

COUNTRYMAN ASSOCIATES INC

TYPE 10 DIRECT BOX

The Type 10 DI box is the ideal counterpart to our classic Type 85, combining the exceptional ruggedness and versatility of the Type 85 with an advanced design that sets a new standard for pure performance.

Most direct box designs must make difficult trade-offs with your sound: ultra-low distortion can only be attained by increasing input noise; true ground isolation means high phase deviation or signal attenuation. The Type 10 takes a radically new approach, with an analog circuit that tunes itself to deliver your sound with the lowest distortion, lowest noise, and highest accuracy of any direct box. The result is a clean, precise sound that is completely faithful to the original.

Outstanding Performance

The Type 10 achieves the highest SNR, lowest phase deviation, and lowest distortion of any DI. Some boxes achieve low distortion over a narrow range of frequencies and levels, but end up coloring the low frequencies and distorting loud signals. The Type 10 maintains exceptionally low THD and IMD across the entire audio band, and for a wide range of input voltages, rendering your sound with extremely high fidelity.

Indestructible

Like the Type 85, the Type 10 is armored inside and out, with a molded core wrapped in an extra thick architectural aluminium housing. The switches and connectors are fully recessed. The electronics are just as tough—both the Type 10 and the Type 85 shrug off static spikes and will survive with the input connected directly to 110 V or 220 V line voltage.

Versatile

We understand that conditions on the road are not always ideal—noisy electrical systems, mix boards positioned across a stadium with low input impedance and low or no phantom power for your box. The Type 10 has rock solid isolation and is designed to drive any board across hundreds of feet of cable whether or not you have phantom power. That means that whatever environment you're in, your sound will be consistently great.

Pure and Simple

The legendary Type 85 achieves greatness partly through its simplicity: no unnecessary roll-off switches or EQ options. With the new Type 10, we kept it simple while adding some new features that we think can really help you on the road. Handle sizzling hot outputs from active keyboards using the -15 dB pad with virtually immeasurable distortion. Use the edge of a coin to access the battery. Check the battery voltage and monitor the quality of the phantom power with the flip of a switch.

Frequency Response:

10 Hz – 50 kHz (+/- 1 dB)

Deviation from Linear Phase:

+2° (30 Hz), 0° (100 Hz – 20 kHz)

Noise (shorted input, BW = 22 Hz – 20 kHz):

1.8 μ Vrms (-115 dBVrms)

Distortion (1 Vpp in, $R_L = 1.2 \text{ k}\Omega$ through 200' of XLR cable):

THD: < 0.001% at 1 kHz

< 0.005% from 30 Hz to 20 kHz

IMD: < 0.005% (10 kHz/60 Hz, 4:1)

Power Options: 48 V Phantom (1.5 mA), 9 V

Battery (4.8 mA, 130 hrs. on a typical alkaline)

Input Protection: 220 Vrms and 20,000 V static discharges

Transformer Isolation Voltage: > 500 V from instrument ground to XLR output pin 1

Padding Settings: 0 dB, -15 dB, -30 dB

RF Filtering: 1.5 MHz (input), 60 kHz (output) low-pass filters

Maximum Input Level (1% THD):

6 Vpp (0 dB pad)

33 Vpp (-15 dB pad)

190 Vpp (-30 dB pad)

(Equal to 1,100 Watts into 4 Ohms)

Input Resistance:

10 M Ω (0 dB pad), 10 k Ω (-15, -30 dB pad)

Input Capacitance:

240 pF (equal to 3 ft of low-capacitance guitar cable)

Output Polarity: Pin 2 positive

Dimensions:

1.75 x 3 x 6 in (45 x 77 x 152 mm)

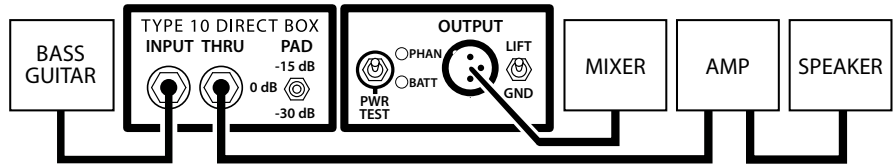
Weight: 20.8 oz (.59 kg)

Type 10: Features and Operation

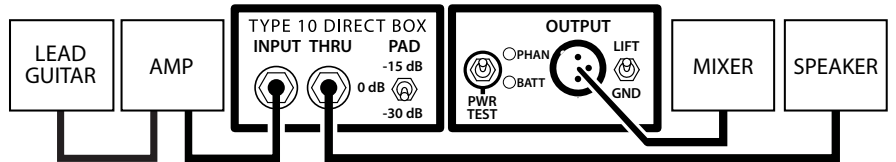
How do I use the Type 10?

Let's start by saying don't ever worry about damaging the Type 10 circuit—we designed it with the same road-tested input protection circuitry as the classic Type 85. At the same time, there are some situations where padding can improve your performance. On the Type 10, we added a -15 dB padding level to allow signals from active instruments with hot outputs, such as keyboards, to pass through the DI with minimal distortion. When connecting the Type 10 to the speaker output of an amplifier, use the -30 dB setting to handle up to 190 Vpp with less than 1% THD—the equivalent of 1100 Watts into 4 Ohms.

Typical Bass Guitar (0 dB Pad)



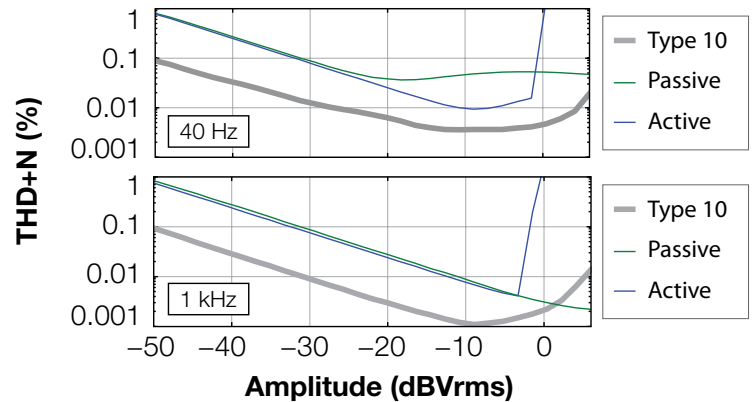
Typical Lead Guitar (-30 dB Pad)



Countryman Type 10 vs. Competitors

Total Harmonic Distortion + Noise vs. Amplitude

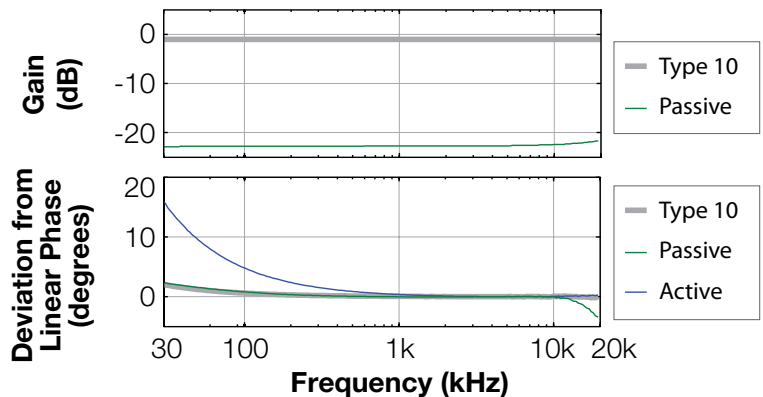
These THD+N plots show the percentage of distortion and noise a direct box adds to your sound as you increase the level, for both 40 Hz and 1 kHz inputs. Competitive active and passive DIs introduce nearly 10 times more THD+N than the Type 10—the popular active DI shown here actually clips and distorts badly at even moderately high levels. For most instruments, the critical region of this curve is from -20 dBVrms to 3 dBVrms, where the THD+N for the Type 10 is less than 0.005% for the entire audio band.



Gain and Phase vs. Frequency



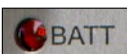
A flat frequency response should mean no change in tone or level. Passive boxes perform differently with different instruments, coloring your sound, and also attenuate your signal by 20 dB or more, dropping your SNR.

Phase response is critical as well. Imagine playing a chord and having the high note delayed relative to the low notes: this is what happens when a DI deviates from linear phase. Passive DIs tend to deviate from linear phase in the high frequencies; active DIs tend to deviate in the low frequencies. The design of the Type 10 allows it to maintain very linear phase across the entire audio range, ensuring what you play is what you hear.



How do I use the power test feature?

Your Type 10 DI continuously monitors phantom and battery power levels, and transitions between them when necessary to achieve peak performance. Check the battery level and current mode of operation with the PWR TEST switch:

-  **PHAN Green:**
The box is operating with phantom power.
-  **BATT Green:**
The box is operating with battery power.
-  **BATT Red:**
Low battery—replace or remove battery.