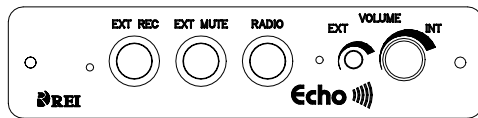




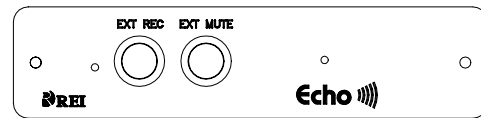
# ECHO TRANSIT PA MODULE

## Operators Manual for Both Models

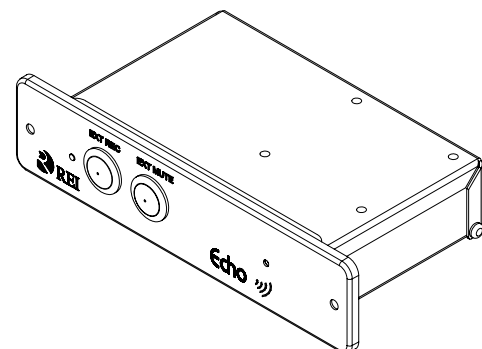
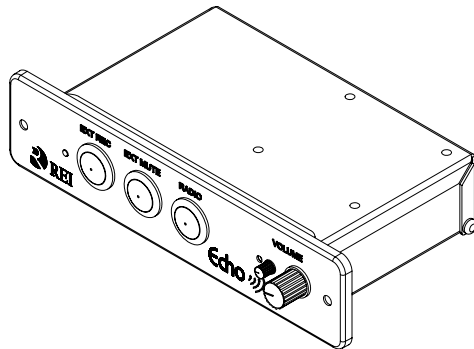
**700854**



**700926**



**OR**



Radio Engineering Industries, Inc.  
6534 L Street  
Omaha, Nebraska 68117  
(402) 339-2200

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# ECHO TRANSIT PA MODULE

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## Introduction

Thank you for purchasing the one of the ECHO TRANSIT PA MODULES by Radio Engineering Industries, Inc. This manual is intended to provide the user with a summary of the information required for proper operation for either model. If you have any questions or need assistance, please call the:

**SERVICE HOT LINE**  
**1-877-726-4617 Toll Free USA & CANADA**  
**1-800-228-9275 USA**  
**1-402-339-2200**

## Features

- Compact Size
- 12/24V DC Operation
- Built In 60W Interior and Exterior PA Amplifiers (700854 only)
- Built In 60W Exterior PA Amplifier. Requires Separate Transit Pa for Interior (700926 only)
- Separate Interior and Exterior PA Volume Controls (700854 only)
- External Input for Pre-recorded Outside Message
- Optional “Electret” Boom/Headset Aux Microphone Input on Rear
- DSP Signal Processing Reduces Background Noise
- Dual Color Status Led
- Radio Button Enables output for Optional Radio Communications (700854 only)
- Chassis Mounted Locking Connectors for Easy Installation
- External Mute Button Disables Outside Announcement
- Complies With ADA

## Modules Available

- Echo Transit PA With Radio Option p/n 700854
- Echo Transit PA With Out Radio Option p/n 700926

## System Components

- Emergency Microphone Cable p/n 511178
- Echo Transit Pa Main Power Filter p/n 450041
- Echo Power, Speaker, and Trigger Cable p/n 511878
- Echo main cable, Motor Coach Industries p/n 511851

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# ECHO TRANSIT PA MODULE

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## Precautions

Vehicle Ventilation – If your vehicle is parked for several hours in direct sunlight, the temperatures inside may become very high. It is advisable to give the interior a chance to cool down before operating the system.

Power Supply – The ECHO is designed to be powered by either a +12V or +24V switched DC negative ground system. Do not attempt to use it in any other system. Doing so could cause serious damage.

Service – This unit is made of precision electronic components. Do not attempt to disassemble or repair any parts. For repair please consult the manufacturer.

## Maintenance

Your product is designed and manufactured to ensure a minimum of maintenance. Use a soft cloth for routine exterior cleaning. Never use benzine, thinner or other solvent.

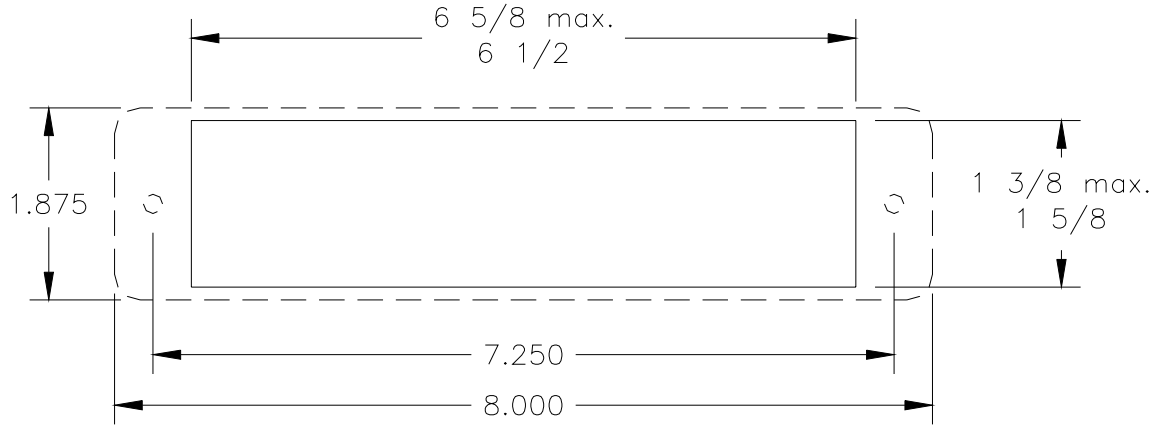
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# ECHO TRANSIT PA MODULE

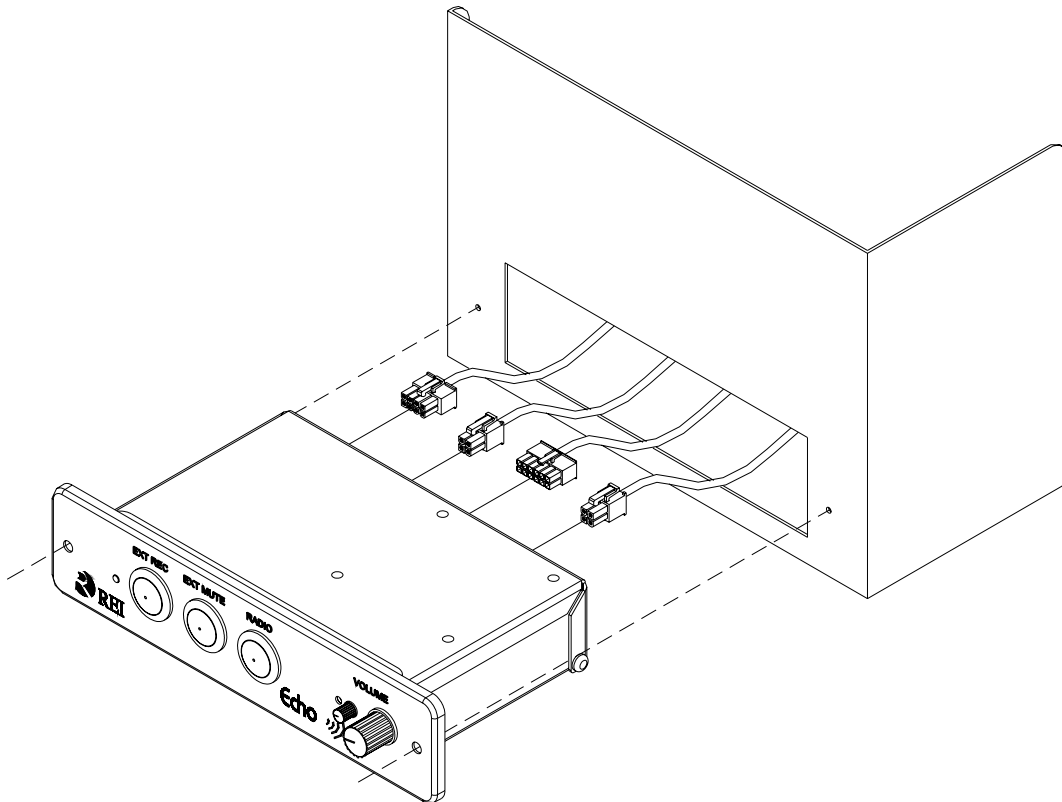
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## Flush Mount Installation Instructions

- 1) Inspect hole location to assure proper fit and outside clearance.
- 2) If cutting is necessary, use only the inside dimensions given below. Proceed with caution!



- 3) Route cables up through opening and connect ECHO.
- 4) Secure ECHO with #8 Tapping Screws.



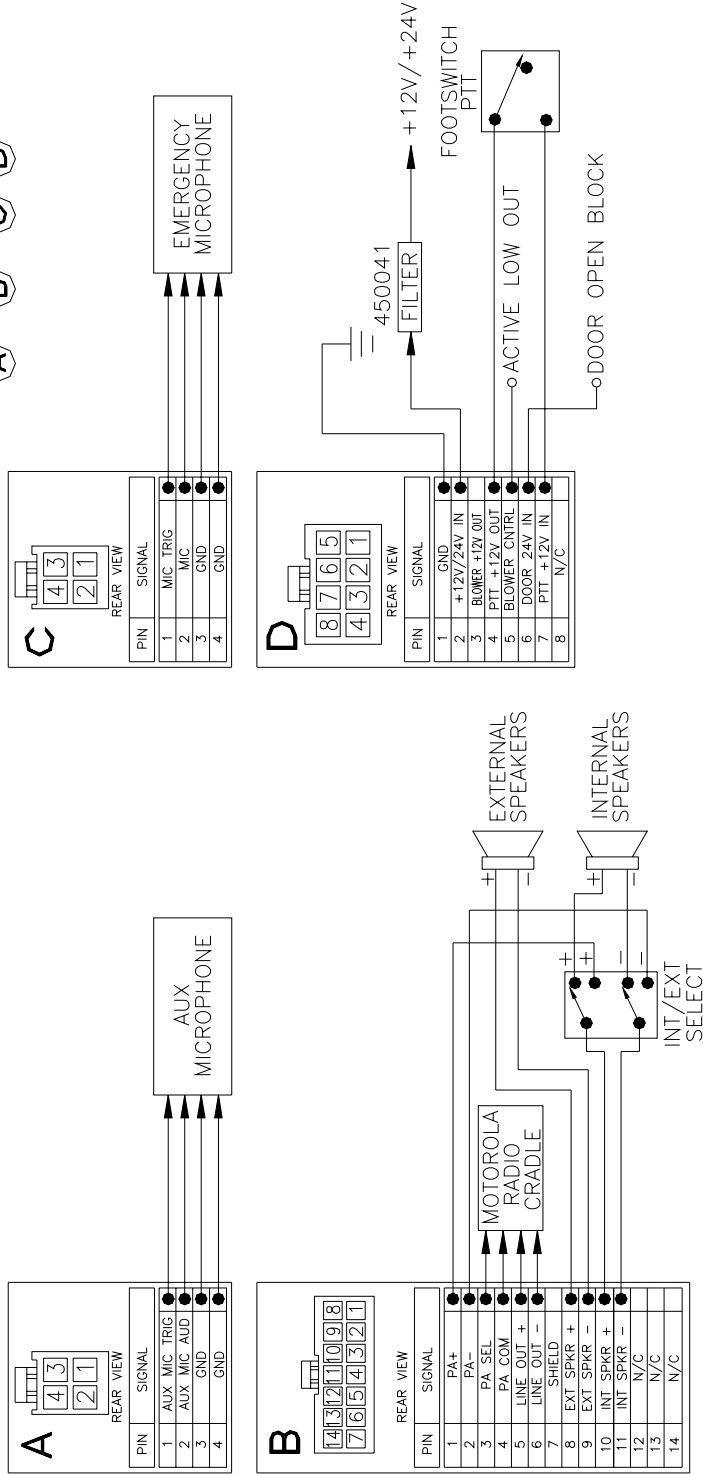
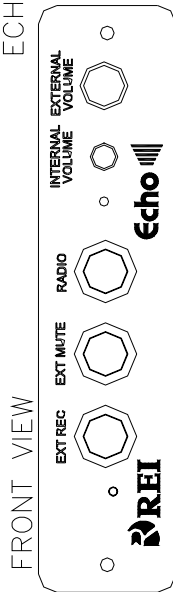
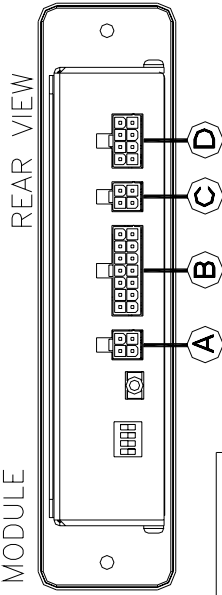
# ECHO TRANSIT PA MODULE

## System Diagram 700854

### ECHO CONNECTION DIAGRAM

700854

ECHO TRANSIT PA MODULE



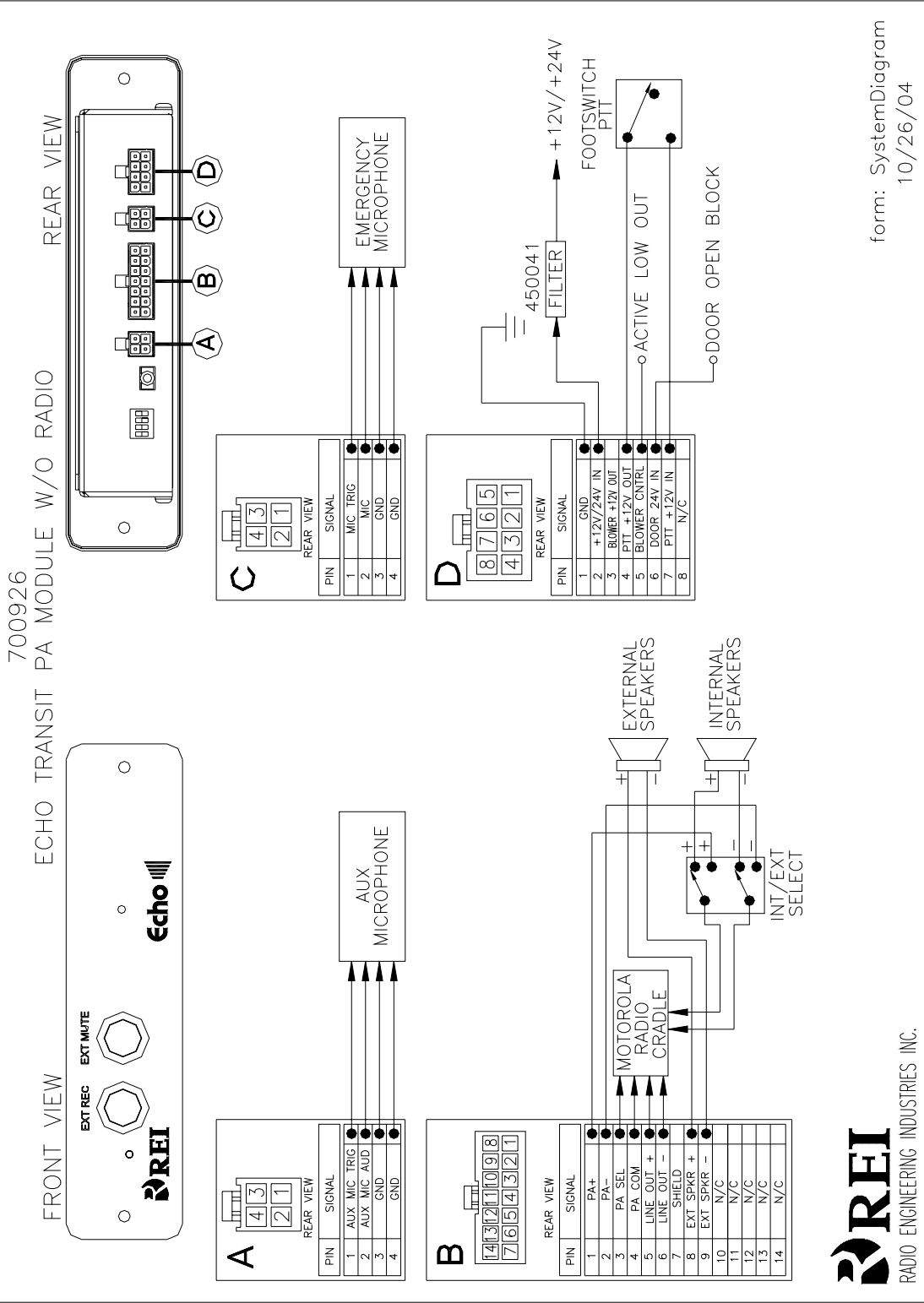
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12/09/03



# ECHO TRANSIT PA MODULE

## System Diagram 700926

### ECHO CONNECTION DIAGRAM



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10/26/04



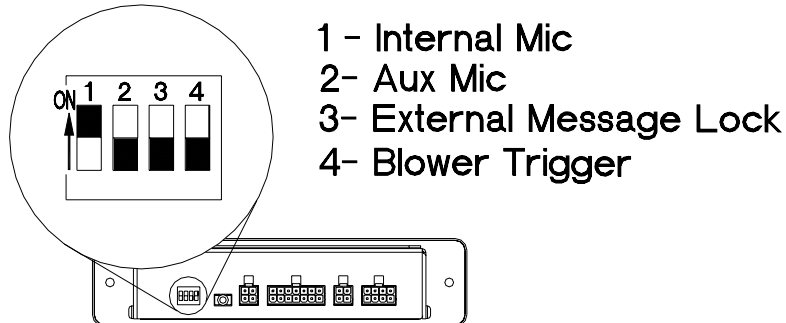
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## ECHO TRANSIT PA MODULE

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### Rear Connections and Control Switches

#### Program Select Switch



#### Position 1:

Position one selects the Internal Microphone ON/OFF.  
When the switch is in the ON position the built in Internal microphone is selected.  
When the switch is in the OFF position, Internal Microphone OFF.

#### Position 2:

Position two selects the Aux Microphone ON/OFF.  
When the switch is in the ON position the Aux microphone is selected.  
When the switch is in the OFF position, Aux Microphone OFF.

**NOTE:** If both mic's are selected the audio will mix between the two (not recommended), if neither mic is selected, there is no mic audio

#### Position 3:

Position three selects whether the outside message is locked in memory, or can be erased and recorded over. Having the switch in the ON position locks the outside message for playback only. If the switch is on the OFF position, the message can be re-recorded.

#### Position 4:

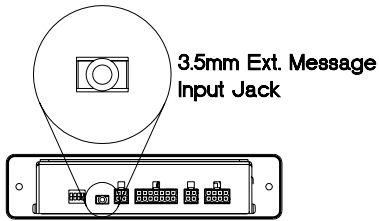
Position 4 selects whether the blower control signal is active high when a record/playback cycle is made, or active low during a record/playback cycle. When position 4 is ON, the blower signal is active high during a record/playback cycle, having it off selects an active low signal out on a record/playback cycle.

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## ECHO TRANSIT PA MODULE

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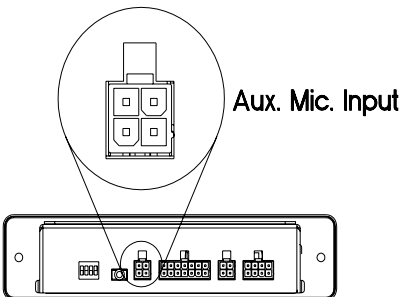
### 3.5mm Input Jack For Pre-recorded Message



If a Transit Authority has their own message that they want replayed on the outside door triggered speakers, the ECHO allows for storage of a 60 second pre-recorded message. The message is recorded into memory via the 3.5mm Input jack located in the back of the unit. Simply check the position of the Program Select switch on the rear and verify that it is in the OFF position. Connect into the rear jack via PC, MP3, or other line level signal device. **NOTE:** It may be necessary to adjust the signal level going to the Internal Message Input jack as too much signal will overdrive the recorded message and decrease playback quality. Play your message while at the same time pressing and holding the EXT REC button. Once the message is complete, release the button and move the Program Select switch to the ON position. This locks the message into memory, as it cannot be erased unless the switch is changed to the OFF position. Once locked, pressing the EXT REC will not allow for storage of a new message.

**NOTE:** The Door Trigger must be closed to complete the record cycle

### Auxiliary Microphone Input



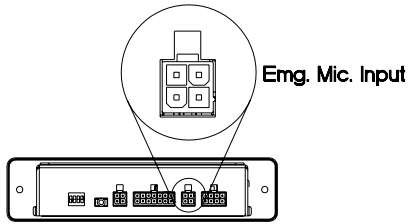
In some cases, an Auxiliary microphone may be desired as mounting the ECHO Transit PA within range of the driver is not possible. The AUX 'Electret' Microphone must first be selected by the Program Select Switch as all inside messages will utilize this microphone. In most cases, the internal hands free microphone is sufficient.

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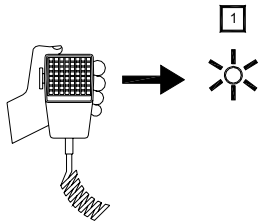
## ECHO TRANSIT PA MODULE

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### Emergency Microphone Input

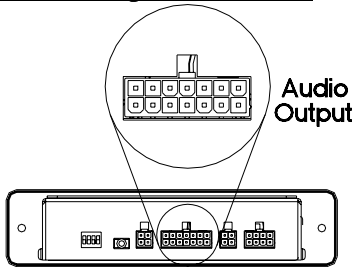


An emergency Microphone is built into the ECHO Transit PA as no other external amplifier is necessary. Messages from this microphone are played over the inside speakers and will override all other operations executed at this time. Simply key this microphone, adjust to the necessary volume with the front INT volume controls, and talk. This is indicated by a rapid green flashing led located on the front of the unit. Since there may be an optional EXT/INT Speaker select switch installed, having the switch in the EXTERNAL position will allow for communication through the External speaker. This operation will override



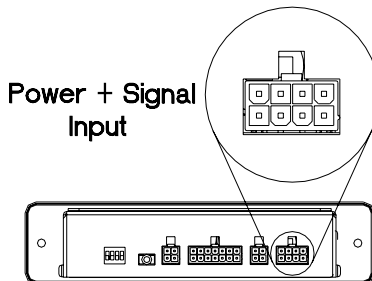
the door triggered message and allow for direct communication outside the vehicle. While having the switch in the INT position will only allow direct communication inside the vehicle, and pause any door triggered message.

### Audio Output Connector



Included in the Audio Output Connector are outputs for both the INTERNAL & EXTERNAL Speakers. **NOTE:** When using the 700926 you will not have outputs for Internal Speakers. A 600ohm line output is also provided for connection to a Radio Cradle or a pre-existing PA Amplifier making installation a breeze for any system. If desired, a PA+/- input is provided if direct communication with an external speaker is necessary. This requires the installation of an INT/EXT dash switch to select the desired speakers.

### Power & Signal Input



The ECHO Transit Pa will operate on either +12/24V DC. An output signal to the blower HVAC control is provided to disable the FAN during a record/playback cycle (See Program Select Switch). Also included is an input/output signal from the footswitch PTT, and a discreet 24VDC signal input from the door.

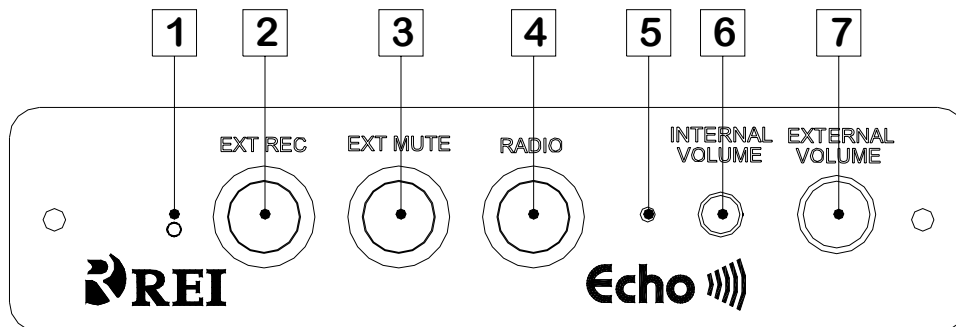
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# ECHO TRANSIT PA MODULE

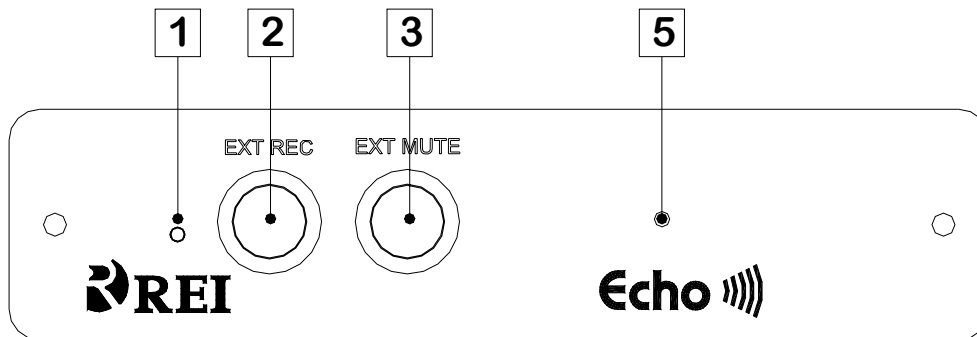
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## General Section

### General Section - 700854



### General Section - 700926

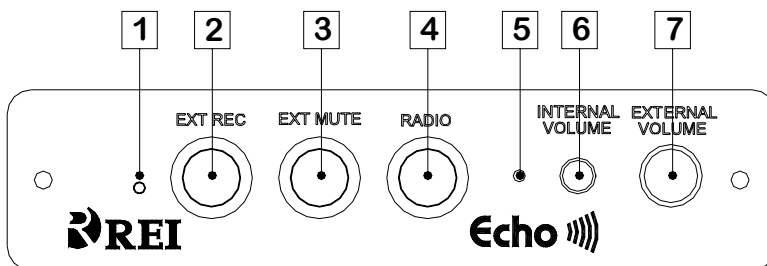


- 1) **LED INDICATOR** – Color Here Indicates Status of Echo Operation
- 2) **EXT REC** – Hold This Button While Recording The Outside Message
- 3) **EXT MUTE** – This Button Disables/Enables The Outside Message
- 4) **RADIO** – This Button Re-routes The Inside Message to the Line Out
- 5) **MIC**– Internal Microphone For Internal/External Message Recordings
- 6) **EXTERNAL VOLUME** – Controls The Volume Level of the Outside Message
- 7) **INTERNAL VOLUME** – Controls The Volume Level of the Inside Message

# ECHO TRANSIT PA MODULE

## Front Pushbutton Controls Section

### General Section - 700854



KEYPRESS	INDICATOR	FUNCTION
<p><b>EXT REC</b></p> <p>2 </p>	<p><b>EXT REC ON</b></p> <p>- The indicator led will light solid red</p> <p>1 </p>	<p>The ECHO incorporates a function that allows for automatic playback of a recorded message when the 24V DOOR signal is detected. In operational use, the driver will close the DOOR, push the EXT REC button, and hold it while recording the outside message. During this record cycle, the LED will be solid red. The driver must do this at the beginning of their route to set the outside message for playback. If during playback the message is interrupted by the Emergency Mic, it will reset and attempt to playback in its entirety only once while triggered. After the door shuts the message is reset for playback upon receiving any additional DOOR trigger. The message can also be canceled by tapping the Footswitch.</p>
<p><b>EXT MUTE</b></p> <p>3 </p>	<p><b>EXT MUTE ON</b></p> <p>-The indicator led will blink red twice and repeat every 5 seconds</p> <p>1 </p>	<p>If desired, this outside message can be disabled by pressing and releasing the EXT MUTE button on the front of the unit. By doing so a red led will blink twice and continue to blink twice every 5 seconds. In this mode the door trigger has no effect on the playback of the outside message. One can exit this mode by pressing and releasing this switch again. Doing so will cause the led to flash red twice to give the operator conformation that the unit is back in the active mode, and will stop flashing thereafter.</p>
<p><b>RADIO</b></p> <p>4 </p>	<p><b>RADIO ON</b></p> <p>- The indicator led will blink red/green twice and repeat every 5 seconds</p> <p>1 </p>	<p>The ECHO also allows for the Hands Free transmission over radio communications, typically to the command center, and not to internal or external speakers. This is accomplished by pressing and releasing the RADIO button on the front of the unit. A Red/Green Led will constantly flash every 5 seconds in this mode. During which, all INTERNAL messages triggered by the footswitch will be sent to the line out only, and not the INTERNAL Speakers. Pressing and releasing the switch again will return the ECHO to the normal operation mode after the led flashes Red/Green twice to give the operator conformation.</p>

**\*\*NOTE:** If both **EXT MUTE** & **RADIO** are on at the same time, the led sequence will alternate both indicators every 5 seconds. (i.e. Red/Red delay 5 seconds red/green repeat)

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# ECHO TRANSIT PA MODULE

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## Function

### INSIDE MESSAGE OPERATION

The idea behind the ECHO is once installed; the driver can have complete hands free communications with its passengers. If the driver chooses to deliver a message, they simply press the PTT; say the desired message as not to exceed 60 seconds in length, and release the PTT. The message is then immediately played back over the INTERNAL speakers of the bus with minimal background noise thanks to enhanced DSP circuitry. During the Inside Message record cycle the LED is Green. If necessary, the INSIDE message can be cancelled by quickly pressing and releasing the PTT, overriding the playback cycle.

1



### DOOR TRIGGERED AUTOMATIC OUTSIDE MESSAGE

The ECHO also incorporates a function that allows for automatic playback of a recorded message when the 24V DOOR signal is detected. To set this up, the driver will close the DOOR, push the EXT REC button, and hold it while recording the outside message. During the record cycle the LED is Red. The driver must do this at the beginning of the route to set the outside message for playback. If the message is interrupted by the Emergency Mic trigger, it will reset and attempt to playback in its entirety only once while triggered. After the door shuts the message is reset for playback upon receiving any additional DOOR triggers. If desired, this message or an optional pre-recorded message can also be locked into memory, see program select switch and 3.5mm Input Jack for addition information. Additionally, pressing the Footswitch during playback will cancel the outside message until it is reset by closing the door.

**\*\*See Position 3 on Program Select Switch\*\***

### EXT MUTE FUNCTION

If desired, this outside message can be disabled by pressing and releasing the EXT MUTE button on the front of the unit. By doing so a red led will blink twice and continue to blink twice every 5 seconds. In this mode the door trigger has no effect on the playback of the outside message. One can exit this mode by pressing and releasing this switch again. Doing so will cause the led to flash red twice to give the operator conformation that the unit is back in the active mode, and will stop flashing there after.

### RADIO FUNCTION

The ECHO also allows for the Hands Free transmission over radio communications, typically to the command center, and not to the internal speakers. This is accomplished by pressing and releasing the RADIO button on the front of the unit. A Red/Green Led will constantly flash every 5 seconds in this mode while all INTERNAL messages will be sent only to the line out, and not the INTERNAL Speakers. This output signal is a 600 $\Omega$  impedance output. Pressing and releasing the switch again will return the ECHO to the normal operation mode after the led flashes Red/Green twice to give the operator conformation.

**NOTE:** Line out must be connected to a Radio Communications device and not a transit amplifier for proper operation

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## ECHO TRANSIT PA MODULE

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### Function Continued

#### AUXILARY MICROPHONE INPUT

If an additional microphone is required, an AUX MIC can also be used if plugged into connector A. This connector is designed for an “electret” mic and depending on the position of the Program Select positions 1 & 2 located on the rear, determines whether the AUX or INTERNAL mic is operational.

**\*\*See Position 1 & 2 on Program Select Switch\*\***

#### EMERGENCY MICROPHONE OPERATION

As a safety feature, the ECHO also incorporates an EMERGENCY MIC input on the back of the unit. This microphone allows the driver to override any activity with a message of his or her own over the internal speakers of the vehicle. When active, the led will flash Green rapidly and return to its previous operation when not triggered.

#### BLOWER RELAY CONTROLS

If connected, the ECHO allows for control of the Blower Relay/Control Line to disable the climate control fan located in the dash of the bus. By connecting to this Relay/Control Line, any record/playback cycle will temporarily shut off the fan. This insures a quality recording without additional noise to the message.

**\*\*See Position 4 on Program Select Switch\*\***

#### PA MODE

Since the driver needs the ability to communicate directly through the external speaker, an optional switch in the dash may be installed to select either Internal/External Speakers. When using the Emergency Microphone, select EXT on the Switch and the message will broadcast through the EXTERNAL speaker. If this operation is done with the door trigger on, the EXTERNAL DOOR TRIGGERED MESSAGE will be overridden until once the microphone is un-keyed.

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# ECHO TRANSIT PA MODULE

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## Troubleshooting Guide

Emergency Microphone is non-operable:

- Check for proper supply power/Ground
- Check if the LED status indicator is flashing Green
- Check the Volume level on the INTERNAL Volume knob/external PA
- Verify that this Microphone connected into the correct location on the back
- Check to ensure that the INTERNAL speakers are connected or the Line-Out is connected to an external PA Amplifier

Door Triggered EXTERNAL Message won't record:

- Verify that the Door is shut
- Check to ensure the Program Select Switch is not locked
- Verify that the Emergency PA is not triggered
- Check if the LED status indicator is solid red during a record cycle
- Adjust the signal input if using the 3.5mm Input Jack
- Verify the Program Select Switch in the correct position for the desired microphone

Door Triggered EXTERNAL Message cannot be heard:

- Check the Volume level of the EXT Volume knob
- Verify that the EXT MUTE is not enabled

INTERNAL Message cannot be heard inside the passenger speakers:

- Verify that the RADIO option is not enabled
- Check the Volume level of the INT Volume knob
- Check if the LED status indicator is solid orange during playback
- Verify the Program Select Switch in the correct position for the desired microphone

The HVAC blower fan is not operating correctly:

- Verify the Program Select Switch in the correct position for the desired Signal

The AUX Microphone is not functional:

- Verify the Program Select Switch in the correct position for the desired Mic
- The AUX Mic must be an "electret" Microphone

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## ECHO TRANSIT PA MODULE

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### Specifications

#### Dimensions

Height**	1.875 inches
Width**	8 inches
Depth**	4.156 inches
Weight**	1 lb 12 oz's

#### Power Supply

Power Supply	+12/24 Volts DC
Current Consumption	
Standby	150 mA
Operating	1.75A

\* Specifications and the design are subject to possible modification without notice due to improvements.

\*\* Dimensions and weights are approximate.