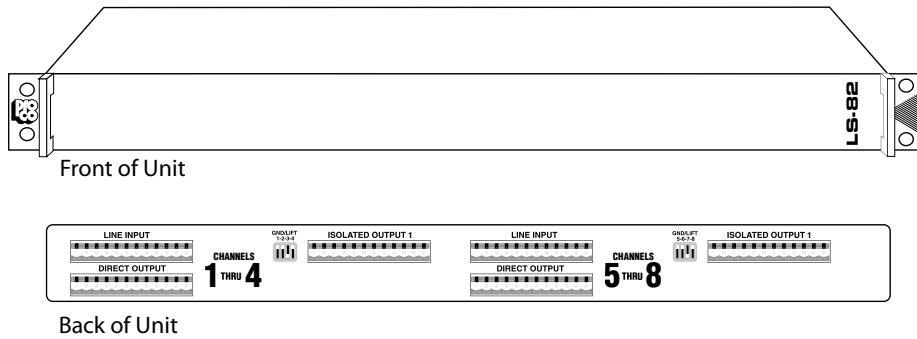




# MultiLink™ Series LS-82

## 8-Channel Line Splitter Technical Information



### LS-82 Features

- Provides 2-Way Split for Line Level Outputs
- 8 Channels in a Single Rack Space
- Isolates Unbalanced Line-Level Outputs
- Ideal for Portable and Permanent Sound Systems
- Allows Assembly of Economical Expandable Splitting System
- Connects with Phoenix COMBICON™ Plug-in Screw Connectors
- True Floating Transformer Isolation
- Rugged "Uni-Box™" Construction for Super Strength and Shielding

### Description

The Pro Co Multilink LS-82 Eight-Channel Line Splitter splits the signals from each of eight line-level sources into two outputs, as well as provides eight high-quality 1:1 line-level output transformers for applications requiring the high degree of electrical isolation only transformers can provide.

The primary applications for the LS-82 are in sound reinforcement systems where it may be necessary to break ground loops between pieces of equipment connected with unbalanced lines, as well as feeding two inputs with one source. For instance, the LS-82 can be used to float the unbalanced outputs of an active crossover unit that must drive long cables connected to power amplifier inputs while still offering the direct output for nearfield monitors.

In such complex systems grounding problems can cause both unacceptable noise levels and severe shock hazards. Transformer isolation in such situations minimizes interference from SCR lighting dimmers, radio transmitters and 60 Hz AC power wiring. Furthermore, the common-mode voltage range of a transformer makes it far more forgiving of improper connections or fault conditions than any "active," "electronic" or "differential" transformerless circuit. This makes transformer-floated outputs essential for "goof-proofing" portable sound reinforcement systems and installations.

The LS-82 is fitted with Phoenix COMBICON plug-in screw connectors for LINE IN, DIRECT OUT, and ISO OUT so hookup requires only bare conductors and a screwdriver.

The use of the Pro Co LOT-1 transformer allows the LS-82 to provide floating, low-impedance outputs with wide, flat frequency response, ultra-low distortion, and no ringing or overshoot to degrade transient response. The LOT-1's dual primary windings allow it to be reconfigured for 1:2 operation if required, providing 6 dB of voltage step-up.

The GND/LIFT switch provides isolation and buzz-free operation in virtually any environment.

The LS-82's rugged 16-gauge steel and aluminum "Uni-box™" construction enclosure is finished in a durable black texture powder coat finish with black anodized aluminum side channels. Easy-to-read control graphics are incorporated into the Lexan® front and back panel overlays. Inside, the specially designed transformers combine superb audio quality with unsurpassed noise rejection. The LS-82 can be mounted in any standard 19" (482.6mm) rack. Top-quality connectors and switches provide trouble-free service even in abusive situations such as remote broadcast and recording operations. The rack-mounting design allows the user to assemble a conveniently packaged expandable splitting system that combines top-quality audio performance and isolation with an

### Controls

#### LINE INPUT

Phoenix COMBICON plug-in screw connector accepts signals from low-impedance (0 ohm nominal) line-level source. Input impedance (with 600 ohm load on ISO OUT): approx. 680 ohm.

#### DIRECT OUTPUT

Phoenix COMBICON plug-in screw connector wired in parallel with LINE IN provides signal to feed an additional input.

#### ISO OUT

Phoenix COMBICON plug-in screw connector provides floating transformer-isolated low-impedance output to feed line-level input. Recommended load impedance: 600 ohm

#### GND/LIFT

GND position connects pin 1 of LINE IN to pin 1 of ISO OUT. LIFT position "floats" ISO OUT. Used to reduce hum and buzz by eliminating ground loops and providing proper grounding for various conditions.

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### Typical Performance

All measurements made with 0 ohm source feeding LINE IN and 600 ohm load on ISO OUT to simulate typical "real world" source and load. LOT-1 transformers configured for 1:1 operation. 0 dBv ref. = .775 volt.

#### FREQUENCY RESPONSE:

20 Hz-20 kHz, +/- .5 dB @ 0 dBv output.  
-3 dB @ approximately 85 kHz.

#### TOTAL HARMONIC DISTORTION:

Less than .25% 20 Hz-20 kHz @ 0 dBv output.  
Less than .5% 30 Hz-20 kHz @ +18 dBv output.  
Less than 1% 20 Hz-20 kHz @ +18 dBv output.

#### PHASE RESPONSE:

Less than -3 degrees @ 20 kHz (ref. 1.0 kHz).

#### RISE TIME:

Less than 4.5 microseconds (2.0 kHz square wave, 10%-90%).  
Phase response and rise time measurements are essentially those of the driving amplifier used rather than those of the LOT-1 transformer.

#### INPUT IMPEDANCE:

Greater than 680 ohm @ 1.0 kHz.  
Greater than 680 ohm @ 10 kHz.  
Nominal source impedance is 0 ohm.

#### OUTPUT IMPEDANCE:

Less than 120 ohm @ 1.0 kHz.  
Less than 120 ohm @ 10 kHz.  
Nominal output impedance is 600 ohm.

#### VOLTAGE LOSS:

Less than 2.0 dB @ 1.0 kHz.

#### MAXIMUM INPUT LEVEL FOR 1% THD:

+20 dBv @ 20 Hz.  
+24 dBv @ 30 Hz.  
+30 dBv @ 50 Hz.

### Engineering Specifications

The output transformer isolation unit shall be suitable for interfacing each of eight (8) unbalanced or electronically balanced low-impedance (0 ohm nominal) line-level signal sources to two (2) unbalanced, balanced, differential or floating low- or bridging-impedance (600 ohm nominal) line level input. There shall be eight (8) channels with features as follows:

There shall be a Phoenix COMBICON™ plug-in screw connector for input from the source. There shall be a parallel or direct output from a Phoenix COMBICON plug-in screw connector. There shall be one (1) transformer-isolated low-impedance output from a Phoenix COMBICON plug-in screw connector. The transformer shall be a Pro Co LOT-1 Line Output Transformer. There shall be a ground-lift switch for the isolated output to allow the input and output grounds to be connected or isolated as required.

The enclosure shall be constructed in the Pro Co "Uni-box™" design with 16-gauge steel black zinc finish top and bottom plates, 1/8" black anodized aluminum front plates, back plates and side channels. Control functions shall be identified by a printed Lexan® front and back panel overlay. Switches shall be of the miniature "rocker" type and shall be recessed. The enclosure shall be provided with 2 miniature handles mounted on the front plate. The enclosure shall be suitable for standard 19" EIA rack mounting. The dimensions of the unit shall be approximately 4-3/4" D by 19" W by 1-3/4" H. (120.7mm D by 482.6mm W by 44.5mm H).

The line splitting unit shall be a Pro Co Multilink LS-82 Line Splitter.

### The Pro Co LOT-1 Transformer

The LOT-1 is a carefully designed, custom-built line output transformer which is very useful in a variety of applications requiring truly floating transformer isolation of unbalanced or electronically balanced line-level outputs.

The LOT-1 consists of four windings, with the primaries connected in series for 1:1 operation or in parallel to provide 1:2 (step-up) operation into 600 ohm loads. Its 48% nickel core lamination optimizes it for use with zero-ohm sources such as op-amp-based outputs. The LOT-1 provides a broad-band, low-distortion floating output with excellent transient response and minimal insertion loss.

