INSTALLATION INSTRUCTIONS

MODEL MRC44KP
MRC44 KEYPAD
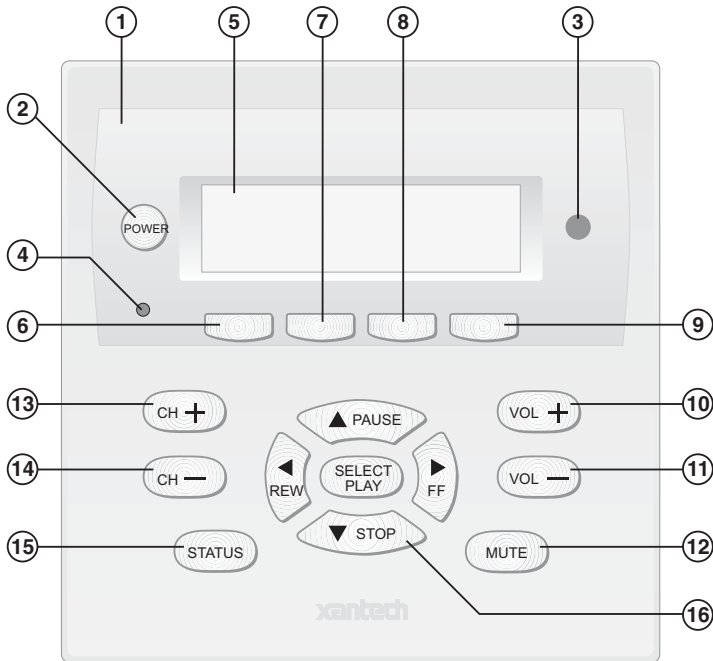
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Section Title

*For additional information on installation of the MRC44 System,
refer to the MRC44 Installation Instructions, part no. 08901160.*

# MRC44 KEYPAD FEATURE DESCRIPTIONS

**Figure 1 – The Model MRC44 Keypad
Front Panel Features and Functions**

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1. MRC44 Keypad.

2. Power. Turns the zone ON and OFF. Can be programmed with IR codes or sequences.

3. IR Sensor. Receives IR from hand-held remotes to control both source components and the MRC44 system. A Programmable Learning Remote such as the Xantech URC2 is recommended for integrating the IR commands of the MRC44 and source components into a single controller. Compatible with most brands of remote controls, though some may not be programmable and will therefore only control the source components.

4. Status Indicator LED. Will indicate zone/system status and will flash as IR is received at the IR Sensor. These indicators, one for each Keypad, provide the following Information:
   a) Off=Zone OFF
   b) Steady Green=Zone ON
   c) Flash Green=Zone MUTE
   d) Flash Red=IR Sensor INPUT or Keypad OUTPUT
   e) Flash Amber=System BUSY

5. LCD Display. When the zone power is ON, the LCD will indicate the selected source, zone and system status, zone volume level and other system conditions. The display is automatically backlit when any button is pressed.

6. **Source 1 Selector.** Selects source input 1, reverses source icon on LCD Display when source is selected and sends IR commands programmed to this button (if any) to the source 1 and common emitter outputs. Also used in Dynamic Monitor Lockout and Dynamic Zone Link Modes.

7. **Source 2 Selector.** Selects source input 2, reverses source icon on LCD Display when source is selected and sends IR commands programmed to this button (if any) to the source 2 and common emitter outputs. Also used in Dynamic Monitor Lockout and Dynamic Zone Link Modes.

8. **Source 3 Selector.** Selects source input 3, reverses source icon on LCD Display when source is selected and sends IR commands programmed to this button (if any) to the source 3 and common emitter outputs. Also used in Dynamic Monitor Lockout and Dynamic Zone Link Modes.

9. **Source 4 Selector.** Selects source input 4, reverses source icon on LCD Display when source is selected and sends IR commands programmed to this button (if any) to the source 4 and common emitter outputs. Also used in Dynamic Monitor Lockout and Dynamic Zone Link Modes.

10. **Vol +**. Increases zone volume and moves the Volume Bar on the LCD Display to indicate volume level (non-programmable).

11. Vol -. Decreases zone volume and moves the Volume Bar on the LCD Display to indicate volume level (non-programmable).

12. Mute. Mutes zone speaker output. Sends IR commands programmed to this button (if any) to the selected source and common emitter outputs.

13. CH +. Sends IR commands programmed to this button to the selected source and common emitter outputs.

14. CH -. Sends IR commands programmed to this button to the selected source and common emitter outputs.

15. Status. Displays zone and system status (zone/source activity, linked zones, audio setup, etc – non-programmable).

16. Select/Play, Stop, Pause, Rew, FF. Each send IR commands programmed to these buttons to the selected source and common emitter outputs.
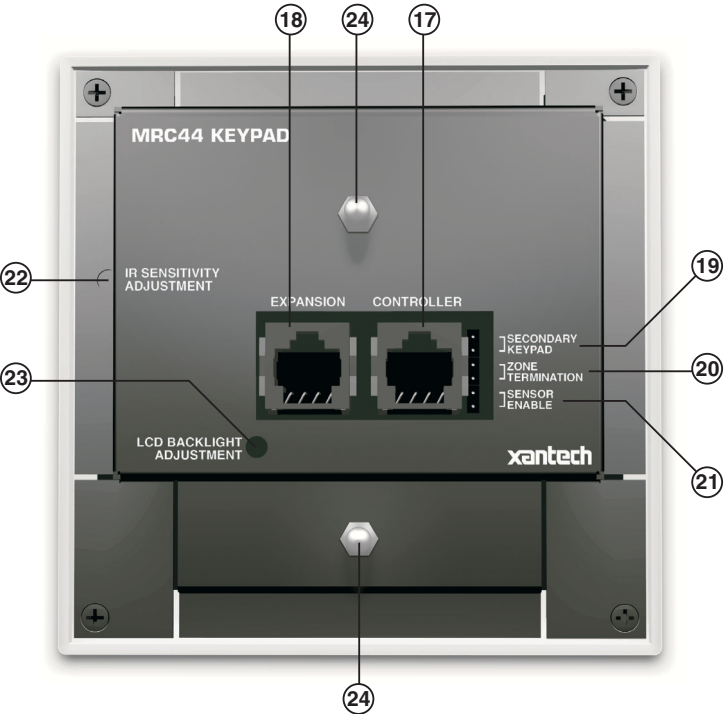
**Figure 2 – The Model MRC44 Keypad
Rear Panel Features and Functions**

17. **Controller Terminal.** RJ45 Jack. Connects Keypad to zone keypad input on MRC44 Controller via CAT5 cable.

18. **Expansion Terminal.** RJ45 Jack**.** Allows a second Keypad or external IR receiver for each zone.

19. **Secondary Keypad.** Jumper. Used to configure as secondary keypad in zone.

20. **Zone Termination.** Jumper. Do not remove jumper if there is only one keypad in a zone. If there are two keypads in a zone, remove only from the first keypad.

21. **Enable Sensor.** Jumper. Enables IR sensor on Keypad. Remove when using an external IR receiver.

22. **IR Sensitivity Adjustment.** Carefully adjust for background light level to prevent false triggering of the IR circuits. Slowly turn counter-clockwise to reduce sensitivity.

23. **LCD Backlight Adjustment.** Adjusts brightness of LCD backlight. This adjustment does not affect the backlight level for the buttons. Slowly turn counter-clockwise to reduce brightness.

24. **Snap-in Pins.** These pins snap into the MRC44 Keypad wall bracket for mounting.
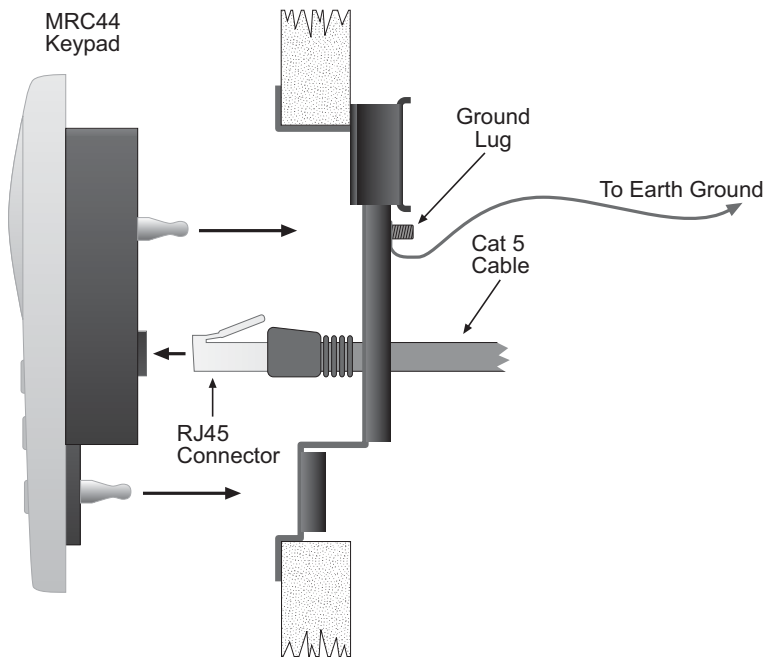
MRC44 KEYPAD PHYSICAL LOCATION AND MOUNTING

Figure 3 - Mounting and Installing the MRC44 Keypad

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Keypad mounting for the MRC44 Keypad does not require a junction box. The MRC44 keypad can be mounted on drywall, lath & plaster, button board or other surfaces covering a hollow wall. Follow these simple procedures to install the provided MRC44 mounting bracket and keypad:

1. Cutting the hole
   a. Mark the desired mounting location for the center of the keypad.
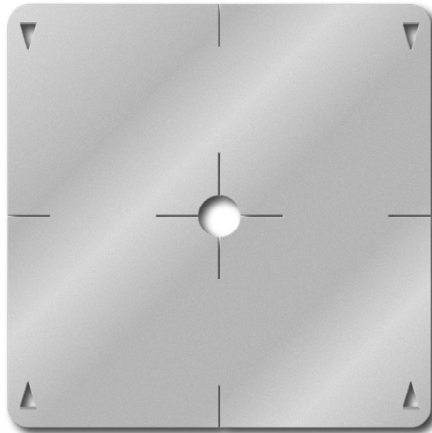   b. Using a level, make proper horizontal and vertical marks on surface to be cut, to properly orient template.

Figure 4 – MRC44 Keypad mounting template

c. Locate the provided template so that the mark is in the center of the hole, which is in the center of the template.
d. Rotate the template around the center until the template is level.
e. Press or hammer the template in place so that the holding tabs pierce the wall and hold the template in place.
f. Mark or scribe the outline of the template on the wall.
g. Remove the template and cut a clean hole through the wall along the outline of the template, being sure that your cut is on the outline. Any cut outside of the outline by more than ¼" may not be covered by the keypad.
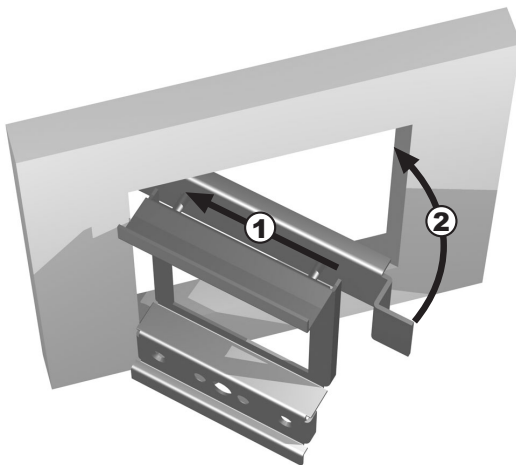

Figure 5 – Installing the MRC44 Keypad mounting bracket in the wall

2. Installing the Mounting Bracket

   a. Attach the ground wire to the ground lug to the rear of the back-bar with the provided green screw, before beginning the bracket installation process.
   NOTE: A ground wire connected to Earth ground is required to protect against static discharge.

   b. Run the supplied screws through the top (marked on the front of the bracket) of the mounting bracket into the back-bar as shown in **Figure 5**.

   c. Pull the CAT5 cable through the hole in the wall.

   d. Pull the CAT5 cable through the hole in the mounting bracket.

   e. Slide the left or right side of the back-bar into the wall.

   f. Center the mounting bracket in the wall and tighten the screws until the bracket is firmly held in the wall. Over tightening will distort the bracket and prevent the Keypad from snapping tight against the wall. Under tightening will cause the Keypad to be loose against the wall.

   g. If there is not enough room to slide the keypad in as described above, you can hold the back-bar in place as you run the screws through the mounting plate and into the back-bar. TIE A LONG STRING TO THE BACK-BAR so that you can easily retrieve it in case you drop the back-bar into the wall!

3. With the Controller/Amplifier turned off, connect the CAT5 cable to the appropriate RJ45 connector, using **Figure 7** as a guide for CAT5 termination.

4. Add or remove jumpers on the rear of the MRC44 keypad-according to Table 1 (Keypad connections).

5. Firmly snap the MRC44 Keypad into the bracket that you have just installed (see **Figure 3**).

6. Confirm all Keypad operations.
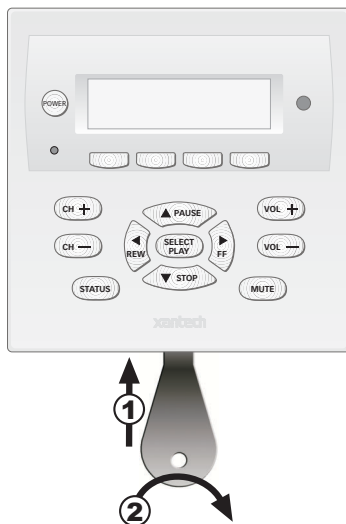
MRC44 KEYPAD REMOVAL

Figure 6 – Removing the MRC44 Keypad from the wall

1. Insert the MRC44 keypad removal tool into the slot at the bottom of the keypad, as shown in **Figure 6**, being sure that the tool is inserted so that the "insert to here" line slides under the Keypad. This will reduce the risk of damage to the Keypad or the wall.
2. Twist the removal tool in either direction until the bottom of the Keypad pulls away from the wall, then carefully grip the edges of the Keypad with your fingers and pull it off the wall.
   NOTE: Since the Keypad snaps into the mounting bracket and there are a large variety of wall textures, the Keypad may POP OUT or require some additional effort to pull it off the wall, depending on your particular installation.
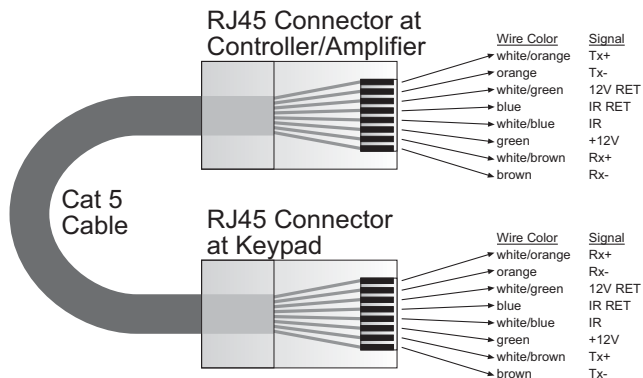
RJ45 Connector at Controller/Amplifier

Wire Color	Signal
white/orange	Tx+
orange	Tx-
white/green	12V RET
blue	IR RET
white/blue	IR
green	+12V
white/brown	Rx+
brown	Rx-

Cat 5 Cable

RJ45 Connector at Keypad

Wire Color	Signal
white/orange	Rx+
orange	Rx-
white/green	12V RET
blue	IR RET
white/blue	IR
green	+12V
white/brown	Tx+
brown	Tx-

Figure 7 - CAT5 Pin Assignments (per EIA/TIA 568B)

MRC44 Keypad Cable Connections at the MRC44 Controller/Amplifier
1. See **Figure 7** for termination of the CAT5 cables to the RJ45 connectors.
2. Connect the zone keypad to the appropriate zone Keypad connector on the rear of the MRC44 Controller/Amplifier.

CONNECTIONS AT THE ZONE LOCATION
Single Keypad Connections
1. Refer to **Figure 7** for proper termination at the zone-end of the CAT5 cable.
2. Connect the CAT5 cable from the MRC44 Controller/Amplifier into the RJ45 jack marked "Controller" on the rear of the MRC44 keypad.
3. Depending on the number of MRC44 keypads and IR receivers used in a zone the jumper pins on the MRC44 keypad are to be connected as shown in **Table 1**.

Multiple Keypad Connections
1. For a second keypad in the same zone, terminate the CAT5 cable with the same configuration as shown in **Figure 7**.
2. Connect the CAT5 coming from the MRC44 Controller to the "CONTROLLER" jack on the Primary Keypad. Plug a CAT5 cable into the "EXPANSION" jack on the Primary Keypad and connect it to the "CONTROLLER" jack on the Secondary Keypad. Set the jumpers according to the above Table 1.
3. When adding an IR receiver in the zone, set the jumpers according to the above table and connect the cables as shown in **Figure 8**.

Application	Primary Keypad			Secondary Keypad		
	Secondary Keypad	Zone Termination	Sensor Enable	Secondary Keypad	Zone Termination	Sensor Enable
One keypad in Zone with IR Sensor enabled	**OFF**	**ON**	**ON**			
Two Keypads in Zone with IR Sensors enabled	**OFF**	**OFF**	**ON**	**ON**	**ON**	**ON**
One Keypad and one separate IR Receiver in Zone	**OFF**	**ON**	**OFF**			
Two Keypads and two separate IR Receivers in Zone (Sub-Zone)	**OFF**	**OFF**	**OFF**	**ON**	**ON**	**OFF**

Table 1 – MRC44 Keypad Jumper Configurations

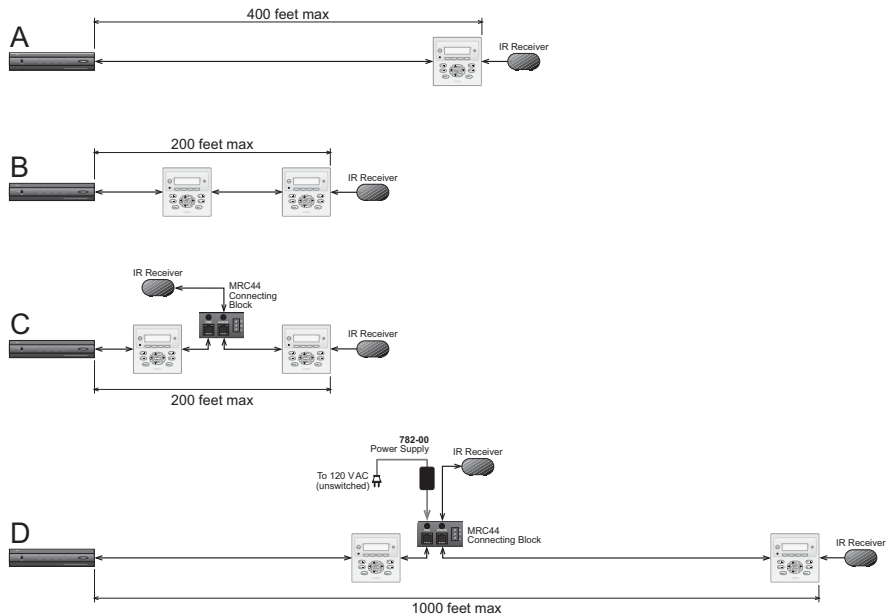**Extended Runs and Secondary Keypad In Zone**

Figure 8 – MRC44 Keypad CAT5 Cable Lengths

The maximum cable length for CAT5 connections to a single keypad is 400 feet (see **Figure 8A**). For two keypads in a zone, the distance to the last keypad is 200 feet (see **Figure 8B**).
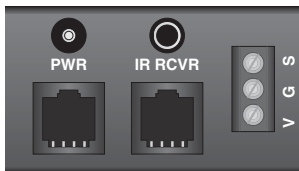

Figure 9 – MRCCB1 MRC44 Connecting Block

If both keypads in the zone are using an external IR receiver, the MRC44 Connecting Block (see **Figure 9**) is used to expand the connections on the back of the primary keypad as shown in **Figure 8C**.

If your installation requires cabling beyond these limits you can use the MRC44 Connecting Block to power the keypads from a separate run of +12VDC as shown in **Figure 8D**. The +12VDC can also be generated in the zone from a model 782 power supply or from a source at the Controller/Amplifier location (run an 18 gauge speaker wire to the MRC44 Connecting Block to minimize line loss. This method will extend the distance to the last keypad in the zone to a maximum of 1000 feet.

The Maximum cable run to the external IR receiver in each of the above cases is 250 feet from the keypad.