



# **Series 3000 Model R-107A**

## **DUAL TONE SENDER INSTRUCTION MANUAL**

Monroe Electronics  
100 Housel Ave | Lyndonville | NY | 14098  
800-821-6001 | 585-765-2254 | fax 585-765-9330  
monroe-electronics.com

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### **Accessories included:**

3000R-107A Manual on disk  
3185E Manual on disk  
3000R/22M Rack Mounting Kit

## **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.

## SPECIFICATIONS

<b>Number of Cue Tone Sequences:</b>	1 set of ON/OFF is standard 2 to 4 sets are optional
<b>Output Impedance:</b>	600 $\Omega$ , balanced
<b>Cue Tone Output Level:</b>	Adjustable, 0.25 to 1.75 Sec
<b>Cue Tone Transmission Rate:</b>	Adjustable, 5 to 200 Sec.
<b>Second Cue Tone Automatic Re-send Timing:</b>	Adjustable to 30, 60, 90, or 120 Sec.
<b>Power Requirements:</b>	90 – 264 VAC, $\pm$ 10%, 47 – 63 Hz UL/CSA/CD power supply
<b>Physical:</b>	3.5" H x 9.5" D x 19" W Weight: 5 lbs.

\*Specifications subject to change without notice.

## DESCRIPTION

The Series 3000 Model R-107A Dual Tone Sender is a preprogrammed CATV Cue Tone generator designed to place DTMF (Touch-Tone\*) cues on CATV program audio. The cue tones are transmitted to provide CATV systems with unattended switching and to signal the beginning and ending of:

- Daily Programming
- Program Segments
- Local Announcements or Commercials

The Model R-107A can provide up to eight Cue Tone codes; four ON and four OFF. An internal timer permits precise 30, 60, 90 or 120 second timing of the first OFF code for local announcement or commercial substitution cues.

Internal Cue Tone Decoders monitor program audio and provide verification that the cues have been properly transmitted.

Front panel pushbutton switches and indicators facilitate operation; rear panel terminals allow external switches and indicators to be added if desired.

Standard with the R-107A is leading edge trigger switching provided by Monroe Model 3223B-2 printed circuit board.

Trailing edge trigger switching is available by replacing the 3223B-2 board with Monroe Model 3223C-2. To request the trailing trigger option or for more information regarding leading/trailing trigger switching please call customer service at 1-800-821-6001.

\*Touch-Tone is a registered trademark of AT&T

# INSTALLATION

Three terminal strips are provided on the rear panel of the model R-107A for external connections.

## PROGRAM AUDIO CONNECTION:

To ensure that no program audio is present while cue tones are being transmitted the program audio should be routed through the normally closed contacts of the R-107A's balanced audio relay.

- A. Open the program audio line and connect the audio source across barrier strip TB1, terminals 11 and 12.
- B. Take the audio output from TB2, terminals 11 and 12.

NOTE: In the event of power or equipment failure the R-107A will not interrupt the program audio.

If the Cue Tones will be inserted on their own audio carrier, make the connection in step B above.

## MONITOR AUDIO CONNECTION:

Program monitor audio must be wired to TB3, terminals 11 and 12 to provide verification that the cue tones have been properly transmitted. To accomplish this, jumper TB2 terminals 11 and 12 to TB3 terminals 11 and 12.

If program monitor audio is not available, terminals 11 and 12 may be wired directly to the program audio source if desired. The monitor audio input is transformer coupled (600 ohms) to the internal decoders.

## REMOTE SWITCH CONNECTIONS:

Barrier strip TB1, terminals 1 through 9, provides connections for installation of remote switches to activate cue tone codes.

Momentary pushbutton switches can be wired from any or all terminals 1 through 8, to terminal 9. Momentarily grounding any terminal 1 through 8 will cause the R-107A to transmit the code controlled by that input if equipped with 3223B-2. Transmission is on release of terminal when equipped with 3223C-2.

TB1 TERMINAL	CODE
1	1 ON
2	1 OFF
3	2 ON
4	2 OFF
5	3 ON
6	3 OFF
7	4 ON
8	4 OFF
9	COMMON (GROUND)

**REMOTE INDICATOR CONNECTION:**

Barrier strip TB2 terminals 1 through 9 provide connections for installation of remote indicators controlled by the internal Cue Tone Decoders.

Any type of LED indicators with proper current limiting resistors can be used for remote indicators.

TB2 TERMINAL	CODE
1	1 ON (GREEN)
2	1 OFF (RED)
3	2 ON (GREEN)
4	2 OFF (RED)
5	3 ON (GREEN)
6	3 OFF (RED)
7	4 ON (GREEN)
8	4 OFF (RED)
9	+5VDC OUTPUT

**COMMERCIAL RUN RELAY:**

Barrier strip TB3, terminals 1 through 3, provide output contacts that can be used to activate external logging equipment or indicators if required.

TB3 Terminal	Relay Contact
1	Common
2	Normally Closed
3	Normally Open

**NOTE:** When installing a 3185E decoder card into the unit jumper J1 must be disconnected and jumper J2 must be connected.

This sets the audio input to the board to UNBALANCED and the audio input load to 10Kohms.

Also, the normal setting of the gain potentiometer in the center of the board is to the CENTER of its range. (The arrow on the adjustment dial is pointed towards C4 and J7.)

# OPERATION

The first channel on the R-107A is capable of two different modes of operation, automatic or manual: the remaining three channels are manual operation only.

## MANUAL OPERATION

With the front panel **AUTO-MAN** switch on **MAN** the front panel (or remote) pushbutton switches control the ON and OFF codes for all four channels.

When the R-107A is first plugged into a 90 - 264 VAC outlet the front panel red indicator lamps will be lit for each channel that is installed. The amber RUN indicator lamp will remain unlit in manual operation mode.

Pressing the front panel ON switch for any active channel will cause the R107A to send its preprogrammed Cue Tone out on TB2, terminals 11 and 12. When equipped with 3223B-2, transmission begins when switch is **pushed**. When equipped with 3223C-2, transmission begins when switch is **released**. On completion of the Cue Tone transmission the corresponding front panel red indicator will go out and the corresponding green indicator will light.

After waiting a minimum of 3 seconds, the front panel corresponding OFF pushbutton switch may be pressed. Once again, the preprogrammed Cue Tone is sent out on TB2, terminals 11 and 12. On completion of the Cue Tone transmission the corresponding front panel green indicator will go out and the corresponding red indicator will light.

## AUTOMATIC OPERATION

With the front panel **AUTO-MAN** switch in the **AUTO** position, the front panel OFF switch for the first channel (the red pushbutton switch closest to the AUTO-MAN switch) will no longer need to be pressed to send the OFF code.

When the Channel 1 **ON** code pushbutton is pressed the OFF code will automatically be transmitted after the time interval determined by the position of the 30/60/90/120 second selector switch and preroll time programmed. The RUN indicator will light and remain lit until the OFF code is transmitted. The ON/OFF channel indicators will operate the same as when in manual operation.



# ADJUSTMENTS

All adjustments are made with respect to barrier strip TB2, terminals 11 and 12.

## CUE TONE LEVEL:

A screwdriver adjustment in the center of the rear panel is provided for adjustment of the Cue Tone level into the program audio. Maximum audio level is obtained by turning this control fully clockwise.

The Cue Tone level on the program audio should be adjusted for – 12 dBmV (200 MV RMS). PC Board Model 3171B (A4 position) has an on board level adjustment R10. By placing the rear panel level adjustment in its center position the Model 3171B R10 can be adjusted counterclockwise to decrease the Cue Tone level to the desired level.

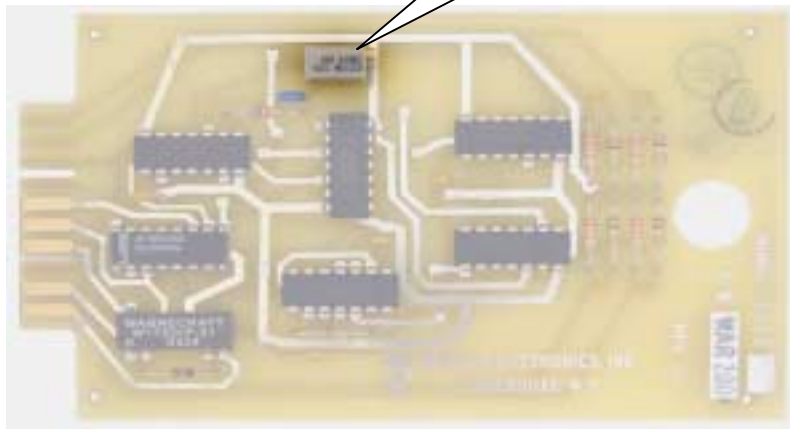
## CUE TONE DELAY:

The delay time between a switch closure and the beginning of a Cue Tone transmission may also be adjusted. PC Board Model 3223\_-2 (A5 position channel 1 and 2) and or (A2 position channel 3 and 4) has an on board adjustment (R12 on the 3223C-2 or R11 on the 3223B-2.); refer to the appropriate board layouts. Turning the potentiometer clockwise will lengthen delay time between a switch closure and the beginning of a Cue Tone transmission, this factory set at a one second delay.

## CUE TONE TRANSMISSION RATE:

The Cue Tone transmission rate may be adjusted for other than the factory setting of 10 Hz (50 ms first pulse width). The Model 3223\_-2 (A5 position channel 1 and 2) and / or (A2 position channel 3 and 4) has an on board adjustment pot (R12 on the 3223C-2 or R11 on the 3223B-2.) Turning the pot clockwise will increase the transmission rate; 12.5 Hz. Equals 40 ms first pulse width; 14.3 Hz. Equals 35 ms first pulse width.

R11 located on  
3223B-2 pcb



Front view – R107A  
(Cover removed)

