PRELIMINARY

DN7453 Digital Delay Line & Multiprocessor

User Configurable Digital Audio Delay Line with EQ and Dynamics

- One input, three outputs in 1 rackspace.
- All inputs and outputs electronically balanced.
- Up to 5.4s delay available.
- 112dB dynamic range.
- High quality, 24-bit A/D and D/A convertors.
- Seven configurable EQ filters on every input (PEQ, hi/lo pass, hi/lo shelf).
- Full-time input and output metering.
- Six configurable EQ filters on every output (PEQ, ho/lo pass, hi/lo shelf).
- Full-function compressor / limiter on all outputs plus mute switch.
- Intuitive user interface with large LCD screen and rotary controls.
- PC operation possible via free proprietary software.
- RS-232 and MIDI in / out / thru interfaces fitted as standard.
- Multiple functionality allows use as problem-solving 'audio toolbox'.

From the manufacturers of the original digital delay line, the new Klark Teknik DN7453 is the successor to the well-known DN7103 time alignment unit. Again featuring one input and three outputs (all electronically balanced) in a 1RU format, the DN7453 can provide no less than 5.4s delay between any input and output. This is more than enough for even the most strenuous time-alignment tasks, including delay towers for live sound reinforcement, satellite links and audio / video synchronisation.

High quality linear 24-bit AD/DA convertors combined with 48-bit filter algorithms and two 24-bit Motorola signal processors provide a dynamic range of 115dB.

In addition to its traditional role as a delay, the DN7453 also features comprehensive onboard equalisation facilities, thereby obviating the need for outboard EQ units in many situations. The input has seven EQ filters, each of which can be configured as a fully parametric filter, a high / low pass filter or a high / low shelving filter. Full-time front panel input metering is also provided, as well as rotary controls for input adjustment. Each of the three outputs provides six bands of equalisation, configurable as per the input EQ, plus two full time all-pass filters for providing precise output phase adjustments.

In addition to the main delay stage, each output also features a high-quality compressor / limiter to provide full protection, output metering, LED indication of limiter activity, and rotary controls for output adjustment. Output mute switches are also fitted to each channel.

The menu structure is simple and intuitive in operation, with a minimum of front panel controls and pages. Remote control is possible via the standard RS232 port on the rear panel, using free proprietary software, and MIDI in / out / thru sockets are also provided, allowing control over several units from a single master unit. ** user-programmable non-volatile memories are available to store settings.

This comprehensive list of features means that the DN7453 has uses and applications in a wide variety of situations, and can justly be regarded as an 'audio toolbox', an indispensable tool for the audio professional.

The DN7453 is constructed to the same high standards which have made Klark Teknik the first choice in professional signal processing since 1974, and features the standard KT 5-year international warranty

KLARK TEKNIK
SIGNAL PROCESSING BY DEFINITION

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technical specification

Architect's and Engineer's Specification

The delay line shall provide for one input and three outputs, housed in a standard 1U 19" rack mount chassis. It shall have a maximum total delay time of 5400ms at a full bandwidth of 20kHz. Delay times shall be displayed in units of time and distance and shall be adjustable to a resolution of 21 microseconds.
When displaying distance, a temperature compensation facility will allow the delay time to be automatically recalculated for a specified temperature.
The unit shall incorporate a master delay time on the input and individual delay times on each of the outputs.
Each input shall include seven bands of full parametric EQ which can be individually configured to be any of the following:- LOSHELF, HISHELF, HICUT, LOCUT, PEQ and can be individually BYPASSED. In addition, each output shall include six bands of full parametric EQ which can also be individually configured to be any of the following:- LOSHELF, HISHELF, HICUT, LOCUT, PEQ and can be individually BYPASSED.
Each output shall have individually controllable compressor and limiter functions.

The delay line shall meet, or exceed, the following specifications:

Frequency response	+0/-0.5dB (20Hz to 20kHz)
Distortion @ +8 dBu:	<0.01% (20Hz to 20kHz)
Dynamic Range	>112dB (20Hz to 20kHz unweighted)

Options for the various delay and equalisation parameters shall be presented on a liquid crystal display and shall be selectable by six front panel control buttons and shall be altered by a continuous rotary controller.
User memories shall be provided for setup storage. A security lock out system shall be available, including a user defined code number.
Each input shall have a gain control and meter and each output shall have an attenuator control and meter, for system matching. Output levels can also be individually adjusted from within the software and levels recalled as part of the user memories.
A MIDI interface shall be provided as standard. The delay line shall also be capable of being controlled remotely by a PC via an RS-232 port.
All audio connections shall be via XLR style connectors. Inputs and outputs shall be electronically balanced and there shall be an option for input transformer isolation.
The unit shall be capable of operating from a 90V to 250V a.c., 50/60Hz, power source.
The delay line shall be the Klark Teknik DN7453 and no alternative option is available.

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Tel: +44 (0) 1562 741515
Fax: +44 (0) 1562 745371
USA Tel: +1 800 392 3497

Audio Inputs	***One***
Type	Electronically Balanced (Pin 2 Hot)
Impedance (Ω)	
Balanced	20 k
Unbalanced	10 k
Maximum Level	+21dBu
Audio Outputs	***Three***
Type	Electronically Balanced (Pin 2 Hot)
Source impedance	>100Ω
Maximum Level	+21 dBu into > 2kΩ
Performance	
Frequency response*	+0/-0.5 dB with all filters and EQ flat
Distortion @ +8 dBu:	<0.01%
Dynamic Range:	>112 dB
(*20Hz to 20kHz unweighted)	
Input Processing	
Input Gain	+6dB to - ∞,under front panel control
Master EQ 1-7**	Parametric EQ Mode Boost/cut: (12 dB in 1 dB steps Q: 0.4 to 20 Hi-Shelf/Lo Shelf Filter Modes Boost/cut: (12 dB in 1 dB steps Slope: -6dB/Oct, -12 dB/Oct Hi-Pass/Lo-Pass Filter Modes Q: 0.4 to 2.0 (-12dB/Oct only) Slope: -6dB/Oct, -12 dB/Oct
Delay	0 to 4500 milliseconds in 21 us steps
Output Processing (per channel)	
Delay	0 to 900 milliseconds in 21 us steps
Channel EQ 1-6**	Parametric EQ Mode Boost/cut: (12 dB in 1 dB steps Q: 0.4 to 20 Hi-Shelf/Lo Shelf Filter Modes Boost/cut: (12 dB in 1 dB steps Slope: -6dB/Oct, -12 dB/Oct Hi-Pass/Lo-Pass Filter Modes Q: 0.4 to 2.0 (-12dB/Oct only) Slope: -6dB/Oct, -12dB/Oct
Output gain	0 dB to -∞ under front panel control
Compressor	Threshold: +21dBu to -9dBu in 1.0dB steps Ratio: 1:1, 1.4:1, 2:1, 4:1, 8:1 Attack: 0ms to 99 ms Release: 50ms to 999ms
Limiter	Threshold: +21dBu to -9dBu in 1.0dB steps Release: 50ms to 999ms
Power Requirements	
Voltage / Consumption	90 to 250V a.c @ 50/60Hz / 20watts
Dimensions	
Width	483mm (19 inch)
Height	44mm (1.75 inch)
Depth	374mm (14.72 inch)
Weight	
Nett	5kg
Shipping	7kg
Terminations	
Audio inputs/outputs	3-pin XLR
MIDI	5-pin DIN
RS-232	9-pin D-Type socket
Power	3-pin IEC

Options
Transformer input balancing (must be specified with order).

***frequency range 20Hz to 20kHz in 21 steps per octave*