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PROBLEM SOLVED

Installation and Operation Manual



TT-1 Plus *Telephone Line-Powered Hybrid/Monitor*

Manual Revised 10/6/2014

If you need a firmware upgrade, contact Broadcast Tools[®]

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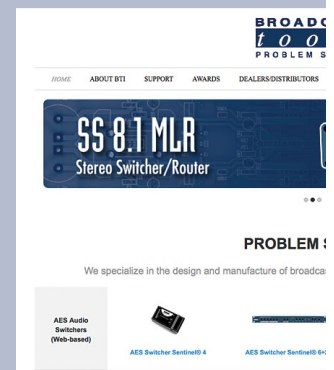
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INTRODUCTION

Thank you for your purchase of a BROADCAST TOOLS®. We're confident that this product will give you many years of dependable service. This manual is intended to give you all the information needed to install and operate the BROADCAST TOOLS®.

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If you have any questions regarding your product or you need assistance, please contact your distributor from whom you purchased this equipment. If you would like more information about BROADCAST TOOLS® products, you may reach us at:

Broadcast Tools, Inc.

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Sedro-Woolley, WA 98284-1503 USA
Voice: 360.854.9559
Fax: 866.783.1742

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CAUTION!

Broadcast Tools® Products, as with any electronic device, can fail without warning. Do not use this product in applications where a life threatening condition could result due to failure.

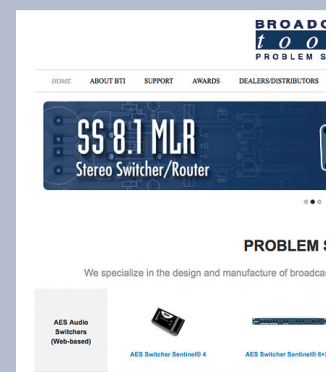


NOTE:

This manual should be read thoroughly before installation and operation.

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INTRODUCTION

Product Overview

The TT-1 Plus is more than just an ordinary telephone line coupler. The TT-1 Plus is a compact telephone line powered auto-answer and auto-disconnect hybrid/coupler. The TT-1 Plus utilizes dual-hybrid transformers providing full duplex audio at a plain old coupler price. We provide a rear panel multi-turn hybrid NULL trimmer to allow the user to achieve approximately 20dB separation figures.

Additional TT-1 Plus features: front panel line seize button, call drop button, auto-answer/monitor-TAP switch, audio mute switch, and off-hook and ring indicators. A rear panel RJ-11 is provide for connection to a POTS line along with a second RJ-11 loop-thru jack that may be configured to disconnect attached devices when the TT-1 Plus goes off-hook. Plug-in euroblock screw terminals along with 3.5mm TRS jacks are provided for balanced send and caller audio. Plug-in euroblock screw terminals are provided for remote seize and drop inputs and the SPDT off-hook dry relay contacts. The TT-1 Plus may be set on a desktop, mounted on a wall or mounted on the RA-1, Rack-Able mounting shelf.

Introduction

Thank you for your purchase of the TT-1 Plus, Telephone Line Powered Auto-Answer/Auto-Disconnect Hybrid/Coupler, which we will refer to throughout the manual as the TT-1 Plus. We're confident this product will give you many years of dependable service. This manual is intended to give you all the information needed to install and operate the product.

Inspection

Please examine your TT-1 Plus carefully for any damage that may have been sustained during shipping. If any is noted, please notify the shipper immediately and retain the packaging for inspection by the shipper. The package contains the TT-1 Plus and modular cable. Manuals may be downloaded from our web site.

Installation/Operation

RFI and surge suppression suggestions

CAUTION! Installation of the TT-1 Plus in high RF environments should be performed with care. It is recommended that all cables connected to the TT-1 Plus be looped through ferrite cores to suppress RF. All shields should be tied to the "GND" Ground terminals. Surge protection with RF filtering is also suggested. For lightning protection devices, check out www.polyphaser.com and www.itwlinx.com.

Telco line jack (Line): Connect your telephone line to this modular RJ-11 jack labeled "LINE". To have the TT-1 Plus automatically disconnect when a caller hangs up, verify that the telephone company has enabled the "CPC" calling party disconnect (wink) feature on the phone line.

TIP: If you have trouble seizing the telephone line, try reversing the tip and ring on the line.

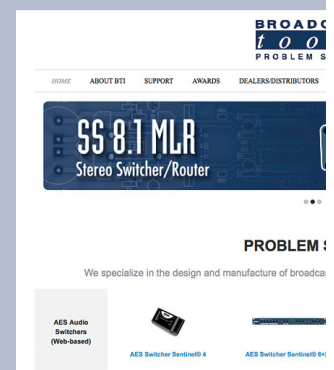
Loop-thru line jack (Loop): Connect your telephone set or other telephone type equipment to the jack labeled "LOOP". When the bypass options dipswitch SW-4 is in the off position, the device connected to this jack will be disconnected when the TT-1 Plus answers the line. The bypass feature is disabled by default (SW-4 On).

Send Input: Low Z, transformer balanced input. Connect your (send to telephone line) equipment's output to the Snd+ and Snd - rear panel plug-in euroblock screw terminals or the 3.5mm stereo jack labeled "SEND". The input level should be limited to -9dBu.

Caller Output: Low Z, transformer balanced output. Connect your (caller audio from telephone line) equipment's input to the Call + and Call - plug-in euroblock screw terminals or the 3.5mm stereo jack labeled "CALLER". The caller audio level may vary from -9dBu to -20dBu. Note: Additional external amplification may be required

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Relay connections: The “OFF-HOOK” relay K1 can be used to indicate when the TT-1 Plus is off-hook. Connect to the K1-CM (wiper) and K1-NO (normally open) terminals or the K1-NC (normally closed) terminal. When the line is answered (seized), the normally open contacts will close and the front panel “HOOK” LED will light.

Remote Seize Input: Connect a positive voltage (no greater than 6 VDC) to the Seize + terminal and ground to the Seize – terminal to seize (answer) the (call) line.

Remote Drop Input: Connect a positive voltage (no greater than 6 VDC) to the Drop + terminal and ground to the Drop – terminal to drop (disconnect) the (call) line.

Ring LED: Front panel LED will light when the coupler is called. The TT-1 Plus will go off-hook during or after the first ring.

Hook LED: Lights when the TT-1 Plus has seized the telephone line.

Unmute/Mute Switch: Disconnects the SEND and CALLER audio from the hybrid with the switch IN. At the factory this feature is disabled on the CALLER side by placing SW-1 and SW-2 in the on position. Placing SW-1 and SW-2 in the off position allows the mute switch to mute both the send and caller audio.

Auto-Answer/Monitor (TAP) Switch: Used to select between the auto-answer mode and the TAP mode. When the switch is OUT, the TT-1 Plus will auto-answer any call on the first ring. When this switch is IN, the TT-1 Plus will TAP (monitor) a telephone line without seizing the line.

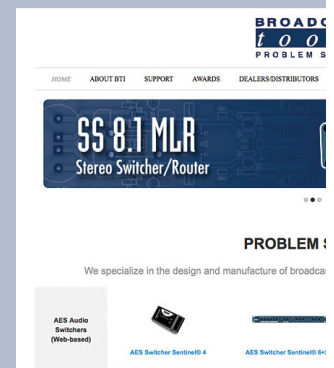
Null adjustment trimmer: Used to adjust the null between the send and caller audio. To adjust the null on the TT-1 Plus, follow the steps:

- 1 - Connect a telephone line to the RJ-11 line jack.
- 2 - Connect an audio source to the SEND +/- terminals. Use a 700 hz tone at -9dBm.
- 3 - Connect a dB meter to the CALLER +/- terminals. Be sure to terminate with 600 ohms.
- 4 - Make a call to the TT-1 Plus. After the TT-1 Plus answers, adjust the NULL trimmer for minimum (NULL) level on the (CALLER) dB meter.

The TT-1 Plus is now ready for normal operation. Please refer to Appendix C of this manual for an example mixer hookup diagram.

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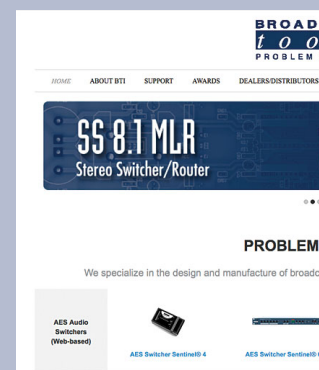


Specifications:

Input Level:	-9dBu maximum
Input Impedance:	600 ohms, transformer balanced.
Output Level:	-9dBu to -20dBu typical
Output Impedance:	600 ohms, transformer balanced.
Relay:	SPDT, 30VDC / 1 amp.
NOTE: For safety, never connect 120 Vac circuits to these relays!	
Remote seize/drop input voltage:	5 to 6 VDC@30ma.
FCC information:	Complies with FCC parts 15 & 68
Ringer equivalence:	0.4B
Phone connections:	2 x modular RJ-11
Audio connections:	Plugin euroblock screw terminals and 3.5mm TRS
Remote connections:	Plugin euroblock screw terminals
Size:	6 x 5.25 x 1.63 in (W x L x H)
Weight:	1.0 lb.
Options:	RA-1, Rack Shelf, 1 RU.

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LIMITED WARRANTY

The term “Buyer” as used in this document refers to and includes both (but only) (a) any person or entity who acquires such an item for the purpose of resale to others (i.e., a dealer or distributor of an item), and (b) the first person or entity who acquires such an item for such person’s or entity’s own use.

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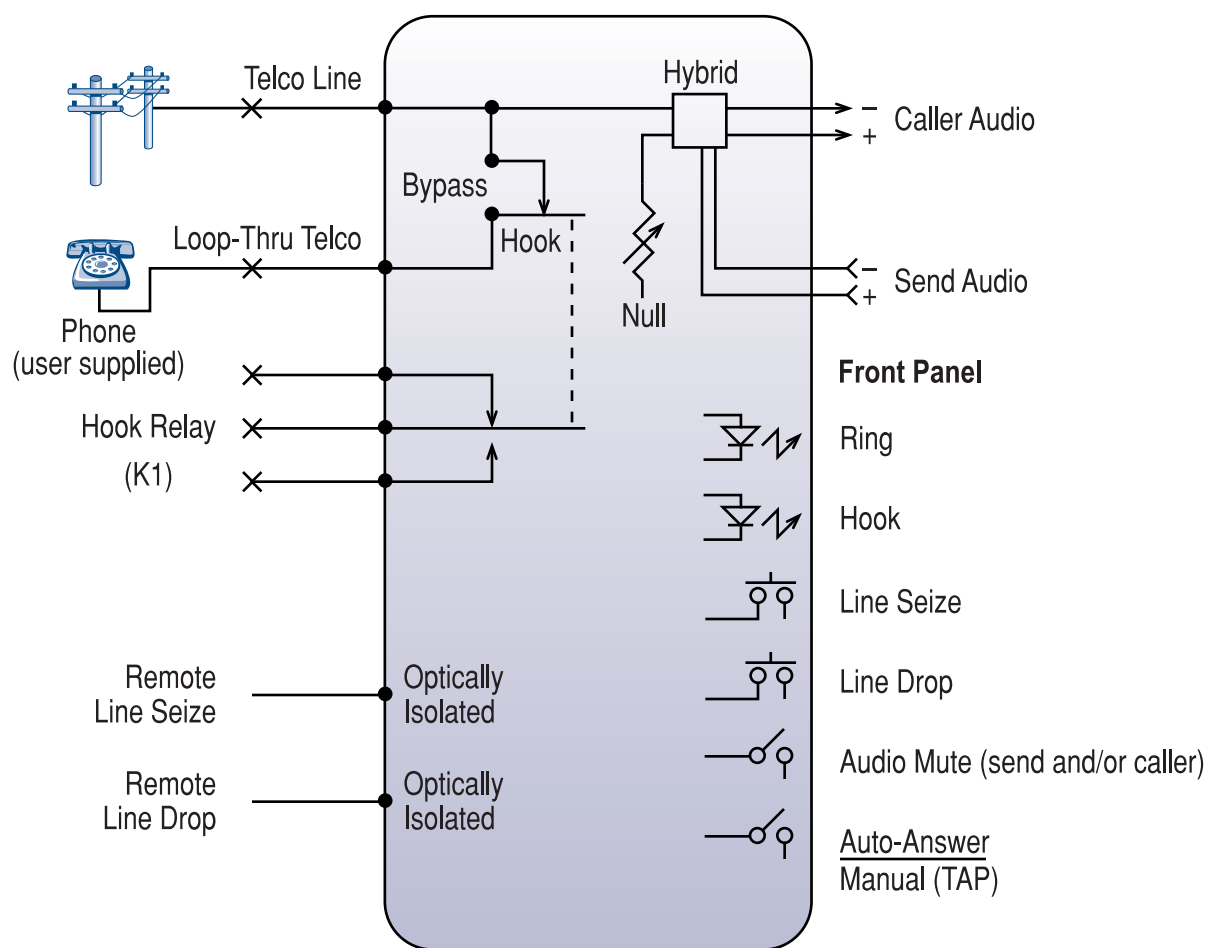
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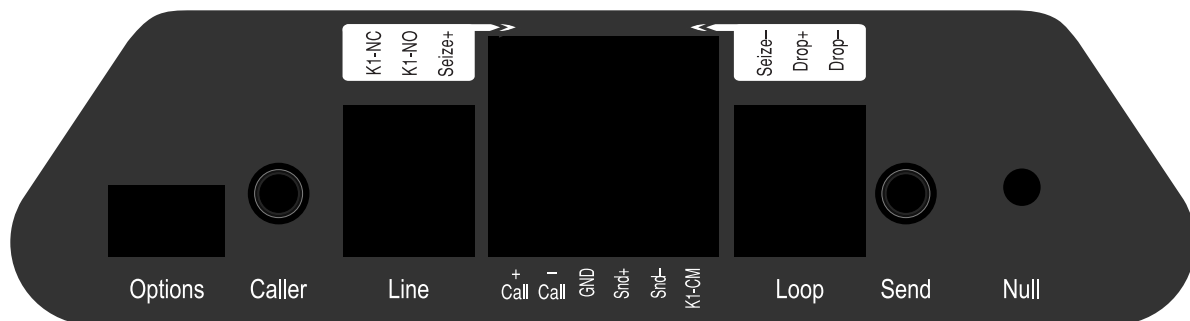
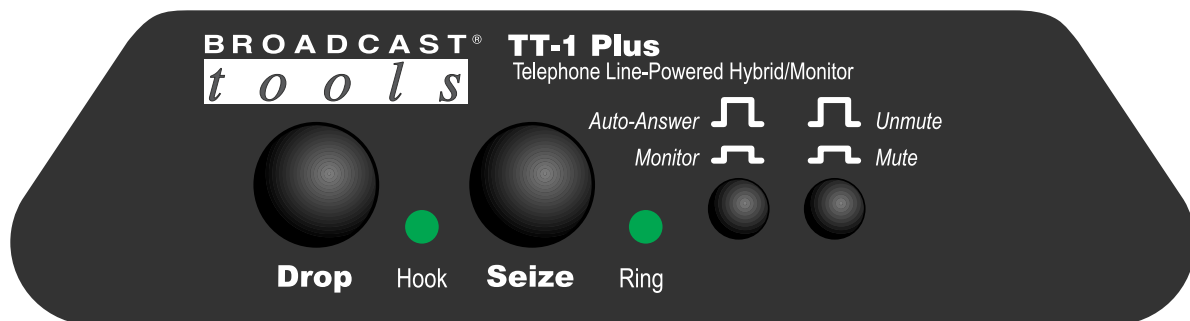
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Functional Diagram

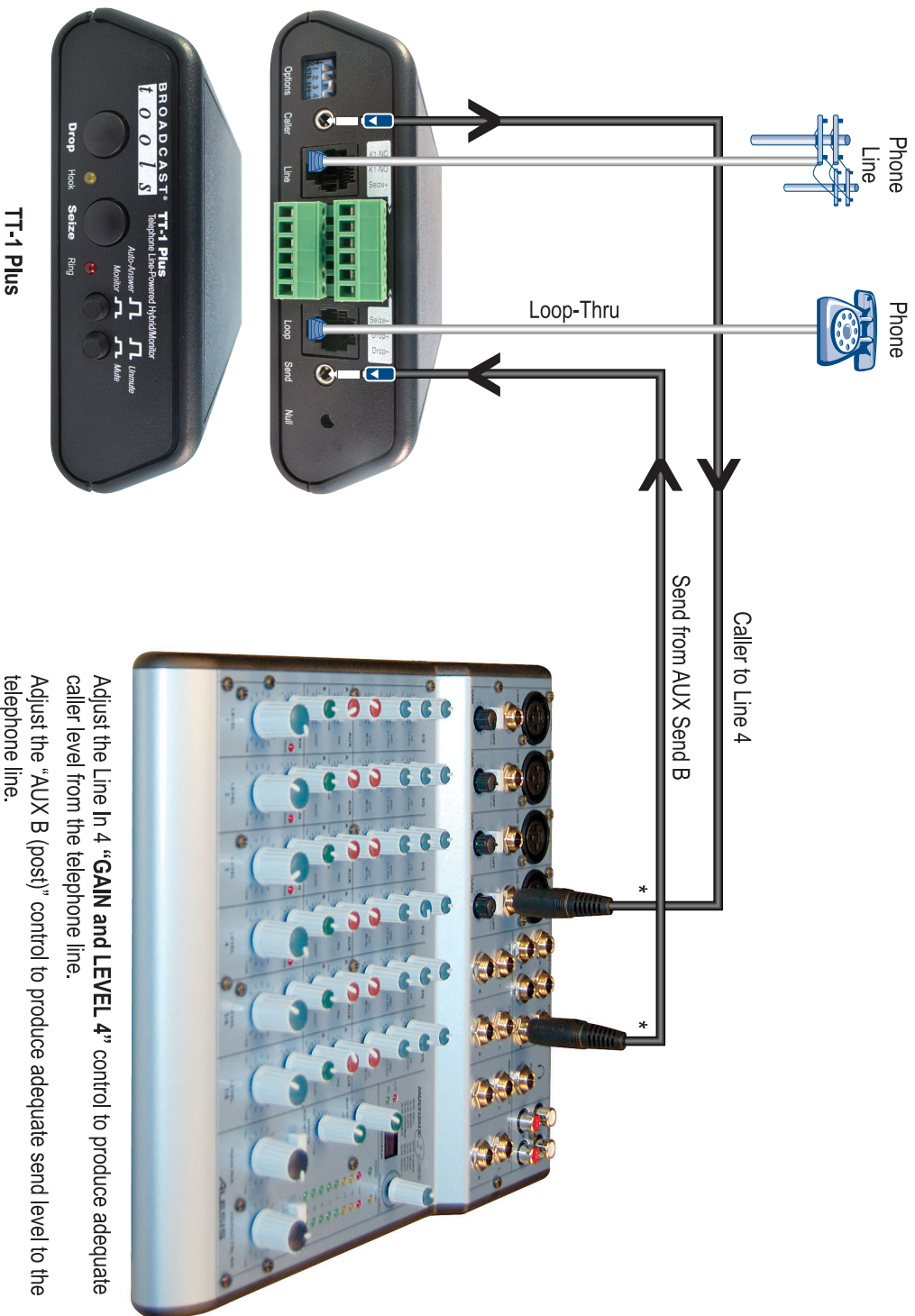




Broadcast TOOLS® TT-1 Plus

Telephone Line Powered Hybrid/Coupler-TAP

Hook-up diagram between the TT-1 Plus Telephone Line Powered Hybrid/Coupler-TAP and the Alesis Multimix 8 USB mixer.



Adjust the Line In 4 "GAIN and LEVEL 4" control to produce adequate caller level from the telephone line.

Adjust the "AUX B (post)" control to produce adequate send level to the telephone line.

NOTE: Verify that the "AUX B (post)" Line In 4 level control is **OFF**.

* Audio Cables: Monaural or Stereo 1/4" phone plug to 1/8" Monauralmini plug. (Radio Shack p/n: 42-2433) or equivalent.