



# **Series 3000 Model R-173**

**Cue Tone Decoder  
Multi-Channel/Phone Access**

**INSTRUCTION MANUAL**

**Monroe Electronics**  
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P/N 1340183  
042904

# TABLE OF CONTENTS

Content	Page
General Description	3
Specifications	3
Installation and Jumper set up	4 - 6
Rear Panel Notation	7
R-173 System Operation	8
3567 Instruction Manual	9 - 11
Warranty and Repair Information	12

Refer to individual instruction manuals for 3185E and 3137B information.

## General Description

The R-173 enables control of from 4 to 12, Model 3185E DTMF decoder cards. It also contains the Model 3137B, Unattended Answering Device card, and a Model 3567 Voice Response card. The Model 3185E boards allow control of customer devices by means of a dry contact closure through a relay on the Model 3185E board. The DTMF control signals may be input to the cards via a two wire analog signal, such as a microwave link or an audio subcarrier on a satellite feed. Or they may be input via a dial up telephone line, connected through the Model 3137B UAD and the 3567 voice response/control card.

If the input is through the telephone line, a voice response/control card is installed. It provides a voice message to the caller, and requires a DTMF code to access the control cards.

The individual cards may be programmed in unique ways. Each card may be individually set for a distinct actuation code. Please refer to the set up instructions for specific types to determine the best use in your application.

## Specifications

Audio Input	600 $\Omega$ Balanced
Input Signal Range	-24 dBmV to +6 dBmV
Digital Validation	40 mSec. minimum
Inter-digit Time	40 mSec. To 3 minutes
Digits per second	Maximum 12 @ $\pm 6$ dB twist
Set/Rest Inputs	> 20 mSec. Pulse to GND
Relay Outputs	SPDT; 2A @ 30 VDC
FCC Registration	AAK-99W-67353-VP-N
Telephone Ring Voltage	60 to 150 VAC
Power Requirement	94 – 240 VAC 50/60 Hz
Physical	1.75" H x 19" W x 10.25" D

Specification are subject to change without notice.

### Accessories Included:

Instruction Manual  
3137B Instruction Manual  
3185E Instruction Manual  
Rack Mounting Kit

# Installation

The unit is designed to mount in a 19 inch rack, and requires 2 RU (3.5 inches) of vertical space. Using the hardware provided, mount the unit in a rack, to minimize wiring lengths to controlled devices.

Referring to the hook up table following, connect the POTS (two wire dialup telephone) line – if used – and any audio and switched lines in accordance with the system design. Connections are provided for NO, NC and COM for each card's relay. Also, the SET and RESET controls for each card are provided.

Provision is made to allow telephone audio to be selectably available and switched at each 3185E card's output. Or a different audio source may be introduced for this feature. The non-POTS audio may also be used for control of the switching function of the 3815E cards. Refer to the hook up table following.

After wiring is complete, connect the power plug to an AC voltage source.

If desired, a message may be entered into the voice/control card – model 3567 – to be played to the caller on the POTS line. Recording a message requires temporarily removing the adjacent PC board, reaching in with a finger to the small push button switch on the card, depressing it, and speaking towards the top of the voice/control card in a normal voice the message desired. When recording the message, you have 20 seconds to record a message. Please leave several seconds of quiet time at the end of the voice input, to allow easier entry of the access code.

To select the access code for accessing the unit with through the telephone line and the voice/control card, refer to the jumper selection guide for the model 3567 card in the included manual. Various 3 digit codes are available.

The unit, when connected to a dial up telephone line, will answer the telephone on the number of rings selected. The UAD card may be programmed from 1 to 9 rings. The UAD card will hang up the line when the calling party hangs up, upon receiving a "wink" (current interruption pulse) from the telephone CO (central office). If the CO does not provide a "wink", an optional dial tone detection card may be purchased to release the line when a dial tone is detected.

Another option is to place a jumper to select a time out, enabling the UAD to release the line upon a predetermined time. This option may be enabled in conjunction with the "wink" provision. Please refer to the manual for the model 3137B UAD card for complete information.

The 3185E decoder cards may be programmed to present a 600 ohm or 10 K ohm impedance to the audio source. For use in this unit, they must be programmed to a 10 K, unbalanced audio input, to prevent excessive loading of the audio source. If the driving unit requires a 600 ohm load, program only one of the units to present this load, and the rest to 10 K ohms. Selection of latching or other relay behavior, and the number of digits, is described in the manual for the 3185E card.

The description of jumper actions is described in the table following.

**Jumpers on the main PC board.**

*(X= closed, O= open)*

<b>Jumper Number</b>	<b>Function Description</b>
JP1	O 3185E cards reset only by DTMF tones
	X 3185E cards reset by DTMF tones OR POTS hang up if selected by card jumpers
JP2 -	Not Used
JP3,JP4	O Audio to 3185E provided through rear panel terminals
JP3,JP4	X Audio to 3185E provided through POTS line

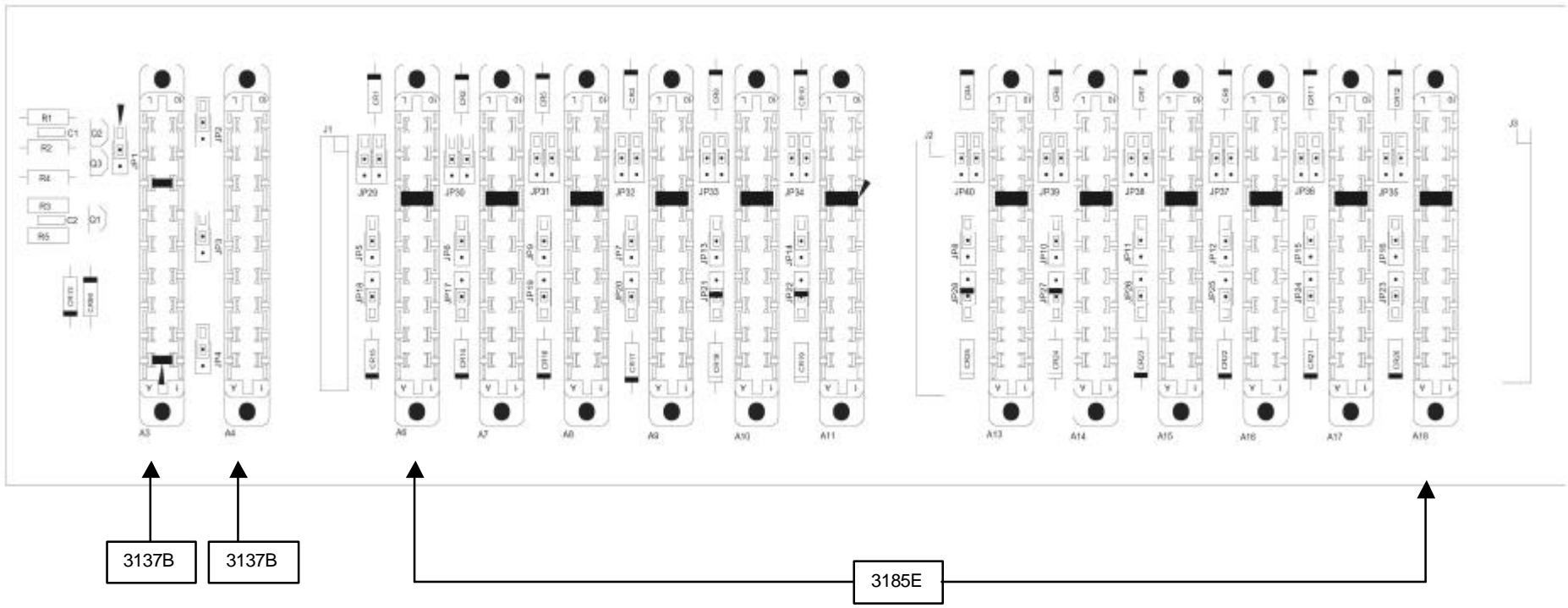
Referring to the drawing on the next page, if jumpers are on pins 1 to 2 and 3 to 4, then the audio from the telephone line - (or from **Audio Hi** and **Gnd** on the rear panel input if selected) - is used on this 3185E card. When this card is activated, the telephone audio is switched to the screw terminals marked **Aud Sw** on the rear of the unit. If jumpers are on pins 2 and 4, and 1 and 3, then the audio from the **Aud Sw** screw terminals on the rear panel is used to control this 3185E card.

JP5-JP16	O	3185E card reset only by DTMF tones
JP5-JP16	X	3185E card selected by DTMF tone OR POTS hang up.
JP29-JP40		These jumpers select audio input to the individual 3185E cards.

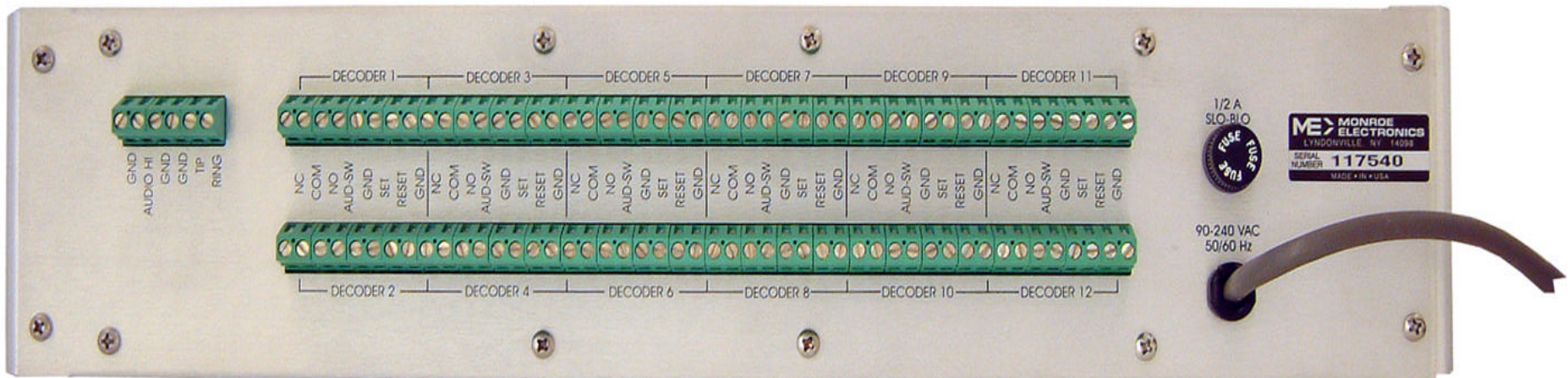
The jumpers JP5 through JP40 are associated with individual cards, as follows:

<u>JUMPERS</u>	<u>CARD</u>	<u>JUMPERS</u>	<u>CARD</u>
JP5, JP18,JP29	A6	JP8,JP28,JP40	A13
JP6,JP17,JP30	A7	JP10,JP27,JP39	A14
JP9,JP19,JP31	A8	JP11,JP26,JP38	A15
JP7,JP20,JP32	A9	JP12,JP25,JP37	A16
JP13,JP21,JP33	A10	JP15,JP24,JP36	A17
JP14,JP22,JP34	A11	JP16,JP23,JP35	A18

The functions of these junctions are explained above.



## R173 Rear Panel Connector Placement/Notation



The terminal blocks are in groups of 8 inputs, with each group associated with one of the 3185E cards installed. NC is the normally closed contact on the 3185E board, NO the normally open contact, and the COM terminal s the common of the relay contacts.

SET, when momentarily pulled to GND, turns ON the 3185E card, closing the relay.

RESET, when momentarily pulled to GND, turns OFF the 3185E card, opening the relay.

Note that if the 3185E card has been SET or RESET by one of the contacts, it may also be turned OFF or ON with the DTMF tones it is programmed to.

Also, if the 3185E card(s) is (are) set by means of the jumpers on the main board to receive audio from the telephone line, when the 3185E card(s) is(are) switched on the telephone audio is present at the AUD-SW.

# R-173 System Operation

## **Telephone access:**

Dial the telephone number that the unit is connected to. When the unit answers, it will play the message previously recorded to the caller. The caller enters the system 3 digit DTMF access code. If the message stops playing, the code has been accepted. The user then enters the codes required to actuate the selected 3185E decoder. Codes for any or all of the 3185E decoders may be entered at this time. When the caller is done, he hangs up the phone, and the unit waits for another call. If the jumper(s) are selected for reset, the 3185E card(s) selected are reset to the off state at this time.

## **Audio Access:**

If audio input is connected to the rear terminal, control of the 3185E cards may be initiated from here. This audio input may also be the telephone line audio, if the proper jumpers are selected.





# **Model 3567**

## **Audio Control Board**

### **INSTRUCTION MANUAL**

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2/6/03

## Description

The Model 3567 Audio Control Board is a 3"x5" circuit card module designed to record and replay a message, and then detect the proper DTMF<sup>®</sup> tone sequence to pass telephone line audio to an external modulator. It also will control through it's included normal open relay contacts, the user's devices.

## Specifications

### Power Requirements

+12VDC @ 75 mA

### Physical

5"H x 3"W x 0.6"D

## Operation

The DTMF audio input level from the 600 ohm transformer on the 3137B is adjustable. Normal position is in the center of it's range. Generally, problems arise if the level into the DTMF<sup>®</sup> decoder are too high.

The code sequence is defaulted to '911' if all three pin pairs on jumper J1 are open.

To record your message, make sure power is supplied to the unit and remove the front cover of the rack:

Depress and hold down the REC button while speaking at normal voice level about 6 - 10 inches from the microphone.

When finished, release the button.

Message duration is limited to 60 seconds.

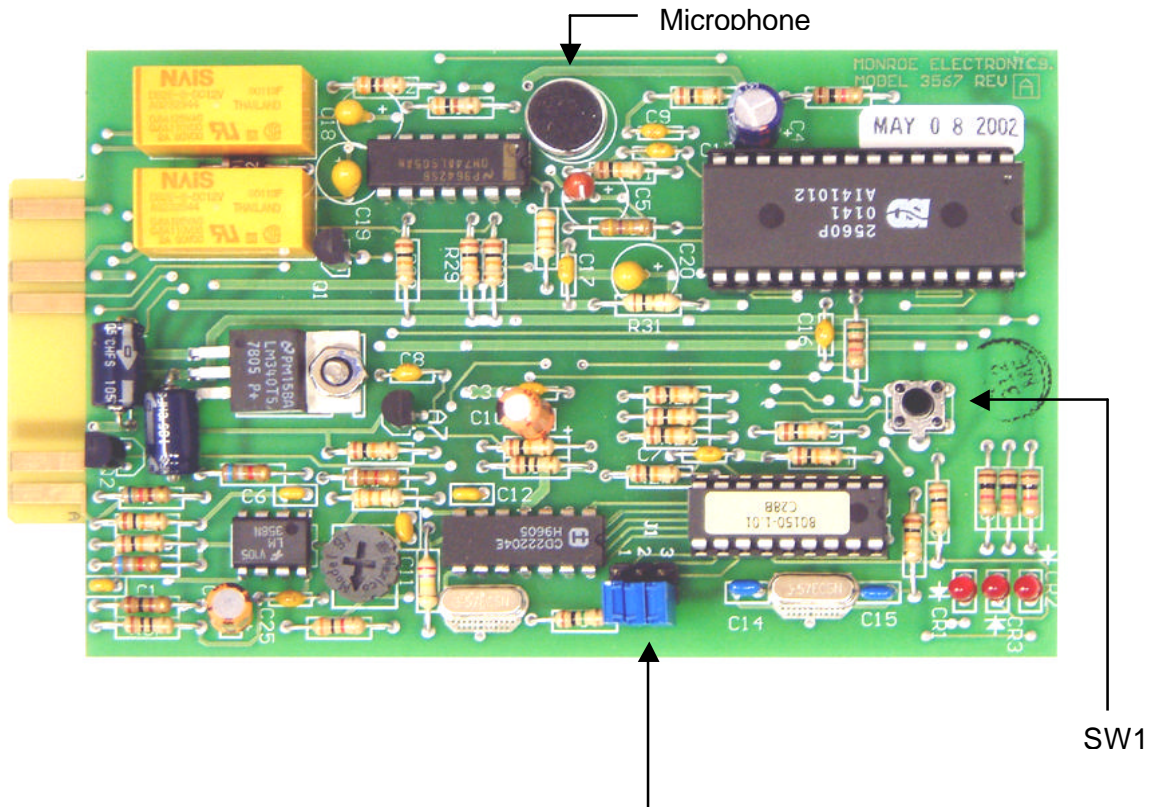
When calling the unit, the message will automatically play back continuously, until the proper DTMF<sup>®</sup> sequence has been received.

The default activation code is 911. This is selected by removing all jumpers from J1 pins 1, 2, and 3. If a different code is desired, install jumpers as shown in the table below to select indicated codes.

O indicates open, X indicates shorted connection between adjacent pins on J1.

Adjacent Pins			Code Selected
O	O	O	911
O	O	X	132
O	X	O	321
O	X	X	231
X	O	O	123
X	O	X	628
X	X	O	294
X	X	X	573

# 3567 Audio Control Board



O indicates open, X indicates shorted

J1	J2	J3	Code Selected
O	O	O	911
O	O	X	132
O	X	O	321
O	X	X	231
X	O	O	123
X	O	X	628
X	X	O	294
X	X	X	573

## WARRANTY

Monroe Electronics, Inc. warrants to the owners, each instrument and sub-assembly manufactured by them to be free from defects in material and workmanship for a period of one year after shipment from factory. This warranty is applicable to the original purchaser only.

Liability under this warranty is limited to service, adjustment or replacement of defective parts (other than fuses or batteries) on any instrument or sub-assembly returned to the factory for this purpose, transportation charges prepaid.

This warranty does not apply to instruments or sub-assemblies subjected to abuse, abnormal operating conditions, or unauthorized repair or modification.

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## RETURN POLICY TO FACTORY:

Materials returned to Monroe must have a Return Material Authorization number. To obtain a RMA number, contact our A/V Switching & Control Customer Service at 585-765-2254 or fax 585-765-9330. Customers have 30 days to determine that the product ordered fills their need and performs as described in Monroe's literature. Units returned for approved repair or credit, must be in the original packaging including all parts and paperwork plus be in very good physical condition. If not, the customer is billed the cost to refurbish the unit and for missing accessories and merchandise. No products may be returned for exchange or credit after 12 months of the shipment date. Monroe reserves the right to repair or replace units under warranty.