KLARK TEKNIK

SIGNAL PROCESSING BY DEFINITION

Equalisers

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Issue 3

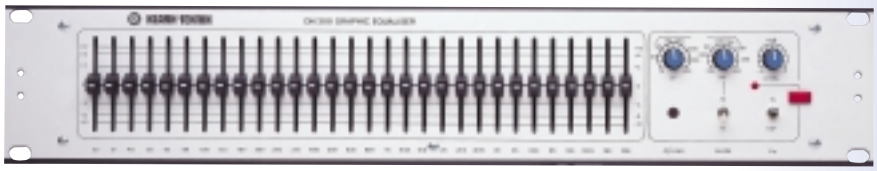
Product Range & Technical Data

Contents

DN300 Graphic Equaliser

Single Channel 1/3 Octave Graphic Equaliser

- Thirty 45mm oil damped precision faders graphically positioned at 1/3 octave ISO frequencies between 25Hz-20kHz.
- Proprietary circuit designs utilising “MELT” filters giving unbeatable performance.
- Comprehensive standard specifications include electronically balanced input and LED overload indicator.
- Earth lift switch enables signal and chassis grounds to be isolated eliminating ground loop problems.
- Adjustable high and low cut 12dB/octave shelving filters with selectable 6/12dB per octave high cut slope.
- Equalisation by-pass allowing easy comparison between direct and equalised signals.
- Perspex and brushed aluminium security covers are available to order, for use in permanent sound installations where system calibration has taken place.
- The DN300 is sturdily constructed throughout and complies with standard 19” 2U rack mounting requirements.



DN332 Graphic Equaliser

Dual Channel 2/3 Octave Graphic Equaliser

- Two x sixteen 45mm oil damped precision faders graphically positioned at 2/3 octave ISO frequencies between 20Hz-20kHz.
- Proprietary circuit designs utilising “MELT” filters giving unbeatable performance.
- Comprehensive standard specifications include electronically balanced inputs and LED overload indicators.
- Earth lift switch enables signal and chassis grounds to be isolated eliminating ground-loop problems.
- Useful low cut 18dB/octave filters preventing subsonic components from overloading speakers or amplifiers.
- Equalisation by-pass allowing easy comparison between direct and equalised signals.
- Perspex and brushed aluminium security covers are available to order, for use in permanent sound installations where system calibration has taken place.
- The DN332 is sturdily constructed throughout and complies with standard 19” 2U rack mounting requirements.

DN2360 Digital Graphic Equaliser

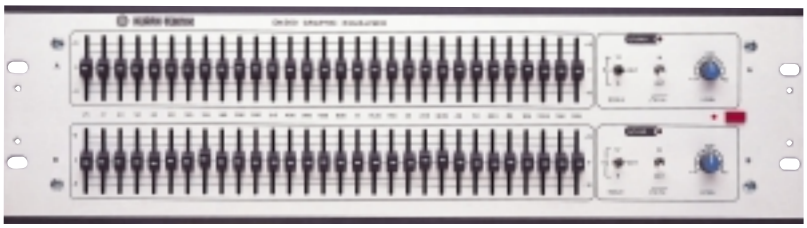
Dual Channel, Digital Graphic Equaliser For Installation and Contracting Applications

- 24- bit A/D and D/A Converters, 96 kHz sampling.
- 30 constant-Q equaliser filter bands per channel.
- Three user definable notch, PEQ, highpass, and lowpass filters per channel.
- Free configuration software that is Windows 95/98/NT/2000 compatible.
- RS-485 networkable for control and configuration.
- 3rd party control available through AMX, Crestron, Smaart-Pro, Palm Pilot and Stardraw Audio.
- Easy-to-use Phoenix / Euroblock connectors.
- Space saving half-rack configuration with half and full rack mounting kits.
- Built-in universal power supply.

DN360 Graphic Equaliser

Dual Channel 1/3 Octave Graphic Equaliser

- Two x thirty 30mm oil damped precision faders graphically positioned at 1/3 octave ISO frequencies between 25Hz-20kHz.
- Proprietary circuit designs utilising “MELT” filters giving unbeatable performance.
- Comprehensive standard specifications include electronically balanced inputs and LED overload indicators.
- Earth lift switch enables signal and chassis grounds to be isolated eliminating ground-loop problems.
- Useful low cut 18dB/octave filters preventing subsonic components from overloading speakers or amplifiers.
- Equalisation by-pass allowing easy comparison between direct and equalised signals.
- Scale switching gives the choice of either high slider resolution (±6dB) or normal (±12dB).
- Perspex security cover available to order, for use in permanent sound installations where system calibration has taken place.



DN3600 Programmable Graphic Equaliser

Dual Channel, Third Octave Graphic Equaliser.

- Tuneable notches and sweepable low and high pass filters.
- Large, backlit Supertwist LCD display with virtual fader and actual curve display modes.
- 30 Tactile switches for instant access to virtual faders.
- DN360 and DN27 emulations with Klark Teknik’s proprietary combining filter characteristics.
- Auto gain-ranging to maintain headroom.
- 66 Memories for EQ settings.
- Ability to address up to 64 slave units.
- Pro MIDI interface for Master/Slave setups.
- Revised MELT hybrid filter circuits give exceptional headroom and dynamic range.
- 10-Segment bargraph level meters plus clip warning monitoring the signal at 7 different points.
- Inputs and outputs electronically balanced-transformer balancing is an option.
- Fail-safe relay bypass.

DN3601 Programmable Graphic Equaliser

Programmable Slave Graphic Equaliser

- Dual channel, third-octave graphic equaliser.
- Tuneable notches and sweepable low and high pass filters.
- “Slave” derivative of the Klark Teknik DN3600 - no front panel controls.
- Pro MIDI interface allows Master/Slave.
- Intuitive control of up to 64 units from a single DN3600 or DN3698.
- DN360 and DN27 emulations with Klark Teknik’s proprietary combining filter characteristics.
- Auto gain-ranging to maintain headroom.
- 66 Memories for EQ settings.
- Revised MELT hybrid filter circuits give exceptional headroom and dynamic range.
- 10-Segment bargraph level meters plus clip LEDS monitor the signal at 7 different points.
- Inputs and outputs electronically balanced-transformer balancing is an option.
- Fail-safe relay bypass.

DN3698 Remote Controller

Hand Held Remote Controller

- Hand held remote control of up to 49 DN3600 and DN3601 units, i.e. 98 mixes.
- Full access to all DN3600 functions, including memory store/recall and curve display.
- Backlit 480 x 64 dot matrix LCD display with full width fader graphics and windowed functions.
- One button per function operation.
- Dual thumb wheel encoders for frequency and level with interactive LED ladders.
- Fast selection of individual channels (mixes).
- LED indication of selected “mix” and memory number.
- Battery operation. Battery life: 5 hours on one charge. Recharge time: 2 hours.
- Separate “Battery Low” and “Recharge now” indicators.
- Standard connection directly into the Pro-MIDI loop.
- Optional rack mounted docking station for protective storage and single wire operation.
- Optional purpose designed radio link for wireless operation.

DN3603 Docking Station

Docking Station for DN3698 Hand Held Remote

- 2U rack storage for DN3698 Hand Held Remote controller.
- Intelligent RS-232 to MIDI conversion for DN3698 operation over a single 5-core cable.
- Front panel 5-pin connection for DN3698.
- Rear panel Pro-MIDI XLR connectors.
- Continual charge of DN3698 batteries.
- Power off bypass relay for MIDI connections.
- Archives all DN3600 current settings.
- MIDI data dump of all DN3600 settings.
- Supports Klark Teknik WS01 wireless link for cable free operation of DN3698.
- Internal voltage sensing switch mode power supply.

WS01 Wireless Transceiver

Wireless Link for DN3698 HHR and Docking Station

- True bi-directional wireless connection of DN3698 and Docking Station.
- Range of up to 50m in open space.
- Powered from DN3698 and Docking Station - no separate batteries required.
- Error checking of all data.
- Addressing on two channels.
- Availability of two frequencies allows approved operation in most territories.

DN320 Preset Equaliser

Preset Equaliser Dual Channel 16 Band

- Dual channel, sixteen band 2/3 octave equaliser offering 12dB of cut or boost via high quality rotary preset controls.
- Electronically balanced inputs and outputs on XLR connectors.
- Switchable subsonic filters.
- Equalisation bypass switches allow easy comparison between direct and equalised signals.
- Renowned Klark Teknik quality and reliability.
- All controls may be covered by a security cover after system calibration.
- Fail-safe bypass relays connect inputs to outputs when all power is removed.
- Sturdy construction in a 1U, 19” rack chassis.

DN330 Preset Equaliser

Preset Equaliser Single Channel 30 Band

- Thirty band 1/3 octave equaliser offering 12dB of cut or boost via high quality rotary preset controls.
- Electronically balanced input and output on XLR connectors.
- Adjustable high and low pass filters.
- Equalisation bypass switch allows easy comparison between direct and equalised signal.
- Renowned Klark Teknik quality and reliability.
- All controls may be covered by a security cover after system calibration.
- Fail-safe bypass relay connects input to output when all power is removed.
- Sturdy construction in a 1U, 19” rack chassis.

DN405 Parametric Equaliser

Single Channel Five Band Parametric Equaliser

- Five bands of full parametric equalisation with separate variable high and low pass filters.
- 100% frequency overlap between all filters.
- Wide range of filter bandwidths are available to suit many varied applications.
- Individual Eq. In/Out switch with LED “Filter On” status indication for each parametric filter section and overall Eq. In/Out switch.
- Outstanding noise and distortion performance.
- Automatic fail-safe by-pass facility.
- Comprehensive standard specifications include electronically balanced input and LED overload indicator.
- Earth lifts switch enables signal and chassis grounds to be isolated, eliminating ground-loop problems.
- The DN405 is sturdily constructed throughout and complies with standard 19” 1U rack mounting requirements.

DN410 Parametric Equaliser

Dual Channel Five Band Parametric Equaliser

- Two channels of five bands of full parametric equalisation with separate variable high and low pass filters in each channel.
- Switchable dual/mono operation, automatically by-passing unwanted controls in the single channel 10 band mode.
- 100% frequency overlap and a wide range of filter bandwidths for maximum flexibility.
- Individual Eq. In/Out switch with LED “Filter On” status indication for each parametric filter section and overall Eq. In/Out switch.
- Outstanding noise and distortion performance.
- Automatic fail-safe by-pass facility.
- Comprehensive standard specifications include electronically balanced inputs and LED overload indicator.
- Earth lift switch enables signal and chassis grounds to be isolated, eliminating ground-loop problems.

DN422M Equaliser with Mic Pre-amp

Dual Channel EQ with Mic Pre amp

- Dual Channel 4 band EQ.
- Variable High Pass Filters.
- Mic/Line Pre-amps.
- 48V Phantom power.
- Input and output level controls.
- Switchable balanced insert send & returns.
- 10 segment LED Metering.
- Both inputs & outputs electronically balanced.
- Transformer balancing options for inputs & outputs.

DN4000 Parametric Equaliser & Delay

Parametric Equaliser & Delay

- Dual channel, 5-band parametric equalisation.
- High and low pass filters and high and low frequency shelf equalisers on each channel.
- Delay line on each channel.
- Large, bright, high contrast LCD display.
- Dedicated filter select switches.
- Three rotary controls for Frequency, Q and Level.
- Advanced, high definition digital conversion gives an unweighted dynamic range of >114dB (20Hz to 20kHz), without pre and de emphasis.
- Headroom meters monitor signal at various points throughout the signal path.
- MIDI interface as standard.
- Thirty non-volatile memories.
- Built in auto-diagnostic service routines.
- AES/EBU digital audio interface (option).

DN500 Dynamic Processor

Dual Compressor / Limiter Expander

- Two channels of full function compression, expansion, limiting and peak clipping in one unit of rack space.
- Variable knee control for compression styles from hard to easy.
- Auto attack/release mode for inaudible compression and easy set-up.
- Manual attack/release mode for creating compression effects.
- Advanced VCA design for extremely low noise and distortion.
- Flexible expander section features variable ratio for gentle expansion or hard gating.
- Separate side chain inputs are provided for compressor and expander sections.
- A peak limiter with variable threshold and programme related release provides additional protection.
- Peak clipper eliminates transient overload and tracks limiter threshold for total protection.
- Additional features include stereo link function, gain reduction meters for both compressor/ expander sections and output level meter.
- The DN500 is sturdily constructed throughout and complies with standard 19" 1U rack mounting requirements.

DN504 Dynamic Processor

Quad Compressor / Limiter

- Four channels of full function "quick to set" compression in only one unit of rack space.
- Switchable knee function provides for both hard and soft compression styles.
- Auto attack/release mode for inaudible compression and easy set-up.
- Manual attack/release mode for creating compression effects.
- Advanced VCA design for extremely low noise and distortion.
- Separate side chain inputs are provided for each channel.
- Gain reduction and output level metering is provided for each channel.
- Additional features include stereo link function which provides two pairs of stereo channels.
- XLR connectors fitted as standard for main audio terminations, with transformer balancing available as an option.
- The DN504 is sturdily constructed throughout and complies with standard 19" 1U rack mounting requirements.

DN514 Dynamic Processor

Quad Auto Gate

- Four frequency-conscious high performance gates in one single unit of rack space.
- Optimised for fast set up and dependable triggering for every conventional gate application.
- With two semi-automatic Attack Modes and hold time automatically scaled to release value, the DN514 combines outstanding dynamic performance with simplified control.
- Unique sync function synchronises harmony parts, brass section, etc., by interlocking all four gate release times.
- Advanced VCA design for low noise and distortion.
- Additional key inputs for each channel allows triggering from external sources.
- Side chain monitor function simplifies filter set-up.
- Threshold and release LEDs provide visual information regarding gate status. Release contour indicated by release LED.
- Both Master and channel bypass switches are provided to aid set-up.
- The DN514 is sturdily constructed throughout and complies with standard 19" 1U rack mounting requirements.

DN6000 Audio Analyser

Audio Analyser

- High contrast, high brightness, backlit, black and white LCD display for software control of brightness and contrast.
- Red LED display for constant read out of signal level.
- Centronics printer port for direct printing.
- Front panel microphone input with 48V phantom power.
- Dual line level inputs for stereo 1/3 octave analysis, with sum and differences display options.
- A and C weighting filters.
- Frequency mode includes 1/3 and 1/6 octave spectrum analysis via mic or line inputs.
- DN3600 interface for auto equalisation functions.
- Supplied high quality calibrated measurement microphone.
- Switchable Peak or Average responses, with peak hold.
- Internal signal generator with sine wave and band limited pink noise test signals.
- Test signal burst and frequency sweep ability with automatic data capture.
- 32 memory stores, with accumulate and overwrite option.
- Memory Compare and Recall functions.
- Time mode includes RT60 (reverberation time), Leq (equivalent SPL) and Let (equivalent dose) measurement.
- High efficiency, voltage sensing internal power supply.

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'.

DN7454 Digital Delay Line & Multiprocessor

User Configurable Digital Audio Delay Line with EQ and Dynamics

- Two inputs, four outputs in 1 rackspace.
- All inputs and outputs electronically balanced.
- Up to 5.4s delay available (mono mode).
- 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'.

DN800 Active Crossover

4 x 8 Configurable Active Crossover

- Eight frequency bands in one rack unit.
- Twice the channels or half the rack space of any other analogue crossover currently available.
- Unrivalled sound quality.
- Very low noise and distortion.
- High flexibility.
- Mono Bass facility for sub-woofer systems.
- High-precision frequency selection on plug-in cards.
- Advanced VCA limiters on plug-in cards.
- Fixed equalisation for system matching available on plug-in cards.
- Band overlap is possible.
- Phase adjustment between bands and phase reverse for each output.
- Manufactured to the usual high Klark Teknik standards of quality and reliability.

DN8000 Loudspeaker Processor

2 x 5 Loudspeaker Processor

- Two inputs, five outputs with configurable routing all electronically balanced.
- High definition 20-bit A to D and D to A converters give a dynamic range of 114dB (20Hz to 20kHz, unweighted).
- Optional input and output isolation transformers.
- Low and high pass crossover filters on each output.
- Two parametric EQ sections on each output.
- Low and high frequency shelf parametric EQ on each output.
- Phase adjust and reverse on each output.
- Separate compressor and limiter on each output.
- 1 second delay in 21 microsecond increments on all inputs and 300mS in 21 microsecond increments on all outputs.
- 32 User programmable memories. Preset memories for various loudspeaker systems available on request.
- 60 factory preset memories for Electro-Voice and other loudspeaker systems.
- Various levels of memory protection and user lockout with password function.
- Internal, high efficiency, voltage sensing, switching-mode power supply.
- Noise reduction on each output.

DN9824 Loudspeaker Processor

2 x 4 Loudspeaker Processor

- Two inputs and four outputs, all electronically balanced, in 1RU.
- 24-bit Motorola processing and KT design provide dynamic range of 112dB.
- Flexible routing allows configuration for almost any system.
- Simple and intuitive front panel operation.
- Full PC control available via free proprietary software.
- Seven EQ filters per input, selectable between PEQ, hi/lo pass and hi/lo shelf.
- Full metering, rotary trim control and up to 900ms delay on both inputs.
- All outputs feature six bands of EQ, selectable as per input sections.
- Two full-time all pass filters on outputs for accurate phase correlation adjustment.
- All popular slopes and filter types available in crossover section.
- High quality compressor / limiter on all outputs.
- Full metering and LED indication of clip activity on all outputs.

DN9848 Loudspeaker Processor

4 x 8 Loudspeaker Processor

- 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).
- No direct comparison available.
- One RU.

DN1248 Mic Splitter

12 in 48 out Mic Splitter

- Twelve channels in 3RU, each comprising one input and four outputs.
- Two transformer balanced inputs plus two electronically balanced outputs per channel.
- Midas Heritage 3000 microphone pre-amp provides ultimate audio performance.
- Multipin retro-fit kit as standard, allowing simple fitting and connection of any multipin connector and input / output configuration of user's choice.
- Flexible solo buss allows soloing of any channel from any unit, with individual, multiple and non-latching solo feature.
- Large LED ladder showing solo buss headroom plus headphone level control.
- Phantom power, ground lift and four-state input level control on every channel.
- Internal power supply.
- Several factory options to allow customisation according to application.
- Dual auto-switching power supplies (DN1248-DP).
- All outputs transformer balanced (DN1248-AT).
- Both options fitted (DN1248-FM).
- Extremely cost effective, especially when fitted with dual PSU option.

DN1414 Multiple DI

14 in 14 out DI module

- 14 discrete direct-injection modules in 3RU.
- 10 full-function channels with jack and XLR inputs, jack link and transformer balanced outputs.
- Two dual channels for stereo or dual mono mode.
- -15dB attenuator, -30dB pad and ground lift on all channels.
- Multipin retrofit kit as standard, allowing simple fitting and connection of any multipin connector and output configuration of user's choice.
- Internal power supply .
- Factory option for dual auto-switching power supplies.
- Many uses in both fixed and mobile audio applications.
- Very cost-effective, especially when fitted with dual PSU option.
- Legendary Klark Teknik engineering quality.

LBB100 Active DI Box

Active DI Box

- High impedance, transformer isolated input.
- XLR plus twin quarter inch jack input connectors, all linked.
- Low impedance, active, balanced XLR output.
- Utilises 48 volt phantom power.
- Switchable 30dB input pad.
- Switchable 15dB output attenuator.
- Switchable earth link.
- High dynamic range; low distortion.
- Rugged aluminium case with recessed control and connector panels.
- LED power indicator.

PPREQ Palm Remote Control

Active DI Box

- Replicates all operational functions of DN3698 handheld remote controller.
- Downloadable free of charge from Klark Teknik website
- Lightweight, portable, compact and reliable
- Connection via cable or wireless link
- Simultaneous control of up to 49 DN3600 / DN3601 units
- Cost effectivePPR-EQ Bullet Points

The PPR-EQ program is a sophisticated software product, downloadable free of charge from the Klark Teknik website (www.klarkteknik.com). When loaded into a Palm Pilot handheld computer, it precisely replicates all the operational functions of the Klark Teknik DN3698 handheld remote controller.

The PPR-EQ allows full remote access to all functions of the famous Klark Teknik DN3600 graphic equalisation system. Up to 49 DN3600 / DN3601 units can be simultaneously controlled, either via wireless remote or cable link. All III-series Palm Pilots can run the software, allowing the travelling engineer or user a completely portable and cost-effective method of controlling DN3600 / DN3601 systems. The only additional cost is that of the HandiClip unit which is the physical interface between the Palm Pilot and the DN3600. This is available direct from the manufacturer's website, at www.handisystems.com.

DN300 Graphic Equaliser

Single Channel 30 Band 1/3 Octave Graphic Equaliser

technical specification

Architect's and Engineer's Specification

The equaliser shall provide 12dB of attenuation and accentuation at 30 1/3 octave ISO centre frequencies from 25Hz-20kHz.

The equaliser shall meet or exceed the following performance specifications:

Distortion:	<0.01% @ +18dBu (1kHz)
Frequency response:	±0.5dB (20Hz-20kHz)
Noise:	<-94dBu (20Hz-20kHz unweighted)
Maximum output level 600Ω:	+22dBu

The equaliser shall have adjustable low & high cut 12dB/octave slope filters ranging from 15Hz-300Hz & 2.5kHz-30kHz and provide for selectable high cut filter slope 6/12dB.
The equaliser shall have an equalisation section by-pass facility and shall be fail-safe, that is the unit shall return automatically to the by-pass condition in the event of power supply interruption.
The equaliser shall use centre detented slide potentiometers arranged to give a graphical display of frequency plotted against level.
A rear panel switch shall be provided to isolate the signal ground connections, quickly and safely, from the chassis ground.
All audio connections shall be via XLR style connectors and a tamperproof front panel cover shall be available to fit the unit. The unit shall be capable of operating from a 115/230V ± 12% 50/60Hz AC power source.
The equaliser shall be the Klark Teknik Model DN300 and no alternative specification option is available.

Input	***One***
Type	Electronically balanced (pin 3 hot)
Impedance(Ω)	
Balanced	20k
Unbalanced	10k
Output	***One***
Type	Unbalanced (pin 3 hot)
Min. load impedance	600Ω
Source impedance	<60Ω
Max. level	+22dBu
Performance	
Frequency response (20Hz-20kHz)Eq out	±0.5dB
Eq in	User defined
Distortion (@ + 18dBu)	<0.01% @ 1kHz
Equivalent input noise (20Hz-20kHz unweighted)	<-94dBu
Overload indicator	+19dBu
Gain	-∞ to +6dB
Filters	
Type	MELT**
Centre frequencies	30
ISO	25Hz-20kHz 1/3 octave
Tolerance	±5%
Maximum boost/cut	±12dB
High Pass filter slope	15Hz-300Hz 12dB/octave
Low Pass filter slope	2k5Hz-30kHz 6/12dB/octave
Power Requirements	
Voltage	110/120/220/240V 50/60Hz
Consumption	<15VA
Weight	
Nett	4kg
Shipping	6kg
Dimensions	
Width	482mm (19 inch)
Depth	205mm (8 inch)
Height	89mm (3.5 inch)
Terminations	
Input	3 pin XLR
Output	3 pin XLR
Power	IEC
Options	Security Cover Transformer input* / output balancing

**Input transformer balancing is non retrofittable and has to be specified with order.*
*** "MELT": Proprietary thick-film circuit.*
Trade Descriptions Act: Due to the company policy of continuing improvement, we secure the right to alter these specifications without prior notice.

KLARK TEKNIK
SIGNAL PROCESSING BY DEFINITION

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DN332 Graphic Equaliser

Dual Channel 16 band 2/3 Octave Graphic Equaliser

technical specification

Architect's and Engineer's Specification

The equaliser shall provide 12dB of attenuation and accentuation at 2x16 2/3 octave ISO centre frequencies from 20Hz-20kHz.

Each equaliser shall meet or exceed the following performance specifications:

Distortion:	<0.01% @ +4dBu (1kHz)
Frequency response:	±0.5dB (20Hz-20kHz)
Noise:	<-90dBu (20Hz-20kHz unweighted)
Maximum output level into 600Ω:	+22dBu

Each equaliser shall allow for subsonic frequency attenuation at 18dB/octave and have an equalisation section by-pass facility.
Each equaliser shall use centre detented slide potentiometers arranged to give a graphical display of frequency plotted against level.
A rear panel switch shall be provided to isolate the signal ground connections, quickly and safely, from the chassis ground.
All audio connections shall be via XLR style connectors and a tamperproof front panel cover shall be available to fit the unit.
The unit shall be capable of operating from a 115/230V ± 12% 50/60Hz AC power source.
The equaliser shall be the Klark Teknik Dual Channel Model DN332, and no alternative specification option is available.

Inputs	***Two***
Type	Electronically balanced (pin 3 hot)
Impedance (Ω)	
Balanced	20k
Unbalanced	10k
Outputs	***Two***
Type	Unbalanced (pin 3 hot)
Min. load impedance	600Ω
Source impedance	<60Ω
Max. level	+22dBu
Performance	
Frequency response (20Hz-20kHz) Eq out	±0.5dB
Eq in	±0.5dB
Distortion (@ + 4dBu)	<0.01% @ 1kHz
Equivalent input noise (20Hz-20kHz unweighted)	<-90dBu
Channel separation	>75dB @ 1kHz
Overload indicator	+19dBu
Gain	-∞ to +6dB
Filters	
Type	MELT**
Centre frequencies	2x16
ISO	20Hz-20kHz 2/3 octave
Tolerance	±5%
Maximum boost/cut	±12dB
Subsonic filter	18dB/octave - 3dB @ 30Hz
Power Requirements	
Voltage	110/120/220/240V 50/60Hz
Consumption	<15VA
Weight	
Nett	4kg
Shipping	6kg
Dimensions	
Width	482mm (19 inch)
Depth	205mm (8 inch)
Height	89mm (3.5 inch)
Terminations	
Inputs	3 pin XLR
Outputs	3 pin XLR
Power	IEC
Options	Security Cover Transformer input*/ output balancing

**Input transformer balancing is non retrofittable and has to be specified with order.*

*** "MELT" Proprietary thick-film circuit.*

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

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DN2360 Graphic Equaliser

Dual Channel Digital Graphic Equaliser for Installation and Contracting Applications

technical specification

Architect's and Engineer's Specification

The equaliser shall provide two channels of digitally controlled 1/3 or 2/3-octave equalisation. The equaliser shall utilize 24-bit A/D and D/A converters and shall sample at a sampling frequency of 96kHz. Each channel shall provide 30 constant-Q filter bands centered on ISO frequencies between 25Hz ~ 20kHz and 3 user-configurable filters, that can be programmed as Hi Pass/Low Pass/Notch/Parametric EQ. Input and output levels and all filter settings shall be programmable via RS-232, utilizing a rear panel serial port and a computer or a third-party controller. The PC control software shall run on Windows 95/98/NT. The configuration software shall display the frequency response of the unit.

The graphic filter bands shall be adjustable ±12dB in either 0.1 or 0.5dB steps, based on user preference. The default step size shall be 0.5dB. The HighPass filters shall be adjustable from 16Hz ~ 630Hz with a peak magnitude of 0 to 12dB in steps of 0.1/0.5dB, the LowPass filters shall be adjustable from 2500Hz ~ 25kHz with a peak magnitude of 0 to 12dB in steps of 0.1/0.5dB and the Notch filters shall be adjustable from 20Hz to 25kHz in 0.5Hz steps, notch width of 1/12th Octave to 1 Octave and notch depth of -48dB to 0dB in 0.1/0.5dB steps.

The equaliser shall provide 16 presets, 8 of which may be accessed from recessed front panel switches or the rear panel contact closures. All presets are accessible from RS-232 commands or RS-485 commands. A separate RS-485 port shall allow the control of multiple units. A rear panel DIP switch shall be provided for setting the RS-485 addresses and for selecting various communication baud rates. Front panel LED's shall be provided for signal presence, signal clip, unit status and communication status. The unit shall allow third-party serial control like AMX, Crestron, Smaart-Pro, Stardraw Audio and 3Com's Palm series of hand-held computers.

Balanced line-level inputs and outputs shall be provided on the rear panel using Phoenix Combicon terminal strips. The output levels can be setup to be either at +4 dBu or -10dBu using a DIP switch setting. The unit shall have a built-in switching power supply that works in the range of 100-240Volts and 47-63Hz. The frequency response shall be (1 dB from 20Hz to 24kHz. The total harmonic distortion plus noise shall be less than 0.01% from 20Hz to 24kHz at +4dBu. The power consumption of the unit shall be less than 15Watts. The unit shall be housed in an extruded die-cast aluminum case that is half-rack wide and shall provide a full-rack mounting kit option.

The warranty coverage shall be for 5 years. The equaliser shall be CE marked, include a UL/CSA sticker.

The equaliser shall be the Klark-Teknik DN2360, and no alternative specification option is available.

Audio Inputs	**Two**
Type	Electronically Balanced
Balanced Impedance	10kΩ
Unbalanced Impedance	10kΩ
Audio Outputs	Two
Type	Electronically Balanced
Minimum load impedance	600Ω
Source impedance	<50Ω
Maximum Level (Balanced)	+21dBu
Maximum Level (Single-ended)	+18dBu
Performance	
Frequency response 20 Hz - 20 kHz	+/-0.2dB @ 0dBu
Distortion @+4 dBu	<0.01% 20Hz-24kHz
Dynamic Range	110dB
Channel Separation	-95 dB 20Hz - 24kHz
Overload Indicator	> +18dBu
Gain (Input)	0dB to +18dB in 0.5dB steps
Nominal Output Level	+4dBu or -10dBu
Processing	96kHz, 24bit
Maximum Processing Delay	<1 ms input to output
Filters	
Graphic Filter Type	Constant Q, Selectable 1/3 or 2/3 Octave
Center Frequencies	ISO, 25Hz ~ 20kHz
Maximum boost/cut	+/- 12dB in 0.1/0.5dB steps
Additional Filters	3 per channel
Additional Filter Types	Hipass, Lopass, Parametric EQ, Notch
Additional Inputs	
GPI	8 inputs open collector or dry contact closure
RS-232	38.4 and 115.2kBaud
RS-485	Networkable up to 32 units at 38.4 or 115.2kBaud
Power Requirements	
Voltage	100-240V ac 47 - 63Hz
Consumption	<0.4 A
Weight	
Net	1.4kg (3.1lbs.)
Shipping	2.3kg (5.1lbs.)
Dimensions	
Width	216mm (8.5 inch)
Depth	205mm (8 inch)
Height	44.5mm (1.75 inch)
Terminations	
Inputs	3 pin Euroblock/ Phoenix Combicon
Outputs	3 pin Euroblock/ Phoenix Combicon
GPI	9 pin Euroblock/ Phoenix Combicon
Power	3 pin CEE
RS-232	DB-9 Female
RS-485	RJ-45
Options	Dual/Full Rackmount kit, a Table top kit

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

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SIGNAL PROCESSING BY DEFINITION

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DN360 Graphic Equaliser

Dual Channel 30 band 1/3 Octave Graphic Equaliser

technical specification

Architect's and Engineer's Specification

The equaliser shall provide 12dB* of attenuation and accentuation at 2x30 1/3 octave ISO centre frequencies from 25Hz-20kHz.
*Selectable to 6dB for increased fader resolution.

Each equaliser shall meet or exceed the following performance specifications:

Distortion:	<0.01% @+4dBu(1kHz)
Frequency response:	±0.5dB(20Hz-20kHz)
Noise:	<-90dBu (20Hz-20kHz unweighted)
Maximum Output level into 600Ω:	+22dBu

Each equaliser shall allow for; subsonic frequency attenuation at 18dB/octave, equalisation section by-pass and shall be fail-safe, that is the unit shall return automatically to the by-pass condition in the event of power supply interruption.
Each equaliser shall use centre detented slide potentiometers arranged to give a graphical display of frequency plotted against level.
A rear panel switch shall be provided to isolate the signal ground connections, quickly and safely, from the chassis ground.
All audio connections shall be via XLR style connectors and a tamperproof front panel cover shall be available to fit the unit.
The unit shall be capable of operating from a 115/230V ± 12% 50/60Hz AC power source.
The equaliser shall be the Klark Teknik Dual Channel Model DN360, and no alternative specification option is available.

Inputs	***Two***
Type	Electronically balanced (pin 3 hot)
Impedance (Ω)	
Balanced	20k
Unbalanced	10k
Outputs	***Two***
Type	Unbalanced (pin 3 hot)
Min. load impedance	600Ω
Source impedance	<60Ω
Max. level	+22dBu
Performance	
Frequency response (20Hz-20kHz) Eq out	±0.5dB
Eq in	±0.5dB
Distortion (@ + 4dBu)	<0.01% @ 1kHz
Equivalent input noise (20Hz-20kHz unweighted)	<-90dBu
Channel separation	>75dB @ 1KHz
Overload indicator	+19dBu
Gain	-∞ to +6dB
Filters	
Type	MELT**
Centre frequencies	2x30
ISO	25Hz-20kHz 1/3 octave
Tolerance	±5%
Maximum boost/cut	±6/12dB
Subsonic filter	18dB/octave - 3dB @ 30Hz
Power Requirements	
Voltage	110/120/220/240V 50/60Hz
Consumption	<15VA
Weight	
Nett	5.8kg
Shipping	7kg
Dimensions	
Width	482mm (19 inch)
Depth	205mm (8 inch)
Height	133mm (5.25 inch)
Terminations	
Inputs	3 pin XLR
Outputs	3 pin XLR
Power	IEC
Options	Security Cover Transformer input* / output balancing

**Input transformer balancing is non retrofittable and has to be specified with order.*
*** "MELT": Proprietary thick-film circuit.*
Trade Descriptions Act: Due to the company policy of continuing improvement, we secure the right to alter these specifications without prior notice.

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DN3600 Programmable Graphic Equaliser

Programmable Graphic Equaliser

technical specification

Architect's and Engineer's Specification

The equaliser shall be a dual channel third-octave type, providing 12dB of boost and attenuation in 1/2dB steps at 30 ISO centre frequencies from 25Hz to 20kHz. The channels shall be adjustable separately, or may be linked for stereo operation.

The equaliser shall meet or exceed the following performance specification:

Distortion:	<0.01% (+4dBu @ 1kHz)
Frequency response:	±0.5dB (20Hz to 20kHz)
Noise:	<-95dB (20Hz to 20kHz)
Maximum output level into 600Ω:	>21dBu

Each channel shall also incorporate 12dB/Octave low and high pass filters sweepable in third octave steps from 1.6kHz to 30kHz and 400Hz to 20Hz respectively, and two one-twelfth octave tuneable notch filters.
The equaliser shall use the largest possible LCD display in a two rack-space unit and shall be able to show virtual fader positions and a combined actual curve composed of fader positions, sweep filters and notches.
Frequency band selection shall be achieved via 30 individual filter buttons and adjustment via a rotary level control.
The unit will be able to store 66 equalisation setups and address 64 slave devices via a Pro MIDI interface.
The unit shall have the capability of interfacing with the Klark Teknik DN6000 Spectrum Analyser for auto-equalising functions.
All audio connections shall be via XLR style connectors. Inputs and outputs shall be electronically balanced as standard, with the option of isolation transformers. The unit shall have a fail-safe relay bypass facility and be capable of operating from a 90V to 250V 50/60Hz AC power source.
The equaliser shall be the Klark-Teknik DN3600, and no alternative specification option is available.

Inputs	***Two***
Type	Electronically balanced (pin 2 hot)
Impedance (Ω)	
Balanced	20k
Unbalanced	10k
Max level	+22dBu
Outputs	***Two***
Type	Electronically balanced (pin 2 hot)
Min. load impedance	600Ω
Source impedance	50Ω
Max. level	+22dB into ≥ 2kΩ
Performance	
Frequency response	
Eq Flat	±0.5dB (20Hz to 20kHz)
Distortion @ +4dBu	<0.01% @ 1kHz
Equivalent input noise (20Hz to 20kHz unweighted)	<-95dBu
Overload indicator	+19dBu
Gain	Mute, -18 to +6dB
Filters	
Type	Revised MELT hybrid
Graphic ISO	
Centre Frequencies	30, 25Hz to 20kHz 1/3 Octave
Tolerance	±5%
Maximum Boost/Cut	12dB
Step size	1/2dB
High pass filter slope	12dB/Octave 20Hz-400Hz
Step size	1/3 Octave
Low pass filter slope	12dB/Octave 30kHz-1.6kHz
Step size	1/3 Octave
Notch filters	Two per channel Varying Q
Maximum Cut	12dB
Step size	1dB
Frequency range	25Hz to 20kHz
Step size	1/12 Octave
Power requirements	
Voltage	90 to 250V @ 50/60Hz AC
Consumption	<53VA
Dimensions	
Width	482mm (19 inch)
Height	88mm (3.5 inch)
Depth	306mm (12.25 inch)
Weight	
Net	7kg
Shipping	8kg
Terminators	
Inputs	3 pin XLR
Outputs	3 pin XLR
Pro-MIDI	3 pin XLR

Options
Transformer balanced outputs
Transformer balanced inputs
DN3601 Slave programmable equaliser
DN3698 Remote control
DN3603 Docking station
WS01 Wireless comms system

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

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DN3601 Programmable Graphic Equaliser

Slave Unit

technical specification

Architect's and Engineer's Specification

The equaliser shall be a dual channel third-octave type, providing 12dB of boost or attenuation in 0.5dB steps at 30 ISO centre frequencies from 25Hz to 20kHz. The channels shall be adjustable separately, or may be linked for stereo operation.
Each channel shall also incorporate 12dB/Octave low and high pass filters sweepable in third octave steps from 1.6kHz to 30kHz and 400Hz to 20Hz respectively, and two one-twelfth octave tuneable notch filters.
The equaliser shall respond only to remote control via a PRO MIDI Interface, there being no front panel controls. The unit will be able to store 66 equalisation set-ups in internal memory.

The equaliser shall meet or exceed the following performance specification:

Distortion:	<0.01% (+4dBu @ 1kHz)
Frequency response:	±0.5dB (20Hz to 20kHz)
Input Noise:	<-95dBu (20Hz to 20kHz)
Maximum output level into 600Ω:	>21dBu

All audio connections shall be via XLR style connectors. Inputs and outputs shall be electronically balanced as standard, with the option of isolation transformers. The unit shall have a fail-safe relay bypass facility and be capable of operating from a 90 to 250V 50/60Hz AC power source.
The equaliser shall be the Klark-Teknik DN3601, and no alternative specification option is available.

Inputs	***Two***
Type	Electronically balanced (pin 2 hot)
Impedance (Ω)	
Balanced	20k
Unbalanced	10k
Max level	+22dBu
Outputs	***Two***
Type	Electronically balanced (pin 2 hot)
Min. load impedance	600Ω
Source impedance	50Ω
Max Level	+22dB into 2kΩ
Performance	
Frequency response	
EQ Flat	±0.5dB (20Hz to 20kHz)
Distortion @ +4dBu	<0.01% @ 1kHz
Equivalent input noise (20Hz to 20kHz unweighted)	<-95dBu
Overload indicator	+19dBu
Gain	Mute, -18 to +6dB
Filters	
Type	Revised MELT hybrid
Graphic ISO	
Centre frequencies	30, 25Hz to 20kHz
Tolerance	±5%
Maximum Boost/Cut	12dB
Step size	0.5dB
High pass filter slope	12dB/Octave
	20Hz-400Hz
Step size	1/3 Octave
Low pass filter slope	12dB/Octave 30kHz- 1.6kHz
Step size	1/3 Octave
Notch filters	Two per channel Varying Q
Maximum Cut	12dB
Step size	1dB
Frequency Range	25Hz to 20kHz
Step size	1/12 Octave
Power requirements	
Voltage	90 to 250V 50/60Hz AC
Consumption	<53VA
Dimensions	
Width	482mm (19 inch)
Height	88mm (3.5 inch)
Depth	306mm (12.25 inch)
Weight	
Net	6kg
Shipping	7kg
Terminators	
Inputs	3 pin XLR
Outputs	3 pin XLR
Pro-MIDI	3 pin XLR
AC power	IEC

Options
Transformer balanced outputs
Transformer balanced inputs
DN3600 Master programmable equaliser
DN3698 Remote control
DN3603 Docking station
WS01 Wireless comms system

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DN3698 Remote Controller

Hand Held Remote Controller

technical specification

Architect's and Engineer's Specification

The unit shall control up to 49 DN3600s by the use of a single portable control surface that will offer instant access to all DN3600 functions. The D3600s will appear as individual mixes. Functions of the unit shall include mix selection, solo mode, curve draw, memory store and recall.
The unit will have a large 480x64 pixel backlit display with maximum space being given to the virtual faders. These can be accessed via dedicated frequency buttons or two thumb wheel encoders.
The unit will have two numeric keypads offering direct access to mixes and memories.
The unit shall offer Pro-MIDI connectors for direct linking to DN3600s. It will also offer a 5-pin XLR connector for connection to docking station.
The unit will contain high capacity rechargeable cells and a fast charger that can be powered either from the supplied external power supply or the docking station. The power supply and docking station shall work with any voltage in the range of 90 - 250 Volts AC, 50/60Hz. The unit shall work for 5 hours on a complete recharge. The unit will have the option of a half-duplex radio module which will allow for true remote operation over a range of 300 metres.
The equaliser shall be the Klark-Teknik DN3698, and no alternative specification option is available.

Battery type	***1.2V 4Ah NICAD***
Battery life	5 hours
Recharge time	2 hours
Connectors	
Pro MIDI In/Out	3 pin XLR
Docking station	5 pin XLR
Power supply	DC socket
Power Supply	
Specs	18V 3.1A out 90-250V AC in
Mains Supply consumption	≤100VA
Dimensions	
Height	52mm (55mm incl. switches)
Width	353mm
Depth	215mm
Weight	
Nett	3kg (including batteries)
Shipping	4kg

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DN3603 Docking Station

Docking Station for DN3698 Hand Held Remote Controller

technical specification

Architect's and Engineer's Specification

The Docking Station should provide rack storage of the Hand Held Remote Controller. It should provide RS-232 to MIDI Conversion so that the Hand Held Remote Controller can be used with a single 5-core cable.
The Docking Station should charge the Hand Held Remote Controller batteries continuously. It should be able to archive the current settings of all connected equalisers and send and receive them as a MIDI system exclusive data dump.
The Docking Station should connect to a chain of up to 49 Klark Teknik Programmable Equaliser units via Pro-MIDI XLR input and output. The Docking Station should support a wireless link for full cable-free operation of the Hand Held Remote Controller
The Docking Station should have an internal voltage sensing switch mode power supply and operate from 90 to 250 volts AC, 50 to 60Hz.
The Docking Station is the Klark Teknik Docking Station and no alternative is available.

Connectors	
Pro-MIDI In	3 pin XLR
Pro-MIDI Out	3 pin XLR
DN3698 connection	5 pin XLR
Power supply	
Output	18V DC, 3.1A
Input	90 to 250V AC 50/60 Hz
Power consumption	≤100VA
Dimensions	
Width	482mm (19 inch)
Depth	303mm (12 inch)
Height	83mm (3.25 inch)
Weight	
Nett	4.8kg
Shipping	7kg

WS01 Wireless Transceiver

Wireless Transceiver for DN3698 Hand Held Remote Controller and Docking Station

technical specification

Architect's and Engineer's Specification

The wireless system must provide radio communication between the Klark Teknik model DN3698 Hand Held Remote Controller and Klark Teknik Docking Station. Communication must be bi-directional and include full error checking of all data.
Connection should be via 5-pin XLRs and the wireless system should require no separate power supply.
When used with the wireless system, the DN3698 should be able to individually address two individual channels, to allow the use of one DN3698 with two Docking Stations, or use of two DN3698 + Docking Station pairs in close proximity.
The wireless system is the Klark Teknik model WS01 Wireless Link and no alternative is specified.

Mechanical	***Sealed box***
Connection	5 pin XLR
Electrical	***Half duplex FM transceiver***
Frequency (±95kHz)	418.000MHz or 433.920MHz
Radiated power (ERP)	-6dBu ± 3dBu
Spurious radiation @ 433.92MHz	Meets ETS 300-220
Spurious radiation @ 418.00MHz	Meets MPT 1340
Receiver sensitivity	-107dBu
Data rate	15,625kHz
Range	
Maximum in building	30 metres
Typical in free field	100 metres
Dimensions	***(per unit)***
Width	130mm (5.125 inch)
Depth	65mm (2.5 inch)
Height	57mm (2.25 inch)
Weight	***(per pair)***
Nett	0.5kg
Shipping	1.5kg

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DN320 Preset Equaliser

Dual Channel 16 Band Preset Equaliser

technical specification

Architect's and Engineer's Specification

The equaliser shall be a dual channel 2/3 octave type, providing 12dB of boost or attenuation at 16 ISO centre frequencies from 20Hz to 20kHz in a standard 1U 19" rack mount chassis.
Control shall be via rotary preset potentiometers inset into the front panel, so that they may be covered by a flush fitting anti tamper strip.
The equaliser shall have switchable 30Hz subsonic filters on each channel, with a roll off of 18dB/octave.

The equaliser shall meet or exceed the following specifications:

Distortion:	0.01% (+4dBu@ 1kHz)
Frequency response:	±0.5dB (20Hz to 20kHz)
Input Noise:	<-88dBu (20Hz to 20kHz)
Maximum output level into 600Ω:	+19dBu

The unit shall be capable of operation from a 115/230 volt, 50/60 Hz AC.
There shall be equalisation bypass switches and the unit shall return automatically to a bypass mode in the event of total power loss.
Inputs and outputs shall be electronically balanced. All audio connections shall be via 3-pin XLR type connectors.
The equaliser shall be the Klark-Teknik DN320, and no alternative specification option is available.

Inputs	***Two***
Type	Electronically balanced (pin 2 hot)
Impedance(Ω)	
Balanced	20k
Unbalanced	10k
Max. input level	+20dBu
Outputs	***Two***
Type	Electronically balanced (pin 2 hot)
Source impedance	50Ω
Min. load impedance	600Ω
Max. level	+20dBu with 2kΩ load
Performance	
Frequency response (20Hz to 20kHz EQ Flat)	±0.5dB
THD+N @ + 4dBu	<0.01% @1kHz
Equivalent input noise (20Hz to 20kHz unweighted)	<-88dBu
Gain	-6dB to +12dB
Filters	
Type	Proprietary "combining"
ISO centre frequencies	16, 20Hz to 20kHz
Frequency tolerance	5%
Maximum Boost/Cut	±12dB
Subsonic filter	18dB/Octave, -3dB at 30Hz
Power Requirements	
AC Voltage	115/230V ±12%, 50/60Hz
Consumption	<15VA
Weight	
Net	3.5kg
Shipping	4kg
Dimensions	
Width	482mm (19 inch)
Height	45mm (1.75 inch)
Depth	210mm (8.25 inch)
Terminations	
Inputs	3 pin XLR
Outputs	3 pin XLR
AC power	IEC

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DN330 Preset Equaliser

Single Channel 30 Band Preset Equaliser

technical specification

Architect's and Engineer's Specification

The equaliser shall be a single channel 1/3 octave type, providing 12dB of boost or attenuation at 30 ISO centre frequencies from 25Hz to 20kHz in a standard 1U 19" rack mount chassis.
Control shall be via rotary preset potentiometers inset into the front panel.
The equaliser shall have adjustable low and high pass 12dB/octave slope filters ranging from 2k5Hz to 30kHz and 15Hz to 300Hz respectively.

The equaliser shall meet or exceed the following specifications:

Distortion:	<0.01% (+4dBu @ 1kHz)
Frequency response:	±0.5dB (20Hz to 20kHz)
Input Noise:	<-86dBu (20Hz to 20kHz)
Maximum output level into 600Ω:	+19dBu

The unit shall be capable of operation from a 115/230 volt, 50/60 Hz AC supply.
There shall be an equalisation bypass switch and the unit shall return automatically to a bypass mode in the event of total power loss.
Input and output shall be electronically balanced. All audio connections shall be via 3-pin XLR type connectors.
The equaliser shall be the Klark-Teknik DN330, and no alternative specification option is available.

Inputs	***One***
Type	Electronically balanced (pin 2 hot)
Impedance (Ω)	
Balanced	20k
Unbalanced	10k
Max input level	+20dBu
Output	***One***
Type	Electronically balanced (pin 2 hot)
Source impedance	50Ω
Min. load impedance	600Ω
Max. level	+20dBu with 2kΩ load
Performance	
Frequency response (20Hz to 20kHz, EQ Flat)	± 0.5dB
THD+N @ +4dBu	<0.01% @ 1kHz
Equivalent input noise (20Hz to 20kHz unweighted)	<-86dBu
Gain	-6dB to +12dB
Filters	
Type	Proprietary "combining"
ISO centre frequencies	30, 25Hz to 20kHz
Frequency tolerance	5%
Maximum Boost/Cut	± 12dB
High pass filter	15Hz to 300Hz, 12dB/octave
Low pass filter	2k5Hz to 30kHz, 12dB/octave
Power requirements	
AC Voltage	115/230V ±12%, 50/60Hz
Consumption	<15VA
Weight	
Net	3.5kg
Shipping	4kg
Dimensions	
Width	482mm (19 inch)
Height	45mm (1.75 inch)
Depth	210mm (8.25 inch)
Terminations	
Inputs	3 pin XLR
Outputs	3 pin XLR
AC power	IEC

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DN405 Parametric Equaliser

Single Channel Five Band Parametric Equaliser

technical specification

Architect's and Engineer's Specification

The equaliser shall provide five bands of fully parametric filters and separate tuneable high & low cut filters.
Each equaliser filter shall provide 25dB of attenuation and 15dB of accentuation at continuously variable frequencies ranging from 20Hz-20kHz and shall allow for bandwidth adjustment from 1/12 to 2 octaves.

Each equaliser shall meet or exceed the following performance specifications:

Distortion:	<0.01% @ 4dBu (1kHz)
Frequency response:	±0.5dBu (20Hz-20kHz)
Noise:	<-94dBu (20Hz-20kHz unweighted)
Maximum output level 600Ω:	+22dBu

The equaliser shall have adjustable low & high cut 12dB/octave slope filters ranging from 15Hz-300Hz & 2.5kHz-30kHz.
Separate in/out switches shall be provided for each parametric filter section, and each complete equaliser channel.
The equaliser shall be fail-safe, that is the unit shall return automatically to the by-pass condition in the event of power supply interruption.
A rear panel switch shall be provided to isolate the signal ground connections, quickly and safely, from the chassis ground.
All audio connections shall be via XLR style connectors and a tamperproof front panel cover shall be available to fit the unit.
The unit shall be capable of operating from a 115/230V ±12% 50/60Hz AC power source.
The equaliser shall be the Klark Teknik Dual Channel Model DN410 and no alternative specification option is available.

Inputs	***One***
Type	Electronically balanced (pin 3 hot)
Impedance (Ω)	
Balanced	20k
Unbalanced	10k
Outputs	***One***
Type	Unbalanced (pin 3 hot)
Min. load impedance	600Ω
Source impedance	<60Ω
Max. level	+22dBu
Performance	
Frequency response (20Hz-20kHz)	±0.5dB
Distortion (@ + 4dBu)	<0.01% @ 1kHz
Equivalent input noise (20Hz-20kHz unweighted)	<-94dBu
Channel separation	>75dB @ 1kHz
Gain	+6dB
Overload indicator	+19dBu
Filters	
Type	Parametric (5)
Bandwidth	Variable from 1/12 ~ 2 octaves
Max. boost/cut	+15/-25dB
Frequency ranges	20Hz-200Hz/ 200Hz-2kHz/2kHz-20kHz
High Pass filter	15Hz-300Hz/12dB octave
Lower Pass filter	2k5Hz-30kHz/12dB octave
Power Requirements	
Voltage	110/120/220/240V 50/60Hz
Consumption	<15VA
Weight	
Nett	4kg
Shipping	5kg
Dimensions	
Width	482mm (19 inch)
Depth	285mm (9.25 inch)
Height	89mm (3.5 inch)
Terminations	
Input	3 pin XLR
Output	3 pin XLR
Power	IEC
Options	Security cover Transformer input* / output balancing

** Input transformer balancing is non retrofittable and has to be specified with order.*

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

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DN410 Parametric Equaliser

Dual Channel Five Band Parametric Equaliser

technical specification

Architect's and Engineer's Specification

The dual channel equaliser shall provide five bands of fully parametric filters and separate tuneable high & low cut filters. Each equaliser filter shall provide 25dB of attenuation and 15dB of accentuation at continuously variable frequencies ranging from 20Hz-20kHz and shall allow for bandwidth adjustment from 1/12 to 2 octaves.

The equaliser shall meet or exceed the following performance specifications:

Distortion:	<0.01% @ 4dBu (1kHz)
Frequency response:	±0.5dB (20Hz-20kHz)
Noise:	<-94dBu (20Hz-20kHz unweighted)
Maximum output level into 600Ω:	+22dBu

The equaliser shall have adjustable low & high cut 12dB/octave slope filters ranging from 15Hz-300Hz & 2.5kHz-30kHz.
Stereo and operation of the unit shall be possible with all 10 filters avaliable in mono mode.
Separate in/out switches shall be provided for each parametric filter section, and each complete equaliser channel.
The equaliser shall be fail-safe, that is the unit shall return automatically to the bypass condition in the event of power supply interruption.
A rear panel switch shall be provided to isolate the signal ground connections, quickly and safely, from the chassis ground.
All audio connections shall be via XLR style connectors and a tamperproof front panel cover shall be available to fit the unit.
The unit shall be capable of operating from a 115/230V ±12% 50/60Hz AC power source.
The equaliser shall be the Klark Teknik Model DN410 and no alternative specification option is available.

Input	***Two***
Type	Electronically balanced (pin 3 hot)
Impedance (Ω)	
Balanced	20k
Unbalanced	10k
Output	***Two***
Type	Unbalanced (pin 3 hot)
Min. load impedance	600Ω
Source impedance	<60Ω
Max. level	+22dBu
Performance	
Frequency response (20Hz-20kHz)	±0.5dB
Distortion (@ +4dBu)	<0.01% @ 1kHz
Equivalent input noise (20Hz-20kHz unweighted)	<-94dBu
Channel separation	>75dB @ 1kHz
Gain	-∞ to +6dB
Overload indicator	+ 19dBu
Filters	
Type	Parametric (2x5)
Bandwidth	Variable from 1/12 ~ 2 octaves
Maximum boost/cut	+15/-25dB
Frequency ranges	20Hz-200Hz/200Hz-2kHz/2kHz-20kHz
High pass filter	15Hz-300Hz/12dB octave
Low pass filter	2k5Hz-30kHz/12dB octave
Power Requirements	
Voltage	110/120/220/240V 50/60Hz
Consumption	<15VA
Weight	
Nett	5kg
Shipping	6kg
Dimensions	
Width	482mm (19 inch)
Depth	235mm (9.25 inch)
Height	44.5mm (1.75 inch)
Terminations	
Input	3 pin XLR
Output	3 pin XLR
Power	IEC
Options	Security cover Transformer input* / output balancing

** Input transformer balancing is non retrofittable and has to be specified with order.*

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

KLARK TEKNIK
SIGNAL PROCESSING BY DEFINITION

Tel: +44 (0) 1562 741515
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DN422M Equaliser & Mic Pre-amp

Dual Channel EQ with Mic Preamp

technical specification

Architect's and Engineer's Specification

The equaliser/mic pre-amp shall provide for two channels of 4-band equalisation comprising of:-
Bass, with selectable shelving/bell response continuously variable from 20Hz to 400Hz. Lo mid, continuously variable from 100Hz to 2KHz. Hi mid, continuously variable from 400Hz to 8KHz. Treble, with selectable shelving/bell response continuously variable from 1KHz to 20KHz.
Each equaliser filter shall provide 15dB of accentuation and attenuation and shall allow for bandwidth adjustment from 0.1 to 2 Octaves.
Each channel shall also include a high pass filter continuously variable from 20Hz to 400Hz, with a slope of 12dB/Octave and a mic input level control with switchable phase inversion, 48Volt phantom power and a 25dB pad. The gain of the of the input control shall be continuously variable from -10dB to +70dB.
Both channels shall also include a mute switch, switchable balanced insert send and returns, a 10 segment LED meter and an output gain continuously variable from -infinity to +10dB.

The equaliser/mic pre-amp shall meet or exceed the following specifications.

Distortion	<0.03% @ 1KHz (mic+ 60dB gain, 0dBu output)
Frequency Response	+0 to -1dB (20Hz to 20KHz)
Noise	-129dBu (Mic EIN ref.150W) <-90dBu (Line EIN ref.600W)
Maximum output	Level 600W +21dBu

Channel inputs and outputs shall be via XLR style connectors, insert send and return connections via tt bantam jacks. The equaliser/mic pre-amp shall be 19'' standard rack mountable and 1U high. The unit shall be capable of operating from a 115/230V 50/60Hz AC power source.
The equaliser/mic pre-amp shall be the Klark Teknik Model DN422M and no alternative specification option is available.

Inputs	***Two***
Type	Electronically balanced (pin 2 hot)
Impedance (Ω)	
Balanced	2K (3K with pad)
Insert	(balanced)20K
Max Level	+6dBu (+31dBu with pad)
Gain	+15dB to +70dB
Pad	-25dB
Outputs	
Type	Electronically balanced (pin 2 hot)
Min.	Load impedance 600Ω
Source impedance	<50Ω
Max Level	+21dBu
Performance	
Frequency response (20Hz to 20KHz)	+0 to -1dB
Distortion @ 1KHz (mic +40dB gain, 0dBu output)	<0.03%
Input noise	
(Mic EIN ref. 150Ω)	-129dBu
(Line EIN ref. 600Ω)	<-90dBu
Metering	10 LED Peak reading
Filters	
Type	Hi pass, Treble, Hi Mid, Lo Mid, Bass. (x2)
Bandwidth	0.1 Octave to 2 Octaves
Max. Boost/cut	+15dB to -15dB
Frequency ranges	20Hz to 400Hz (Bass Bell/Shelving) 100Hz to 2KHz (Lo Mid) 400Hz to 8KHz (Hi Mid) 1KHz to 20KHz(Treble Bell/Shelving)
High Pass filter	20Hz to 400Hz @ 12dB/Octave
Power	
Mic Phantom Voltage	48V +/-5%
Max. Phantom Current	<10mA
Power Requirements	
Voltage	110/120/220/240V 50/60Hz
Consumption	<15VA
Weight	
Nett	3kg
Shipping	4kg
Dimensions	
Width	482mm (19 inch)
Depth	250mm (10 inch)
Height	44mm (1.75 inch)
Terminations	
Input /Outputs	3 pin XLR
Inserts (Send/Return)	TT Bantam
Power	IEC
Options	Transformer mic input*/output balancing

**Input mic transformer is non-retrofittableand has to be specified with order.*

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

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SIGNAL PROCESSING BY DEFINITION

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DN4000 Parametric Equaliser & Delay

Dual Channel Parametric Equaliser/Delay Line

technical specification

Architect's and Engineer's Specification

The equaliser/delay line shall provide for two channels of 5-band parametric equalisation. Each channel shall also include high and low pass filters, high and low frequency shelf equalisation and up to 340 milliseconds of delay. Delay time shall be displayed in units of time and distance, and fields in both NTSC or PAL, and shall be adjustable to a resolution of 21 microseconds.
The frequency response curves shall be displayed on a 480 x 64 dot LCD display panel. Individual filters shall be accessed via dedicated selection switches and adjusted via three rotary encoders.

The equaliser shall meet or exceed the following specifications:

Distortion:	<0.02% (20Hz to 20kHz at +8dBu)
Frequency response:	±0.3dB (20Hz to 20kHz)
Dynamic range:	typically 114dB

Non-volatile user memories shall be provided for setup storage. A multi-level security lock-out system shall be available including user defined passwords.
Output levels for the two channels shall be individually adjustable within software and these settings recalled from memory.
The equaliser shall be provided with a MIDI interface as standard.
All audio connectors shall be via XLR style connectors. Inputs and outputs shall be electronically balanced as standard. Optional transformers shall be available for both input and output isolation.
The unit shall be provided with a fail-safe facility enabling automatic by-pass in the event of power supply interruption.
The unit shall be capable of operating from a 90 to 250V, 50 to 60Hz AC power source.
The equaliser shall be the Klark Teknik model DN4000 and no alternative option is available.

Input	***Two***
Type	Electronically balanced (pin 2 hot)
Impedance (Ω)	
Balanced	20k
Unbalanced	10k
Common mode rejection (1kHz)	>70dB
Max. level	+21dBu
Outputs	***Two***
Type	Electronically balanced (pin 2 hot)
Min. load impedance	600Ω
Source impedance	50Ω
Max. level	+21dBu into >2kΩ
Performance	
Frequency response (20Hz to 20kHz)	±0.3dB with EQ flat
Distortion @ +8dBu	<0.02% (20Hz to 20kHz)
Dynamic range (20Hz to 20kHz unweighted)	114dB
Gain	-25 dB to 0 dB in 0.5 dB steps
Filters	
Type (per channel)	Parametric EQ (5) Frequency: 20Hz - 20kHz in 21 steps/octave Q: 0.08 to 3.0 octaves Level: (12dB in 0.5dB steps
Lo-Pass Filter, Hi-Pass	Frequency: 20Hz - 20kHz in 21 steps/octave Slope FLAT, 6dB/oct, 12 dB/Oct, 18dB/Oct, 24dB/Oct
Lo-Shelf Filter, Hi-Shelf	Frequency: 20Hz - 20kHz in 21 steps/octave Level: (12dB in 0.5dB steps
Delay	340ms (383 feet/117 metres) maximum per channel in 20.8us increments
Power Requirements	
Voltage	90 to 250V @ 50 to 60Hz
Consumption	<35VA
Dimensions	
Width	483mm (19 inch)
Height	88mm (3.5 inch)
Depth	287mm (12 inch)
Weight	
Nett	4kg
Shipping	9.58kg
Options	
AES/EBU	Interface

KLARK TEKNIK
SIGNAL PROCESSING BY DEFINITION

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DN500 Dynamic Processor

Dual Compressor/Limiter Expander

technical specification

Architect's and Engineer's Specification

The compressor/limiter shall provide two complete channels of compression, expansion, peak limiting and peak clipping. The compressor section shall provide for adjustment of Threshold, Ratio, Knee, Attack and Release and have push button selection of auto or manual modes. The expander section shall provide for adjustment of Threshold, Ratio and Release and have push button selection of Auto or Fixed attack times. The limiter section shall provide for adjustment of Threshold and have push button selection of a Peak Clipper. An output gain control and level meter shall be provided. Gain reduction meters shall be provided for both compressor and expander sections.

The compressor/limiter shall meet or exceed the following specifications:

Distortion:	<0.03% @ +4dBu (1kHz)
Frequency response:	±0.5dB (20Hz-20kHz)
Noise:	<-94dBu (20Hz-20kHz unweighted)
Compressor Attack time:	50µs-20ms
Compressor Release time:	60ms-2 secs
Maximum output level into 600Ω:	+21dBu

Push button switches shall be provided to select compressor, expander and channel bypass and to link both channels for stereo operation. Side chain inputs shall be provided for both compressor and expander sections. Channel inputs and outputs shall be via XLR style connectors, external side chain inputs shall be via 1/4" jack. A tamperproof front panel cover shall be available to fit the unit. The compressor/limiter shall be 19" standard rack mountable and 1U high. The unit shall be capable of operating from a 115/230V 50/60Hz AC power source.
The compressor/limiter shall be the Klark Teknik Model DN500 and no alternative specification option is available.

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SIGNAL PROCESSING BY DEFINITION

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Audio Inputs	***Two***
Type	Electronically balanced (pin 3 hot)
Impedance (Ω)	
Balanced	20k
Unbalanced	10k
Side Chain Inputs	***Two (Compressor) + Two (Expander)***
Type	Electronically balanced (tip hot)
Impedance (Ω)	
Balanced	20k
Unbalanced	10k
Audio Outputs	***Two***
Type	Unbalanced (pin 3 hot)
Min. Load impedance	600Ω
Source impedance	<60Ω
Max.level	+21dBu
Performance	
Frequency response (20Hz-20kHZ)	±0.5dB
Distortion (@ +4dBu)	<0.03% @ 1kHz
Equivalent input noise (20Hz-20kHz unweighted)	<-94dBu
Compressor	
Threshold	-30dB to +20dB
Ratio	1:1 to 50:1
Knee	1dB (Hard) to 40dB (soft)
Envelope	Switchable auto (attack and release controls disabled) or manual
Attack (90% capture)	50µs to 20ms
Release (90% recovery)	60ms to 2 secs
Expander	
Threshold	-40dB to +20dB
Ratio	1:1 to 25:1
Attack	Switchable auto or fixed (2ms)
Release (90% recovery)	40ms to 2 secs
Output Gain	-10dB to +30dB
Limited/Clipper	
Threshold	0dB to +20dB
Power Requirements	
Voltage	110/120/220/240V 50/60Hz
Consumption	<30VA
Weight	
Nett	5kg
Shipping	6kg
Dimensions	
Width	482mm (19 inch)
Depth	292mm (11.5 inch)
Height	44.5mm (1.75 inch)
Terminations	
Audio inputs/outputs	3 pin XLR
Side-Chain inputs	Normalled 1/4 inch stereo jack
Power	IEC
Options	Security cover Transformer input* / output balancing

**Input transformer balancing is non retrofittable and has to be specified with order.*

DN504 Dynamic Processor

Quad Compessor/Limiter

technical specification

Architect's and Engineer's Specification

The compressor/limiter shall provide four complete channels of compression. Each channel shall provide for adjustment of Threshold, Ratio, Attack and Release and have push button selection of auto or manual modes and hard or soft knee. An output gain control and level meter shall be provided. Gain reduction meters shall also be provided for each channel.

The compressor/limiter shall meet or exceed the following specifications:

Distortion: <0.03% @ +4dBu (1kHz)
Frequency response: ±0.5dB (20Hz-20kHz)
Noise: <-94dBu (20Hz-20kHz unweighted)
Compressor Attack time: 50µs-20ms
Compressor Release time: 60ms-2 secs
Maximum output level into 600Ω: +21dBu

Push button switches shall be provided to select channel bypass and to link adjacent channels for stereo operation. Side chain inputs shall be provided for each compressor section. Channel inputs and outputs shall be via XLR style connectors, external side chain inputs shall be via 1/4" jack. A tamperproof front panel cover shall be available to fit the unit. The compressor/limiter shall be 19"standard rack mountable and 1U high. The unit shall be capable of operating from a 115/230V 50/60Hz AC power source.
The compressor/limiter shall be the Klark Teknik Model DN504 and no alternative specification option is available.

Audio Inputs	***Four***
Type	Electronically balanced (pin 3 hot)
Impedance (Ω)	
Balanced	20k
Unbalanced	10k
Side Chain Inputs	***Four***
Type	Electronically balanced (tip hot)
Impedance (Ω)	
Balanced	20k
Unbalanced	10k
Audio Outputs	***Four***
Type	Unbalanced (pin 3 hot)
Min. Load impedance	600Ω
Source impedance	<60Ω
Max. Level	+21dBu
Performance	
Frequency response (20Hz-20kHz)	±0.5dB
Distortion (@ + 4dBu)	<0.03% @ 1kHz
Equivalent input noise (20Hz-20kHZ unwieghted)	<-94dBu
Channel separation	>90dB @ 1kHz
Compressor	
Threshold	-30dB to +20dB
Ratio	1:1 to 50:1
Knee	Switchable 1dB (hard) / 40dB (soft)
Envelope	Switchable auto (attack and release controls disabled) or manual
Attack (90% capture)	50µs to 20ms
Release (90% recovery)	60ms to 2 secs
Output gain	-10dB to +30dB
Power Requirements	
Voltage	110/120/220/240V 50/60Hz
Consumption	<30VA
Weight	
Nett	5kg
Shipping	6kg
Dimensions	
Width	482mm (19 inch)
Depth	292mm (11.5 inch)
Height	44.5mm (1.75 inch)
Terminations	
Audio inputs/outputs	3 pin XLR
Side-chain inputs	Normalled 1/4 inch stereo jack
Power	IEC
Options	Security cover Transformer input* / output balancing

KLARK TEKNIK
SIGNAL PROCESSING BY DEFINITION

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**Input transformer balancing is non retrofittable and has to be specified with order.*
Trade Descriptions Act: Due to the company policy of continuing improvement, we secure the right to alter these specifications without prior notice.

DN514 Dynamic Processor

Quad Auto Gate

technical specification

Architect's and Engineer's Specification

The noise gate shall provide two channels of frequency-conscious gating with each channel having adjustable low and high cut 12dB/octave filters, variable from 20Hz-5kHz and 80Hz-20kHz, switchable into side chain or audio signal path. Each channel shall provide for adjustment of Range, Mask Time, Threshold, Delay, Attack, Hold and Release Time and outputs shall be provided to trigger external equipment via MIDI and D.C. control voltages.

The noise gate shall meet or exceed the following specifications:

Distortion:	<0.03% @ +4dBu (1kHz)
Frequency response:	±0.5dB (20Hz-20kHz)
Noise:	<-100dBu gate closed (20Hz-20kHz unweighted) <-94dBu gate open (20Hz-20kHz unweighted)
Attack time:	50µs-2ms
Hold time/Release time:	40ms-2 secs
Maximum output level into 600Ω:	+21dBu

Push button switches shall be provided to select channel bypass, side chain monitor, external key input and "duck" mode. MIDI channel number and key number shall be selectable via rear panel data switches. Channel inputs and outputs shall be via XLR style connectors, external key and DC trigger connections via 1/4" jack. A tamperproof front panel cover shall be available to fit the unit. The noise gate shall be 19" standard rack mountable and 1U high.
The unit shall be capable of operating from a 115/230V 50/60Hz AC power source.
The noise gate shall be the Klark Teknik Model DN514 and no alternative specification option is available.

Audio Inputs	***Four***
Type	Electronically balanced (pin 3 hot)
Impedance(Ω)	
Balanced	20k
Unbalanced	10k
Key Inputs	***Four***
Type	Electronically balanced (tip hot)
Impedance (Ω)	
Balanced	20k
Unbalanced	10k
Audio Outputs	***Four***
Type	Unbalanced (pin 3 hot)
Min. Load impedance	600Ω
Source impedance	<60Ω
Max. level	+21dBu
Performance	
Frequency response (20Hz-20kHz)	±0.5dB
Distortion (@ +4dBu)	<0.03% @ 1kHz
Equivalent input noise (20Hz-20kHz unweighted)	-100dBu Gate closed <-94dBu Gate open
Attack programme related, semi-automatic	50µs to 200µs "Perc" 500µs to 2ms "Norm"
Hold/Release	Variable 40ms to 2sec
Threshold	Variable-40dBu to +20dBu
Attenuation	>84dB Gate closed
Key Filters	
High pass filter	20Hz-5kHz/12dB octave
Low pass filter	80Hz-20kHz/12dB octave
Power Requirements	
Voltage	110/120/220/240V 50/60Hz
Consumption	<30VA
Weight	
Nett	5kg
Shipping	6kg
Dimensions	
Width	482mm (19 inch)
Depth	292mm (11.5 inch)
Height	44.5mm (1.75 inch)
Terminations	
Audio inputs/outputs	3 pin XLR
Key inputs	1/4 inch stereo jack
Power	IEC
Options	Security cover Transformer input* / output balancing

KLARK TEKNIK
SIGNAL PROCESSING BY DEFINITION

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**Input transformer balancing is non retrofittable and has to be specified with order.*

DN6000 Audio Analyser

Audio Analyser

technical specification

Architect's and Engineer's Specification

The analyser shall conform to the Type 1 requirements of IEC 804: 1985 - Standard Specification for Integrating-averaging sound level meters. It shall be a standard 2U, 19" rack mounted unit, capable of frequency domain and time domain analysis of a single mic level or twin line level signals introduced via a front panel XLR microphone input socket equipped with 48 volt phantom power, or via twin rear panel XLR line input sockets respectively. The unit shall feature a large, backlit LCD graphic display area, multiple function switches and an LED numerical display that can be read from a distance. It shall be equipped with switchable A and C weighting filters. The frequency response shall be 12.5Hz to 31.5kHz.

The analyser shall have an integral signal generator, capable of sine wave, swept sine wave and gated, band limited pink noise generation via a rear panel XLR output.

In frequency analysis mode, the unit shall perform 1/3 octave and 1/6 octave real time spectrum analysis. The user shall have control over display range, reference level and response time, and over a cursor to pick out any frequency band or the over all signal level for numerical read out on the LED display.

In time analysis mode, the unit shall be capable of RT60 (reverberation time) analysis at any 1/3 octave or 1 octave band; of up to 180 sequential Leq measurements of durations ranging from 1 second to 1 hour, of Let measurements over durations of 1 minute to 180 hours.

The unit shall be able to freeze the real time analysis and store to any of 48 non volatile memory locations - 32 for frequency analysis and 16 for time analysis.

The analyser shall be equipped with a parallel printer port for creation of hard copies of any measurement both graphically and in tabular form. The analyser shall also be equipped with a data port for direct connection to Klark Teknik model DN3600 Programmable Graphic Equalisers for automatic equalisation purposes.

The unit shall be the Klark Teknik Model DN6000 and no alternative specification option is available.

Frequency Response	5Hz to 40kHz
Microphone Input	Differential 0.25mV/uBar to 1mV/uBar
Sensitivity	140dBspl to 50dBspl
Powering	48V DC phantom power (nominal)
Connector	XLR on front panel
Line Input	Two, Differential - balanced or unbalanced
Sensitivity	40dBu to -50dBmin
Impedance	47kΩ
Connector	XLRs on rear panel
Attenuation accuracy	***(±0.1dB)***
'A'-weighting	Selectable to IEC 651 type 1 requirement
'C'-weighting	Selectable to IEC 651 type1 requirement
Pink Noise output	***Digital pseudo-random*** white noise generator with pink noise filter
Frequency distribution	-3dB/Octave 20Hz to 20kHz ±0.2dB
Level	+4dBu, -10dBu, -30dBu
Impedance	50Ω balanced
Connector	XLR on rear panel
Interfaces	DN3600, parallel printer, Open Architecture Port
Power requirements	
Voltage	100 to 240V, 50 to 60Hz
Consumption	Less than 40VA
Weight	
Nett	5.5kg
Shipping	9.5kg
Dimensions	
Width	482mm (19 inch)
Depth	302mm (11.8 inch)
Height	89mm (3.5 inch)
6051 Microphone	(Optional)
Frequency Response	Flat to 15kHz
Sensitivity	0.5mV per uBar nominal @ 1kHz
Dynamic range	20 to 130dBspl
Capsule	0.25 inch electret condenser
Type	Pressure - omnidirectional
Power required	14V phantom power
Terminations	
Audio inputs/outputs	3 pin XLR
Mic	3 pin XLR
Printer Port	25 way D socket
Data Output	16 way IDC Latching Header (Male)
Power	IEC

KLARK TEKNIK
SIGNAL PROCESSING BY DEFINITION

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DN7453 Digital Delay Line & Multiprocess

User Configurable Digital Audio Delay Line with EQ and Dynamics

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.

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*

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

KLARK TEKNIK
SIGNAL PROCESSING BY DEFINITION

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DN7454 Digital Delay Line & Multiprocess

User Configurable Digital Audio Delay Line & EQ

technical specification

Architect's and Engineer's Specification

The delay line shall provide for two inputs and four 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:	>112 dB (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 250 V a.c., 50/60 Hz, power source.
The delay line shall be the Klark Teknik DN7454 and no alternative option is available.

KLARK TEKNIK
SIGNAL PROCESSING BY DEFINITION

Tel: +44 (0) 1562 741515
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Audio Inputs	***Two***
Type	Electronically Balanced (Pin 2 Hot)
Impedance (Ω)	
Balanced	20 k
Unbalanced	10 k
Maximum Level	+21dBu
Audio Outputs	***Four***
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:	>112dB
(*20Hz to 20kHz unweighted)	
Input Processing (per channel)	
Input Gain	+6dB to - ∞,under front panel control
Master EQ 1-7**	Parametric EQ Mode Boost/cut: (12dB in 1dB steps Q: 0.4 to 20 Hi-Shelf/Lo Shelf Filter Modes Boost/cut: (12dB in 1dB steps Slope: -6dB/Oct, -12dB/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, -12 dB/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*

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

DN800 Active Crossover

4 x 8 Configurable Active Crossover

technical specification

Architect's and Engineer's Specification

The DN800 electronic active crossover shall provide up to 6 crossover points/8 bands in one rack unit.
The crossover shall be configurable as 4-way stereo, 3-way stereo or 2-way 4 channel.
The crossover shall be able to provide any frequency, slope and response by the use of plug-in cards. Each frequency band shall have controls for mute, gain, phase invert and band-edge phase adjust.

The crossover shall meet or exceed the following performance specifications:

Distortion: <0.01% @ 0dBu 20Hz to 20kHz
Equivalent input noise: < -95dBu (any output) (20Hz to 20kHz unweighted)

High quality VCA limiters shall be available on plug-in cards. These shall have threshold controls available on the front panel.
Fixed equalisation shall be available on plug-in cards to suit constant directivity horns etc.
The Unit shall incorporate a fixed 18dB/Oct Subsonic filter at 30Hz.
The crossover shall feature front panel LEDs to indicate signal present, limit and +6dB over-limit. Front panel controls apart from gain and mute shall be recessed and covered after initial setup by security plates. An overall tamper-proof cover shall be available.
All audio connections shall be via XLR style connectors. All inputs and outputs shall be electronically balanced. Input balancing transformers should be available as an option and must be internally fitted.
The unit shall be capable of operating from a 115/230V ±10% 50/60Hz AC power source.
The crossover shall be the Klark Teknik model DN800 and no alternative option is available.

Inputs	***Four***
Type	Electronically balanced (pin 2 hot)
Impedance (Ω)	
Balanced	20k
Unbalanced	10k
Outputs	***Eight***
Type	Electronically balanced (pin 2 hot)
Min. load impedance	600Ω
Source impedance	<60Ω
Max. Level	> +21dB
Performance	
Distortion	<0.01% (20Hz to 20kHz @ + 4dB)
Equivalent input Noise	<-95dBu (any output) (20Hz to 20kHz unweighted)
Nominal gain	0dB
Adjustable gain	± 6dB on front panel control additional +12dB or -6dB on internal preset
Limiter threshold	-12dB to +12dB
Phase relationship	Continuously adjustable 0° to 180° between bands. Polarity switch provides additional 180°
Frequency division filters	Butterworth, Bessel, or Linkwitz-Riley 12, 18 or 24dB/Oct
Subsonic filter	18dB/Oct 30Hz
Power requirements	
Voltage	110/120/220/240V 50/60Hz AC
Consumption	<30VA
Dimensions	
Width	482mm (19 inch)
Height	44mm (1.75 inch)
Depth	285mm (11.2 inch)
Weight	
Nett	4kg
Shipping	5kg
Terminations	
Audio inputs/Outputs	3 pin XLR
Power	IEC
Options	
Overall security cover	
System equalisation	
*Input balance transformers	

KLARK TEKNIK
SIGNAL PROCESSING BY DEFINITION

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*Input balance transformers must be specified with order

DN8000 Loudspeaker Processor

2 x 5 Loudspeaker Processor

technical specification

Architect's and Engineer's Specification

The Loudspeaker Processor shall provide 2 inputs and 5 outputs with configurable routing.
Each input shall include: delay up to 1,000mS with; analogue level control; peak holding headroom meter.
Each output shall include: low pass and high pass crossover filters, with slopes of 6, 12, 18, 24 and 48dB per octave and options of Linkwitz-Riley, Butterworth and Bessel characteristics where appropriate; two parametric EQ sections with up to 12dB of cut or boost; low frequency and high frequency shelf EQ sections; full function compressor with threshold setting in dBu or dB below limit; phase adjust and invert functions; level control; delay of up to 300mS in 21 microsecond increments with temperature compensation; hard, no overshoot peak limiter, with threshold setting in dBu, dB below clip or dB below limit; attenuator; mute switch with solo function; programmable label.
All delay times shall be set in, microseconds, milliseconds, meters or feet with a temperature compensation facility.

The Loudspeaker Processor shall meet or exceed the following specifications:

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):	114dB

All inputs and outputs shall be electronically balanced, with an option of internal transformer isolation. All parameters shall be displayed and adjusted via a graphic LCD display, rotary encoder and push switches. User memories shall be provided for set up storage.
32 User programmable memories shall be provided. Preset memories for various loudspeaker systems should be available on request.
The unit shall provide various levels of memory protection and user lockout with password function.
The Loudspeaker processor shall be provided with an internal RS-485 serial communications port for remote control.
The unit shall be capable of operating from a 90 to 250V, 50 to 60Hz AC power source.
The Loudspeaker Processor shall be the Klark Teknik model DN8000 and no alternative option is available.

Inputs	***Two***
Type	Electronically balanced (pin 2 hot)
Impedance (Ω)	
Balanced	20k
Unbalanced	10k
Common mode rejection	>70dB @ 1kHz
Maximum level	> +21dBu
Outputs	***Five***
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)	114dB
Power requirements	
Voltage	90 to 250V @ 50 to 60Hz AC
Consumption	<53VA
Dimensions	
Width	483mm (19 inch)
Height	44mm (1.75 inch)
Depth	287mm (12 inch)
Weight	
Nett	4kg
Shipping	5kg

Options
*Input isolation transformers
Output isolation transformers
AES/EBU digital audio interface
Security cover

Terminations	
Audio inputs/Outputs	3 pin XLR
RS-485 inputs/Outputs	3 pin XLR
Power	IEC

*Input balance transformers must be specified with order

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

KLARK TEKNIK
SIGNAL PROCESSING BY DEFINITION

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DN9824 Loudspeaker Processor

2 x 4 Loudspeaker processor

technical specification

Architect's and Engineer's Specification

The Loudspeaker Processor shall provide two input channels and four output channels with configurable routing in a standard 1U 19" rack mount chassis.
Each input channel shall include: input gain control; five parametric EQ stages offering a ±12dB range for parametric, lo- and hi-shelf modes and 6dB/Oct and 12dB/Oct slopes for lo- and hi-pass filter modes; delay up to 900 milliseconds.
Each output channel shall include: configurable routing; delay up to 900milliseconds; low and high pass crossover filters with slopes of 6, 12, 18, 24dB per octave and options of Linkwitz-Riley, Butterworth and Bessel characteristics where appropriate; four parametric EQ stages offering a ±12dB range for parametric, lo and hi shelf modes, 6dB/Oct and 12dB/Oct slopes for lo- and hi-pass filter modes and 1st and 2nd order responses for the all-pass filter mode; a phase invert function; an output level control; a compressor; 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	+0/-0.5dB (20 Hz to 20 kHz)
Distortion @ +8 dBu:	<0.01% (20 Hz to 20 kHz)
Dynamic Range:	>112dB (20Hz to 20kHz unweighted)

Options for the audio control 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 Loudspeaker Processor shall be the Klark Teknik DN9824 and no alternative option is available.

KLARK TEKNIK
SIGNAL PROCESSING BY DEFINITION

Tel: +44 (0) 1562 741515
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Inputs	***Two***
Type	Electronically balanced (Pin 2 Hot)
Impedance (Ω)	
Balanced	20k
Unbalanced	10k
Maximum level	+ 21dBu
Outputs	***Four***
Type	Electronically Balanced (Pin 2 Hot)
Source impedance	>100Ω
Maximum level	+21dBu into > 2kΩ
Performance	
Frequency response*	+0/- 0.5dB with all filters and EQ flat
Distortion @ +8 dBu*	<0.01%
Dynamic range*	>112dB
(*20Hz to 20kHz unweighted)	
Input Processing (per channel)	
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 900 milliseconds (308.03 m or 1014' 1" at 20(C) in 21 us steps
Output Processing (per channel)	
Routing	Route from inputs: IN1, IN2, IN1+IN2
Delay	0 to 900 milliseconds (308.03 m or 1014' 1" at 20(C) in 21us steps
Low pass filter**	Supported configurations are:- 12dB/Oct Peaking Butterworth (6dB/Oct, 12dB/Oct, dB/Oct, 24dB/Oct) Linkwitz-Riley (12dB/Oct, 24dB/Oct) Bessel (12dB/Oct, 18dB/Oct, 24dB/Oct)
High pass filter**	Supported configurations are:- 12dB/Oct Peaking Butterworth (6dB/Oct, 12dB/Oct,18dB/Oct, 24dB/Oct) Linkwitz-Riley (12dB/Oct, 24dB/Oct) Bessel (12dB/Oct, 18dB/Oct, 24dB/Oct Peaking Filter Q: 0.5, 0.6, 0.7, 0.8, 1.0, 1.2, 1.5, 2.0.
Channel EQ 1-6**	Parametric EQ Mode Boost/cut: (12dB in 1dB steps Q: 0.4 to 20 Hi-Shelf/Lo Shelf Filter Modes Boost/cut: (12dB in 1dB steps Slope: -6dB/Oct, -12dB/Oct Hi-Pass/Lo-Pass Filter Modes Q: 0.4 to 2.0 (-12dB/Oct only) Slope: -6dB/Oct, -12dB/Oct
Phase correction filters (x2)	All-Pass Mode Q: 0.4 to 2.0 Response: 1st Order, 2nd Order
Phase invert	Normal/invert
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 99ms Release: 50ms to 999ms
Limiter	Threshold: +21dBu to - 9dBu in 1.0dB steps Release: 50ms to 999ms
Mute	On/Off
Power Requirements	
Voltage / Consumption	90 to 250V a.c @ 50/60Hz / 20watts
Dimensions	
Width	483mm (19 inch)
Height	44mm (1.75 inch)
Depth	374 mm (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*

DN9848 Active Crossover

Configurable Active Crossover

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 (+6dB boost, -18dB 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 (0.3dB (20Hz to 20kHz)
Distortion @ +8 dBu: <0.02% (20Hz to 20kHz)
Dynamic Range: >113dB (20Hz to 20kHz unweighted)

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 an 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 60Hz AC power source.
The Loudspeaker Processor shall be the Klark Teknik model DN9848 and no alternative option is available.

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SIGNAL PROCESSING BY DEFINITION

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Inputs	***Four***
Type	Electronically balanced (Pin 2 Hot)
Impedance (Ω)	
Balanced	20k
Unbalanced	10k
Common Mode Rejection	>80dB @ 1kHz
Maximum level	+ 21dBu
Audio Outputs	***Eight***
Type	Electronically Balanced (Pin 2 Hot)
Minimum load impedance	56Ω/20nF
Source impedance	56Ω
Maximum level	+ 21dBu into > 2kΩ
Performance	
Frequency response (20 Hz to 20 kHz)	+/- 0.3dB with all filters and EQ flat
Distortion @ +8 dBu (20 Hz to 20 kHz)	<0.02%
Dynamic range (20 Hz to 20 kHz unweighted)	>113dB
Input Processing (per channel)	
Input gain	+12dB to -40dB in 0.1 dB steps plus Off
Parametric EQ 1-8	Frequency range: 20Hz to 20kHz in 21 steps per octave Boost/cut: +6/-18dB in 0.1dB steps Q: 3.0 to 0.08
Compressor	Threshold: +21dBu to - 10dBu in 0.1dB 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 20.8us steps
Output Processing (per channel)	
Routing	Route from inputs: A, B, C, D, A+B, C+D, A+B+C+D
Delay	0 to 300ms (102.68 m 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*	Supported configurations are:- Butterworth (6dB/Oct, 12dB/Oct, 18dB/Oct, 24 dB/Oct, 36dB/Oct, 48dB/Oct) Linkwitz-Riley (12dB/Oct, 24dB/Oct) Bessel (12dB/Oct, 18dB/Oct, 24 dB/Oct, 36dB/Oct, 48dB/Oct)
High pass filter*	Supported configurations are:- 12dB/Oct Peaking 24dB/Oct Peaking Butterworth (6dB/Oct, 12dB/Oct, 18dB/Oct, 24dB/Oct, 36dB/Oct, 48dB/Oct) Linkwitz-Riley (12 dB/Oct, 24 dB/Oct) Bessel (12dB/Oct, 18dB/Oct, 24dB/Oct, 36dB/Oct, 48 dB/Oct) Peaking Filter Boost: 0dB to +6dB in 0.1dB steps. Parametric EQ 1/Low shelf filter Boost/cut: +12/-12dB in 0.1dB steps Parametric EQ Q: 3.0 to 0.08 Shelf slope: 6dB/Oct and 12dB/Oct
Parametric EQ 2-5*	Boost/cut: +12/-12dB in 0.1dB steps Q: 3.0 to 0.08
Parametric EQ 1 & 6/Hi/Lo shelf filter*	Boost/cut: +12/-12dB in 0.1dB steps Parametric EQ Q: 3.0 to 0.08 Shelf slope: 6 dB/Oct and 12dB/Oct
Phase invert	Normal/invert
Output gain	+12dB to -40dB in 0.5dB steps plus Off
Look-ahead limiter	Threshold: +21dBu to - 10dBu in 0.5dB steps Release: 10ms to 1000ms Knee: Hard/Soft
Mute	On/off
Power Requirements	
Voltage / Consumption	90 to 250V a.c @ 50/60Hz / < 75VA
Dimensions	
Width	483mm (19 inch)
Height	44 mm (1.75 inch)
Depth	287mm (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

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

DN1248 Mic splitter

12 in 48 out Mic Splitter

technical specification

The Mic Splitter shall provide 12 discrete audio channels in a standard 3U 19" rack mount chassis. Each channel shall have a microphone preamplifier, two transformer-isolated outputs, and two electronically balanced outputs with two paralleled connectors. Both transformer - isolated outputs and one electronically balanced output will be mounted on the front panel, the remaining electronically balanced output will be mounted on the back panel. Each channel shall also provide separate +30dB boost and -15 dB pad switches, switchable +48V phantom power, an earth lift function and a soloing facility.
The Mic Splitter shall have a headphone amp to allow the monitoring of soloed audio channels. The headphone amplifier shall have a ¼" jack socket for the headphones, a rotary level control for the headphones output and a seven-segment LED bargraph for monitoring the soloed signal level.

Each Mic Splitter shall meet or exceed the following performance specifications:

Electronically Balanced Outputs

Distortion < 0.01% (1kHz @ +4dBu)
Frequency response +0/-0.5dB (20Hz to 20 kHz)

Transformer Balanced Outputs

Distortion <0.01% (1kHz @ +4dBu)
Frequency response +0/-1.0dB (20Hz to 20kHz)

The audio connections for each of the twelve audio channels shall be via 3-pin XLR style connectors one female connector for the input and four male connectors for the outputs.
The unit shall be capable of operating from a 90 to 250V, 50 to 60Hz AC power source. The unit should have the option of dual redundant power supplies.
The Mic Splitter shall be the Klark Teknik model DN1248 and no alternative option is available.

Inputs	***Twelve***
Input impedance(Ω)	> 2k
CMRR	> -100dB @ 100Hz to 10kHz
Equivalent input noise	< - 100dBu @ unity gain
Signal present level	> - 25dBu
Signal clip level	> + 21dBu
Outputs	***Four (per channel)***
Electronically balanced	
Source impedance(Ω)	50
Min Load	600Ω
Max level	+ 21dBu @ 1kHz
Transformer balance	
Source impedance(Ω)	70
Min Load	600Ω (-3dB level loss into 200Ω)
Max level	+ 18dBu @ 1kHz
Performance	
Electronically balanced	
Frequency response	+ 0 / - 0.5dB 20Hz to 20kHz
Distortion	< 0.01 % @ 1kHz +4dB
	Transformer balanced & isolated
Frequency response	+ 0 / - 1.0dB 20Hz to 20kHz
Distortion	< 0.01 % @ 1kHz +4dB
Power Requirements	90 to 250V a.c @ 50/60Hz @ < 75VA 3 pin IEC connector.
Dimensions	
Width	483 mm (19 inches)
Height	132 mm (5.2 inches)
Depth	300 mm (12 inches)
Weight	
Nett	7.4 kg
Shipping	8.4 kg
Terminations	
Audio Inputs / Outputs	3 pin XLR
Power	3 pin IEC

Options
*Dual power supply
*All outputs transformer balanced

*All options are non retrofittable and must be specified with order.

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

KLARK TEKNIK
SIGNAL PROCESSING BY DEFINITION

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DN1414 Multiple DI Box

14 in 14 DI Module

technical specification

Architect's and Engineer's Specification

The Multiple DI Module shall provide 14 discrete audio channels in a standard 3U 19" rack mount chassis, each channel providing galvanic isolation and impedance matching for a variety of input signals.
Each channel shall also provide separate -30 dB pad and -15 dB attenuation switches, and an earth lift function.

Each Multiple DI Module shall meet or exceed the following performance specifications:

Distortion < 0.01% (1kHz +4dB)
Frequency response +0 / -1.0dB (20Hz to 20kHz)

The DI Module shall have ten single audio channels and two dual audio channels. All channels shall have a 1/4" TRS jack input which is capable of accepting balanced or unbalanced inputs. The ten single audio channels shall have a female 3-pin XLR connector in parallel with the jack socket. In use the XLR input shall present a 20k ohm input impedance and the 1/4" jack socket a nominal 1M ohm input impedance.
The ten single channels shall also have an unbalanced link output on a 1/4" TS jack socket.
All outputs shall be transformer isolated and shall use 3-pin male XLR connectors.
The unit shall be capable of operating from a 90 to 250V, 50 to 60Hz AC power source.The unit should have the option of dual redundant power supplies.
The DI Module shall be the Klark Teknik model DN1414 and no alternative option is available.

Audio Inputs	***Two (per channel)***
Electronically balanced	
Input impedance	1MΩ nominal (Unbalanced), 20kΩ (Balanced)
Max level	+ 21dBu with no input attenutaion
Attenuation	- 15dB
Pad	- 30dB
Audio Outputs	Transformer isolated
Source impedance	50Ω
Min Load	600Ω (-3dB level loss into 200Ω)
Max level	> + 21dBu @ 1kHz with load > 1kΩ
Link Output (Channels 1-10)	
Source impedance	50Ω
Min Load	600Ohm (-3dB level loss into 200Ohm)
Max level	> + 21dBu @ 1kHz with load > 1kΩ
Performance	
Noise	-100dBu between 20Hz and 20kHz unweighted
Frequency response	+/- 0.5dB, 20Hz to 20kHz
Distortion	<0.01% @ 1kHz, +4dBu output
Power Requirements	
90 to 250V a.c @ 50/60Hz @ < 75 VAs	
Dimensions	
Width	483 mm (19 inches)
Height	132 mm (5.2 inches)
Depth	300 mm (12 inches)
Weight	
Nett	8kg
Shipping	9kg
Terminations	
Audio Inputs	3 pin XLR & 1/4" TRS jacks
Audio Outputs	3 pin XLR
Power	3 pin IEC
Options	
*Dual power supply	

*All options are non retrofittable and must be specified with order.

KLARK TEKNIK
SIGNAL PROCESSING BY DEFINITION

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LBB100 Active DI Box

Active DI Box

technical specification

Architect's and Engineer's Specification

The unit shall provide transformer isolation, impedance matching and attenuation for a variety of signals - from power amplifier outputs to high impedance transducers - into a low impedance balanced input. The unit shall be able to accept a maximum input level of at least 42dBu (100V RMS) provide attenuation switchable from 0 to 45dB in 15dB steps and output the signal into a balanced 600Ω load.
Input connectors shall include two quarter inch jack sockets and one 3-pin XLR socket, all linked. Input impedance shall be 1MΩ.
The output shall be active and balanced, with a source impedance of 150Ω, capable of driving a 10dBu signal into a 1kΩ load. The output connector shall be a 3-pin XLR socket.
An earth link switch shall be provided to connect input and output grounds when required.
All controls and connections shall be recessed for physical protection.
The unit shall obtain power from a 48V phantom supply.
The unit shall achieve or exceed the following specifications:

- Output noise -100dBu. 20Hz to 20kHz unweighted, with input terminated by 10kΩ resistor.
- Distortion 0.01% at 1kHz, 4dBu output
- Frequency response ±dB 20Hz to 20kHz
- Power consumption <10mA

The Unit shall be the Klark Teknik model LBB100 and no alternative option is available.

Input	
Type	Transformer isolated, balanced or unbalanced
Impedance	1MΩ nominal, balanced or unbalanced
Connectors linked in parallel	2 quarter inch jacks and 3-pin XLR
Max. level	42dBu (100V RMS)
Attenuator	30dB, switchable
Output	
Type	Active balanced
Impedance	150Ω
Connector	3-pin XLR
Max. level	10dBu with load>1kΩ
Min. Load	600Ω
Performance	
Noise	-100dBu, 20Hz to 20kHz unweighted, with input terminated by 10k resistor
Frequency response	±1dB 20Hz - 20kHz
Distortion	<0.01% @ 1kHz, 4dBu output
Power Requirement	
Voltage	48V Phantom ± 10%
Current consumption	10mA
Weight	600g
Dimensions	
Length	135mm (5.3 inch)
Width	76mm (2.99 inch)
Height	51mm (2.00 inch)
Options	Midas Heritage 3000 live performance mixing console

KLARK TEKNIK
SIGNAL PROCESSING BY DEFINITION

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KLARK TEKNIK GROUP

KLARK TEKNIK
SIGNAL PROCESSING BY DEFINITION

DDA
BETTER BY DESIGN

MIDAS
DESIGNED FOR A PURE PERFORMANCE

For many years Klark Teknik has been in the forefront of signal processing with its well known graphic EQs, parametric delay lines, analysers anddynamic processors. In 1999 Klark Teknik celebrated a quarter-century of excellence in professional signal processing. They greet the new millennium with a commitment to achieve two goals - to maintain the definitive standards of engineering and audio performance for which they are famous, and to development ground-breaking new products for the audio professional.

DDA has established a reputation for designing and manufacturing live performance and recording production consoles of outstanding quality. DDA consoles are used in some of the most prestigious studios and concert venues around the world.

Midas consoles have been renowned in sound reinforcement for over two decades for embodying the highest standards of sonic performance, reliability and sound ergonomics. Since the launch of the XL3 several years ago and the introduction of the XL200, XL250 and XL4, Midas has become the number one choice of leading sound engineers around the world. More recently Midas has expanded both its range and market share with the XL4 Broadcast and the new Heritage series of multipurpose consoles.

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