shelf filter	Frequency range: 20Hz to 20kHz in 21 steps per octave Boost/cut: ±12dB in 0.1dB steps Parametric EQ Q: 3.0 to 0.08 Shelf slope: 6dB/Oct and 12dB/Oct
Phase invert	Normal/invert
Output gain	+12 dB to -40 dB in 0.5 dB steps plus Off
Look-ahead limiter	Threshold: +21dBu to -10dBu in 0.5 dB steps Release: 10ms to 1000 ms Knee: Hard/Soft
Mute	On/off

Power Requirements

Voltage	90 to 250 V a.c @ 50/60 Hz
Consumption	< 75 VA

Dimensions

Width	483 mm (19 inch)
Height	44 mm (1.75 inch)
Depth	287 mm (12 inch)

Weight

Nett	4kg
Shipping	6kg

Terminations

Audio inputs/outputs	3-pin XLR
RS-485 inputs/outputs	3-pin XLR
RS-232	8-pin Mini-DIN socket
Power	3-pin IEC

Trade Descriptions Act: Due to the company policy of continuing improvement, we reserve the right to alter these specifications without prior notice.

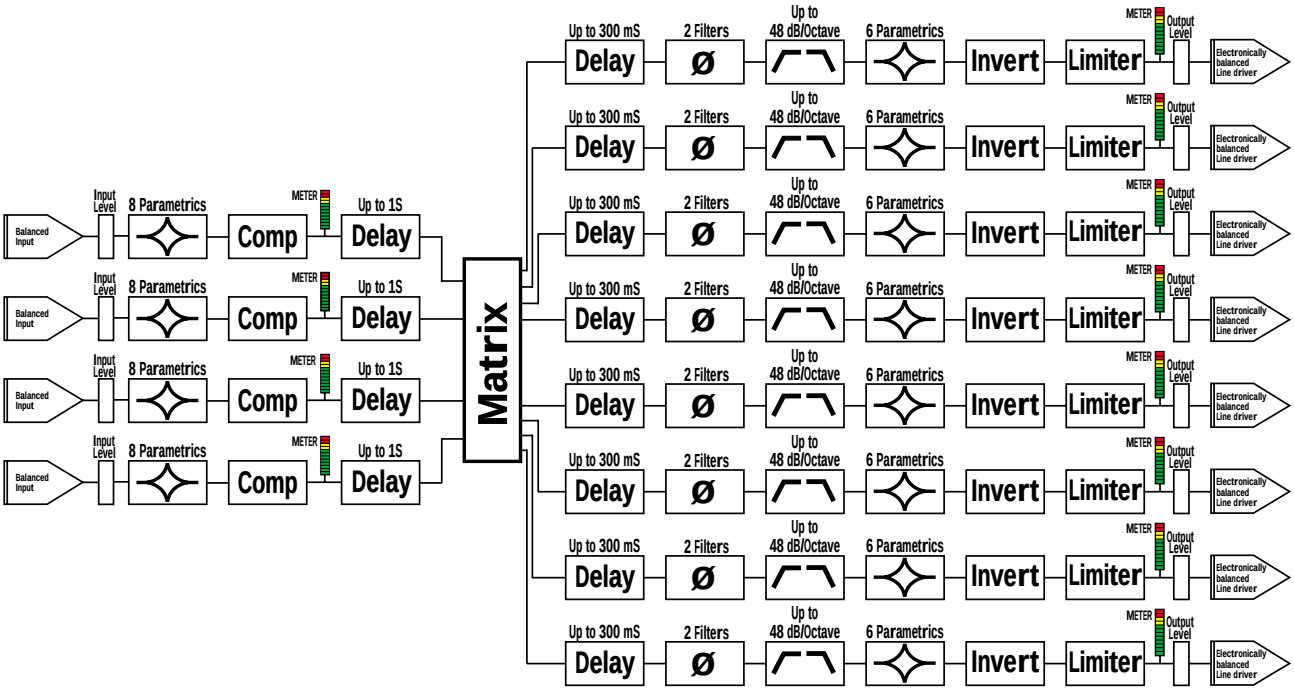
Don't Just Change
INNOVATE

DN9848 Loudspeaker Processor

PRELIMINARY

Loudspeaker Processor

- One RU
- Four Inputs
- Eight Outputs
- Twelve Delay Lines
- Sixteen All Pass Filters
- Sixteen Hi and Lo Pass Filters
- Four Full Function Compresssors
- Eight Look Ahead Limiters with Delay
- Eighty Bands of Parametric Equalisation
- Full Remote Control(under Stardraw Audio)



KLARK TEKNIK

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