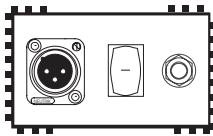
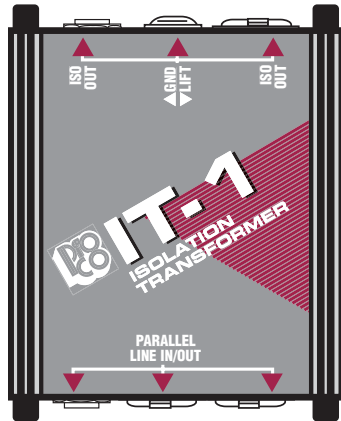


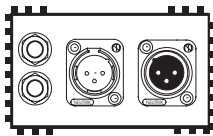


MonoLink™ Series IT-1

Isolation Transformer Technical Information



Back of Unit



Front of Unit

IT-1 Features

- True Floating Transformer Isolation for Unbalanced Line-Level Outputs
- Input, Output and Loop-Thru XLR and 1/4" (6.3mm) Phone Jack Connectors
- Can Be Used As Line-Level Direct Box
- Ideal for Portable and Permanent Sound Systems
- Rugged "Uni-box™" Construction Shields and Protects

Description

The Pro Co Monoface IT-1 Isolation Transformer Unit provides an easy-to-use, high-quality solution for interface problems that demand the high degree of electrical isolation that only a transformer can provide. Transformer isolation minimizes interference from SCR lighting dimmers, radio transmitters and 60 Hz AC power wiring with a common-mode voltage range that 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.

Sound system technicians can use the IT-1 to break ground loops between pieces of equipment connected with unbalanced lines (for instance, to float the unbalanced output of a mixer that must drive long cables connected to power amplifier inputs). For musicians, the IT-1 is a line-level direct box for connecting line-level sound modules, samplers and the like to "live" or recording mixers, providing a floating output without the voltage step-down of a high-to-low impedance conversion. For broadcast and ENG, the IT-1 is a handy unit for deriving a remote feed from a press conference or meeting room public address system.

Male and female XLR-type connectors in parallel with two 3-conductor 1/4" (6.3mm) phone jacks for LINE IN/OUT provide nearly universal loop-through capability. Parallel jack and male XLR connectors deliver the ISO OUT to balanced or unbalanced loads. The use of the Pro Co LOT-1 transformer allows the IT-1 to provide a floating, low-impedance output with wide, flat frequency response, ultra-low distortion, and no ringing or overshoot to degrade transient response. (Note: The LOT-1's dual primary windings allow an IT-1 to be rewired 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 IT-1's "Uni-box™ construction" enclosure is formed of extruded aluminum side channels and 16-gauge steel top, bottom and end plates and is designed to protect switches and connectors from accidental damage. The use of steel also provides excellent magnetic shielding for the transformer from 60Hz AC hum fields. Top-quality connectors and switches provide trouble-free service even in abusive situations such as remote broadcast and recording operations. The uniquely slotted side channels allow for stacking on top or strapping side-to-side of virtually any number of Pro Co Monoface devices using the Uni-box™ construction.

Controls

PARALLEL LINE IN/OUT:

Male and female 3-pin XLR-type connectors wired in parallel to two 3-conductor 1/4" (6.3mm) phone jacks accepts signal from low-impedance (0 ohm nominal) line-level source to provide simple connection and loop-through for any combination of XLR connectors and 2- or 3-conductor phone plugs. Input impedance (with 600 ohm load on ISO OUT): approx. 680 ohm.

ISO OUT:

Male 3-pin XLR-type connector or 3-conductor 1/4" (6.3mm) phone jack provides floating transformer-isolated low-impedance output to feed line-level input. Recommended load impedance: 600 ohm.

GND/LIFT:

GND position connects pin 1 (and jack sleeve) of LINE IN/OUT to pin 1 (and jack sleeve) 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.

MonoLink™ Series IT-1



Isolation Transformer Technical Information

Typical Performance

All measurements made with 0 ohm source feeding LINE IN/OUT 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 signal-splitting/transformer isolation unit shall be suitable for interfacing one (1) unbalanced or electronically balanced low-impedance (0 ohm nominal) line-level signal source to one (1) unbalanced, balanced, differential or floating low- or bridging-impedance (600 ohm nominal) line level input. There shall be 3-pin male and female XLR-type connectors wired in parallel with (2) 3-conductor 1/4" (6.3mm) phone jacks for input from the source and loop-through (direct) output. There shall be a transformer-isolated low-impedance output from a 3-pin male XLR-type connector wired in parallel with a 3-conductor 1/4" (6.3mm) phone jack. The transformer shall be a Pro Co LOT-1 Line Output Transformer. The phone jacks shall be of the insulated-bushing type. The XLR connectors shall be wired with pin 2 "in-phase" (paralleled to phone jack tip) and pin 3 "anti-phase" (paralleled to phone jack ring). There shall be a ground-lift switch to allow the the input/loop-through and output grounds (pin 1 and phone jack sleeve) to be connected together 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, 16-gauge black texture powder coated steel end plates and black anodized aluminum side channels. Control functions shall be identified by a printed Lexan® top panel overlay. Switches shall be of the miniature "rocker" type and shall be recessed. The enclosure shall be provided with two (2) miniature handles at each end (front and back) and four (4) non-conductive feet. The dimensions of the unit shall be 4.875" D x 4.375" W x 1.75" H (123.8mm D x 111.1mm W x 44.4mm H).

The output transformer isolation unit shall be a Pro Co Monolink IT-1 Isolation Transformer Unit.

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.

