



The Klark Teknik DN100 Direct Injection Box is designed to provide an extended dynamic range, lower noise floor and all the world-class audio performance you'd expect from Klark Teknik. The DN100 is built to handle the rigours of life on the road: a thick aluminium shell protects the electronics, and this in turn is protected by a tough silicone rubber casing.

The DN100 was designed for professional applications where +48V phantom power is a standard feature on all mixing consoles. Other DI boxes often offer both phantom power and 9V battery operation (usually to appeal to MI customers), however the design compromises required to support both power sources means that the audio performance is affected, most notably the amount of signal headroom available. The clip point of the DN100 is significantly higher than other professional active DI boxes and can provide +10dBu into a 2k Ω load. This higher clipping point means that much hotter input signals can be accommodated without the need for switching in an attenuating pad, so the DN100 only needs a single -30dB pad for use when connecting directly to instrument amplifier outputs.



DN100 Direct Injection Box

 **KLARKTEKNIK**
SIGNAL PROCESSING BY DEFINITION

Design and Development

Exhaustive listening tests using a wide variety of active and passive bass guitars, electro-acoustic guitars and electronic musical instruments were carried out to select the components for the DN100 to achieve the best musical sound. Not only was the choice of audio transformer particularly important in achieving this goal, but the impedances of the surrounding components were also highly critical in getting the best possible performance out of the audio transformer. The line-driving characteristics of the transformer output were carefully optimised to provide the best frequency and phase responses for short and long cables and widely differing line and termination impedances.

A custom instrumentation-grade input circuit was designed for the DN100 using advanced analogue design techniques to create the very high input impedance required by passive guitar and bass pickups, whilst keeping actual component values low to minimise the noise the circuit creates itself (known as Johnson noise, which increases as a function of resistance). This innovative approach to circuit design produces an ultra-low noise floor, which combined with the high clipping point creates an unrivalled dynamic range in a +48V phantom powered DI Box.

Care was taken in the design of the DN100 to avoid audio transformer core saturation and a fixed high pass filter has been included in the signal path to roll off frequencies below those that are musically important. The lowest note on a 5- or 6-string bass guitar is B0 with a frequency of 30.87 Hz and the lowest note on an 88-key piano keyboard is A0 with a frequency of 27.50 Hz. DN100 still maintains a frequency response of ± 0.5 dB at these lowest musical notes.

The two-part outer case of the DN100 was designed to maintain the value of the unit. Rather than go for a painted finish which will inevitably get chipped as a consequence of the physical abuse that DI boxes receive on stage, an easily replaceable silicone rubber sleeve has been used which fits over a sturdy aluminium extrusion. This rubber sleeve also insulates the DN100 to further enhance its electrical isolation. Fit a new sleeve and your DN100 will look as good as when you first bought it! The aluminium end panels feature Klark Teknik's proprietary anodised printing techniques, which means that the labelling will not wear off. But when you do finally need to replace your DN100, we designed it with the Environment in mind, and all that aluminium is highly recyclable.

Overview

The DN100 is an active DI box providing transformer isolation impedance matching and attenuation into a low impedance active balanced input.

The output is transformer balanced and isolated capable of driving +10dBu into a 2k Ω load.

- Phantom (+48V) powered
- Accepts a maximum input level of +40dBu
- Switchable -30dB input pad
- Earth lift switch isolates input and output grounds
- Extended dynamic range and lower noise floor
- Rugged thick aluminium shell and tough silicone rubber casing
- Security slot for Kensington MicroSaver security cable
- Pad (-30dB), Earth lift and +48V Phantom LED indicators
- Extended low frequency response

DN100 Architect's & Engineer's Specification

The Direct Injection Box shall provide the functions of transformer isolation, impedance matching and attenuation into a low impedance active balanced input. The box shall be able to accept a maximum input level of at least 30dBu provide switchable attenuation from 0 to 20dB and output the signal into a balanced 600 Ω load.

Input connectors shall include two quarter inch jack sockets and one 3-pin XLR socket, all linked. Input impedance shall be 1M Ω (jacks sockets), 20k Ω (XLR only).

The output shall be transformer balanced and isolated, with a source impedance of 150 Ω , capable of driving a 10dBu signal into a 2k Ω load.

The output connector shall be a 3-pin XLR socket.

An earth lift switch shall be provided to disconnect input and output grounds when required.

The unit shall obtain power from a +48V phantom supply.

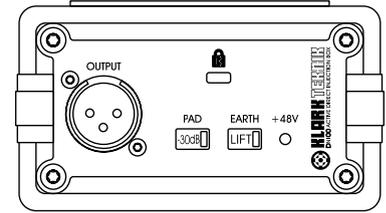
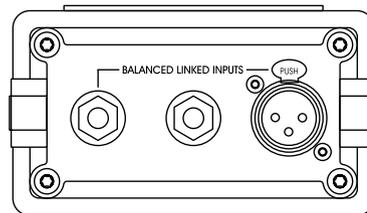
The unit shall achieve or exceed the following specifications:

Output Noise -100dBu, 20Hz to 20kHz unweighted, with input terminated by 10k Ω resistor.
Distortion (THD+N) < 0.01% @ 1 kHz, +4dBu.
Frequency Response +0.5/-1dB 20Hz to 20kHz.
Power Consumption <10mA

The Direct Injection Box shall be the Klark Teknik model DN100 and no alternative option is available.

Technical Specification

Inputs	Four	Performance	
Type	active electronic, balanced or unbalanced	Noise	-100dBu, 20Hz to 20kHz unweighted, with input terminated by 10k Ω resistor
Impedance	1M Ω nominal, balanced or unbalanced (jack connectors) 20K Ω (XLR input only)	Frequency response	+0.5/-1dB 20Hz to 20kHz
Connectors	2 quarter inch jacks and 3-pin XLR linked in parallel	Distortion (THD+N)	<0.01% @ 1kHz, +4dBu output
Max. Level Attenuator	+40dBu 20dB, switchable	Power Requirement	
Output		Voltage	+48V Phantom *
Type	Transformer Isolated, balanced	Current consumption	<10mA
Impedance	300 Ω	Weight	<1kg
Connector	3 pin XLR	Dimensions	
Max. Level	10dBu with load >2k Ω	Length	142mm (5.6 inch)
Min. load	600 Ω	Width	106mm (4.2 inch)
		Height	60mm (2.35 inch)



* The DN100 has been designed to allow use at phantom voltages less than +48V. The unit will function down to +20V (when used with 6.8k Ω dropping resistors) but with reduced headroom and dynamic range. All the specifications above are quoted using standard +48V Phantom power.

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