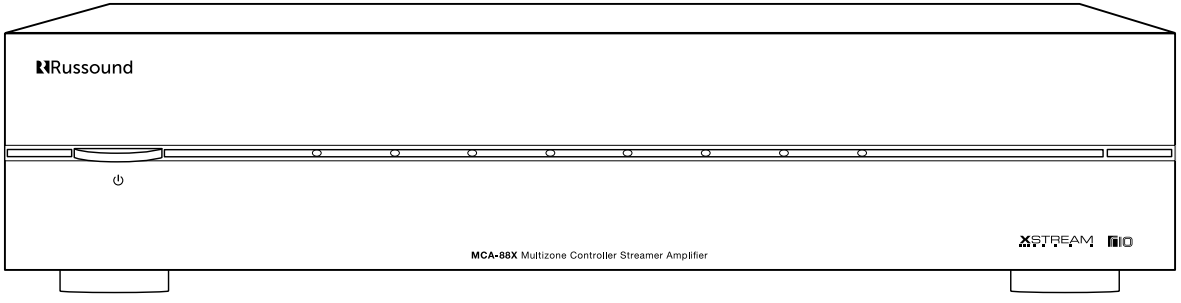
Russound®



PANDORA® Spotify® SiriusXM INTERNET RADIO tunein vTuner

Made for iPod iPhone iPad

AirPlay

Spotify®

MCA-88X

8 Source, 8 Zone Controller Amplifier

Installation Manual

NOTICE:
INTERNET CONNECTION REQUIRED FOR PRODUCT INSTALLATION

There are two things that must be done at the time of installation of this product that require a working internet connection:

1. Enter valid Russound Certified Installer credentials. The MCA-88X is shipped in a locked state so that it cannot be operated without first being configured by a Russound Certified Installer.

RUSSOUND CERTIFIED INSTALLER REQUIRED

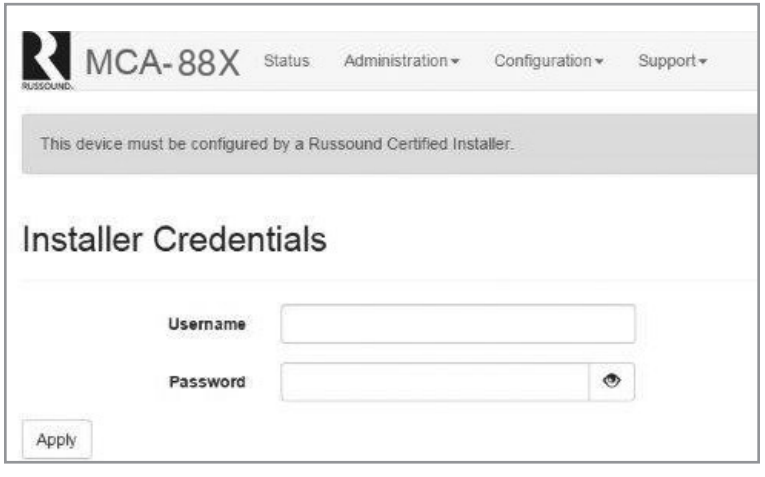
IF YOU ARE NOT A RUSSOUND CERTIFIED INSTALLER, YOU WILL NOT BE ABLE TO INSTALL AND CONFIGURE THIS PRODUCT.

If you are a custom installation professional and wish to become authorized as a Russound Certified Installer, please contact your Russound Sales Representative for more information.

Note: If you are a Russound Certified Installer and you plan on installing this product on a job site that may not have working internet access, please configure the unit at your shop or other location where internet access is available BEFORE you take it to the job site.

2. Firmware may be updated through Web Config configuration webpages or by using a USB stick with the latest firmware. In both cases, an internet connection is required for obtaining the most recent firmware.

Note: If an internet connection will not be available at the place of installation, please download the latest firmware from the Russound website to your laptop or to a USB drive **before** going to the job site.



Russound Certified Installer credentials must be entered through the Web Config configuration webpages.

Lockdown Feature

When a product is shipped from Russound, it will only operate in a "locked" state. In this state, no audio or control of attached devices via its user interfaces (keypad, touchscreen, MyRussound App) is available. In order to unlock the system, valid Russound Certified Installer credentials must be entered in the Web Config.

When the controller is first powered on, a message will appear on all connected MDK-C6 keypads, XTS touchscreens and the MyRussound App indicating that the device must be unlocked. The message will contain the IP address of the controller. Using your mobile device or computer, browse to the controller's IP address (type http:// and then the IP address).

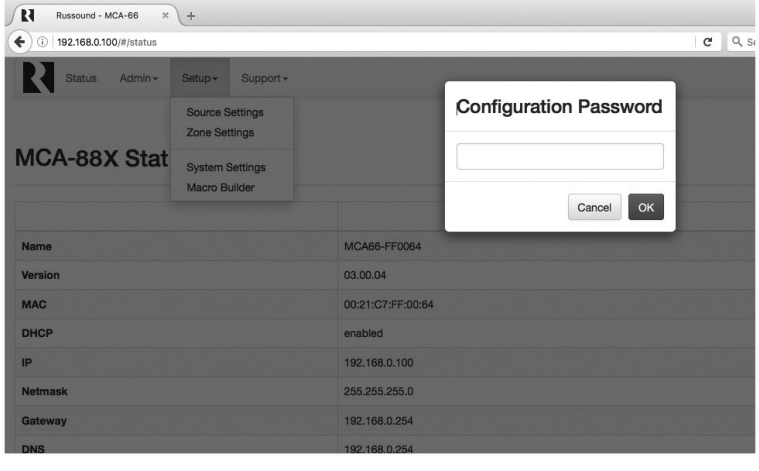
If you are using the MyRussound App, the IP address appears as a link that will direct you to the Web Config via your local web browser.

If you do not have a valid Russound Certified Installer credential, please contact your Russound Sales Representative.

Configuration Password

In order to prevent unauthorized changes to configuration settings, a default password of **russound123** has been created that will be required to be entered prior to changing any configuration settings. Enter this password when prompted for a Configuration Password.

This password is separate from the Russound Certified Installer password that is used to unlock the controller and cannot be modified.



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Thank you for choosing the Russound MCA-88X Multizone Controller Amplifier to enhance your home with multiroom audio.

MCA-88X Feature Overview

Available User interfaces: The MCA-88X works with the MDK-C6 keypad, SLK1 keypad, XTS wall-mounted touchscreen, and the MyRussound App. For information about user interfaces, go to the Russound website at www.russound.com.

Note: The internal AM/FM tuner, available in our previous C-Series controllers, was replaced in the MCA controllers with a *Bluetooth*® input extension for the easy addition of an optional BTC-1X *Bluetooth* receiver. If you'd like to add a tuner, Russound manufactures the ST-1 rack-mountable tuner which can be added to the MCA-88X.

The Russound MCA-88X features built-in XStream™ technology, enabling popular streaming content from the cloud, home network, tablets and phones - all from a single component.

Firmware updates can now be performed using either the USB connection or Ethernet connection.

Configuration of the controller is performed using a network connection only. All of the configuration of the controller can be performed using our browser-based Web Conf.

Key features include:

- Twelve channels of cool running digital amplification rated at 40 watts per channel
- Built-in XStream digital streaming audio source
- Digital Audio Inputs (3 coax, 1 optical)
- 8 Sources delivered to up to 8 zones for sharing music throughout the home
- Built-in *Bluetooth* extension input to connect a BTC-1X receiver.
- Scalable up to 48 zones.
- Ethernet connectivity for programming and control.
- On-board configuration available with Web Config via an internet browser on smartphone, tablet, or laptop.
- Supports 32 Global System Favorites as well as 2 Favorites per Zone.
- Works with RNET smart sources, transmitting metadata (song, artist and other information) for display on the keypads.
- Audio paging with a 12VDC trigger input.
- Party mode, Do Not Disturb, and source / zone linking options.
- Alarm clock and sleep timer (with MDK-C6 keypad required).
  Note: Alarm function requires a dedicated source input such as the ST-1 Smart Tuner
- Simplified programming and control via intelligent IR learning capabilities for quick setup.
- Fixed/Variable line level outputs for all zones.
- Routed IR source control outputs for up to 6 sources, with shared IR available for sources 7 and 8 and one common IR output.
- Home Theater trigger in/out.

Key Programming Features

The MCA-88X Controller now has a new programming feature called Web Config. This programming feature allows the installer to connect to the controller via its IP address using any smartphone, tablet, or laptop and configure the entire system.

Web Config is designed to be used with any internet browser. With Web Config, the installer now has the ability to get a system up and running right from their smart phone or tablet.

Web Config Features

- Assign Zone and Source names
- General network configuration (DHCP/static IP)
- Firmware Updates
- Zone Volume Trim
- Enable/Disable Zone All On Participation
- Source Type and Source Volume Trim
- Switch between Digital and Analog inputs
- IR Source Programming
- Learned IR programming
- Macro Setup
- Save/Load configuration files
- Zone page enable/disable
- Keypad button configuration
- Power Management configuration
- Source and Zone linking
- Backup and restore

Advanced Configuration Options

Zone and Source Names - a list of predefined names are available and will be visible in the user interfaces. Custom naming is also possible.

Source Exclusion - allows you to limit the sources available to a particular zone.

Party Mode Participation - defines whether a zone can participate in Party mode.

Zone and Source Linked Groups - two groups of each type are allowed per controller. Groups share source selection and party mode participation.

All ON Participation - defines whether or not a zone will respond to the All ON command.

Page Participation - defines whether a zone will respond to a page event.

Page Volume - sets the volume of a page event in each zone.

Power Management of Sources - enabled / disabled per source. This feature uses IR commands and audio signal sensing to power up sources and initiate audio to confirm source power states. If enabled, the source will turn on when the first zone is turned on or the home theater trigger has a12VDC signal present. The source will turn off 5 minutes after the last zone is turned off, or 5 minutes after input is discontinued from the home theater trigger.

Sound Controls - Adjust Bass, Treble, Balance, Loudness and Turn On Volume initial settings per audio zone.

IR Keycode Learning - allows IR codes to be learned, saved, and managed.

Page Input on Source 8 - assigns Source 8 as a paging input.

Ethernet Connection

The Ethernet connection is used for configuration and programming as well as for enabling control via the MyRussound App. The default network setting is DHCP-enabled, but it may be configured with a static IP address using the Web Config software.

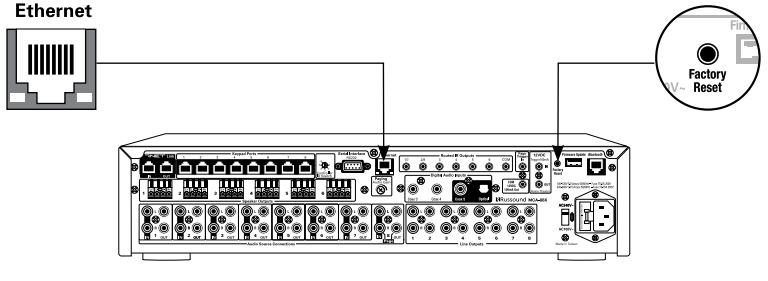
Note: DHCP must be enabled on the LAN for initial configuration. A static IP address can be configured later.

The IP Address of the MCA controller can be obtained via several methods.

- By viewing the DHCP table of connected devices within the settings of the router.
- By using an IP Scanner app on a smartphone or tablet.
- By using a XTS touchscreen or MDK-C6 keypad:

To display the IP Address on an XTS Touchscreen press and hold the settings button for at least 3 seconds to enter the installer settings menu. The controller IP address will be displayed.

To display the IP Address on an MDK-C6 keypad, select Home > Settings > Installation > Network Settings.

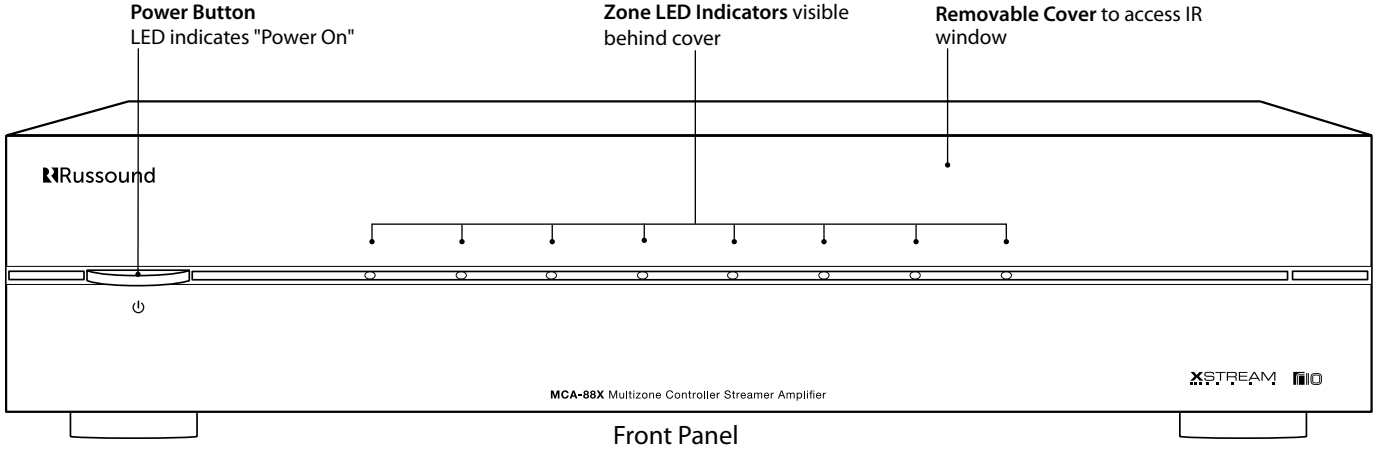


Factory Reset

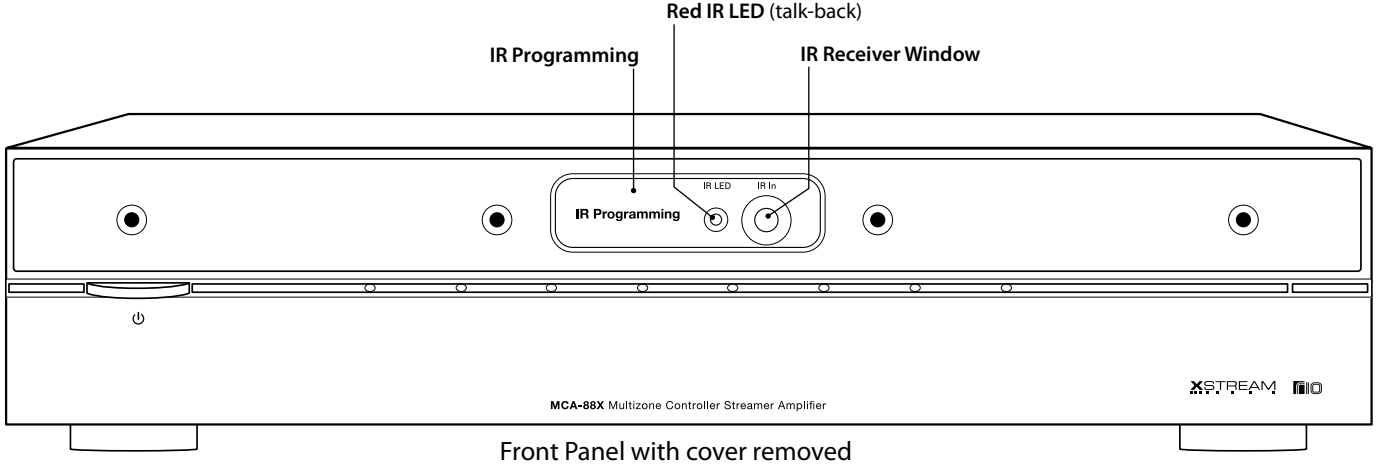
The factory reset button has two functions. A 3-second press and hold will restore network settings to DHCP. A 10-second press and hold will reset the controller to its factory default settings.

Note: A unit that has been reset to factory default will have no configuration and will need to be unlocked and reconfigured by a Russound Certified Installer.

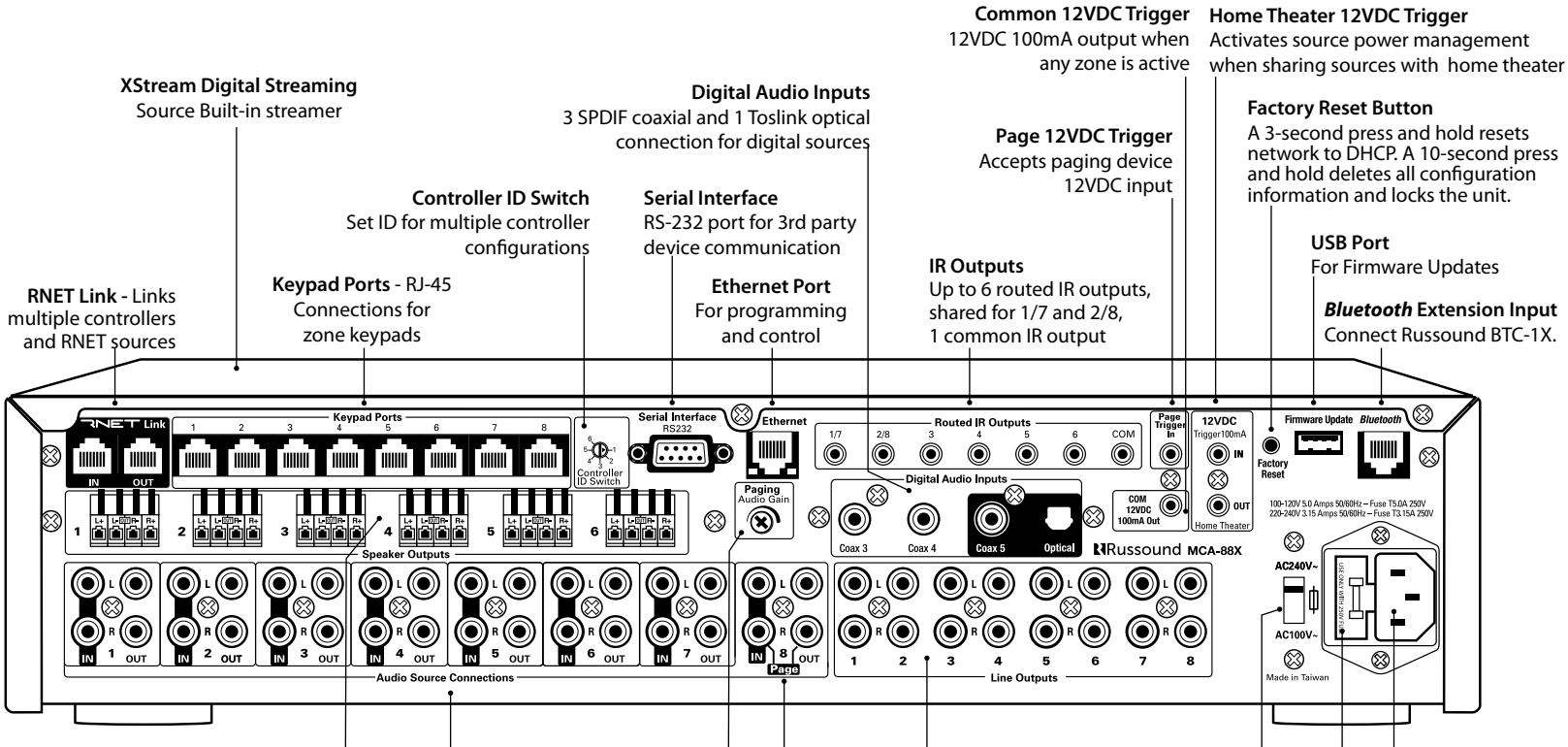
CONTROLLER FRONT PANEL



Front Panel



Front Panel with cover removed


Common 12VDC Trigger
12VDC 100mA output when any zone is active
Home Theater 12VDC Trigger
Activates source power management when sharing sources with home theater
XStream Digital Streaming
Source Built-in streamer
Digital Audio Inputs
3 SPDIF coaxial and 1 Toslink optical connection for digital sources
Page 12VDC Trigger
Accepts paging device 12VDC input
Factory Reset Button
A 3-second press and hold resets network to DHCP. A 10-second press and hold deletes all configuration information and locks the unit.
Controller ID Switch
Set ID for multiple controller configurations
Serial Interface
RS-232 port for 3rd party device communication
USB Port
For Firmware Updates
Keypad Ports - RJ-45
Connections for zone keypads
Ethernet Port
For programming and control
IR Outputs
Up to 6 routed IR outputs, shared for 1/7 and 2/8, 1 common IR output
***Bluetooth* Extension Input**
Connect Russound BTC-1X.
RNET Link - Links multiple controllers and RNET sources
RNET Link
IN
OUT
Keypad Ports
1 2 3 4 5 6 7 8
Controller ID Switch
Serial Interface
RS232
Ethernet
Routed IR Outputs
1/7 2/8 3 4 5 6 COM
Page Trigger In
12VDC
Trigger100mA
IN
OUT
Home Theater
Factory Reset
Firmware Update
Bluetooth
Paging
Audio Gain
Digital Audio Inputs
Coax 3
Coax 4
Coax 5
Optical
COM
12VDC
100mA Out
Russound MCA-88X
100-120V 5.0 Amps 50/60Hz – Fuse T5.0A 250V
220-240V 3.15 Amps 50/60Hz – Fuse T3.15A 250V
AC240V~
AC100V~
Made in Taiwan
Speaker Outputs
Audio Source Connections
Line Outputs
Page
Audio Source Connections
Signal sensing stereo line level inputs and loop outputs
Line level Outputs
Can be set fixed or variable (with software) for each zone
AC 120/240V Input
Detachable grounded power cord connection
Speaker Outputs
Connect speakers for each of the first six zones
Paging Audio Gain
Adjusts sensitivity
Page Audio In/Loop Out
(optional)
AC Voltage Switch
Select appropriate voltage
Fuse Holder
Holds replaceable fuse for AC input connection

Rear Panel

Ventilation Requirements

Important: The MCA-88X should be situated so that its location or position does not interfere with its proper ventilation. Do not block vents above or to the sides of the unit, as it requires ventilation for proper operation. Do not expose to excessive dust, and do not allow dust to build up on the unit and block vent holes. Do not place the MCA-88X above or below a heat-generating component such as an audio amplifier.

Be sure to leave at least 2 inches of space to the sides of the unit with open air flow above. A single-space rack mount vent or about 1.75 inches must be kept clear above and below the unit.

Installation

The MCA-88X controller can be rack mounted or placed on a shelf in an equipment rack. The controller occupies two rack spaces with the feet removed.

The controller can be installed in an equipment rack using the included rack-mount ears and hardware to attach the ears to the controller chassis.

Up to six controllers can be connected for up to 48 zones on the system.

Electrical Power

The MCA-88X operates at 100-120VAC ~60 Hz or 220-240VAC ~50 Hz. Voltage is selected by the voltage switch on the rear panel and incorporates the appropriate detachable power cord. It is recommended that the MCA-88X and the source equipment be plugged into a dedicated 20-amp circuit. A power line conditioner can reduce interference problems caused by noise found in some electrical systems.

The power switch for the unit is on the front panel.

Important Considerations

- Disconnect the power cord before making any connections to the controller.
- Verify that all connections and polarity are correct.
- Keep all power cords away from all signal cables to prevent humming from induced noise.
- Choose reliable signal cables and patch cords.
- Label all wires with the room location at both ends of the wire.
- Avoid running speaker wires or signal cables close to house electrical wiring for any distance. If you have to run them parallel, make sure to space the wires at least two feet from the AC line. If you need to cross an AC line it should be at a 90° angle.
- For multiple controllers, the controller ID must be set with the rotary switch on the rear panel. Each controller must be set to a unique number before powering connected controllers.

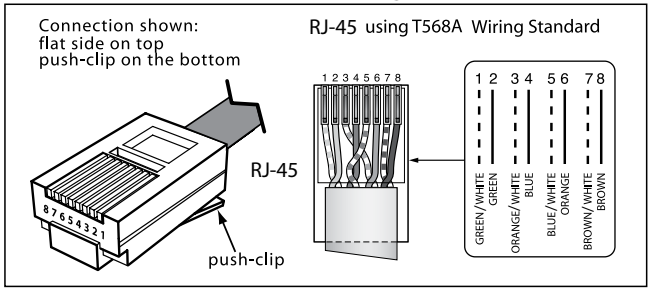
Do not connect the controller's main power feed until all other connections have been made and verified. Live connection or removal of the keypad wiring or other wiring when the system is powered can result in erratic operation or system damage. Double-check terminations during each phase of the installation to prevent accidental damage. Incorrect wiring is the number one cause for non-warranty product damage.

Wiring

Route CAT-5e cable between the keypad locations and the controller. Terminate all CAT-5e cables with an RJ-45 connector using the T568A wiring standard configuration. Utilize a UL/CSA approved electrical box at the keypad (double-gang at least 32 cu. in.) and controller locations. Using connector specific wall plates at the controller location will better organize all of the incoming cables. Route CAT-5e wire from the electrical box to each keypad location, with runs not to exceed 250 feet. Label the wires at both ends with the zone and location.

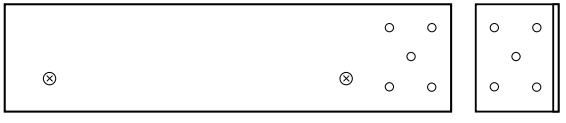
Route standard 4 conductor speaker wire to each speaker location. Each speaker connection requires a minimum 8 ohm load. Standard 16-gauge 4-conductor stranded speaker wire can be run up to 125 feet; 14-gauge wire can be run up to 250 feet.

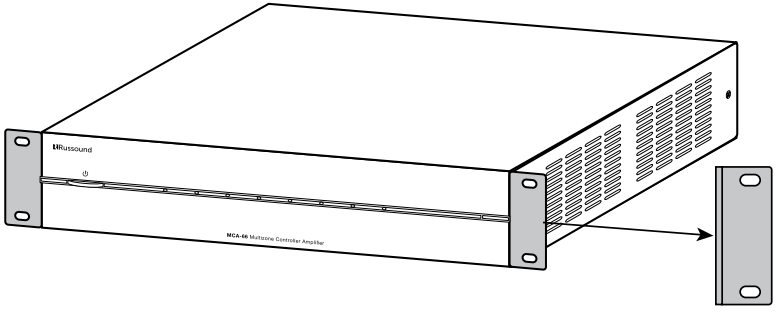
RJ-45 CAT-5 Wiring Scheme



Rack Mount Installation

To attach the rack ears, locate the five rack mount holes on each side of the controller's chassis. Align the holes in the rack ears with the holes in the chassis. Insert and tighten the screws.





Controller / Keypad Connection

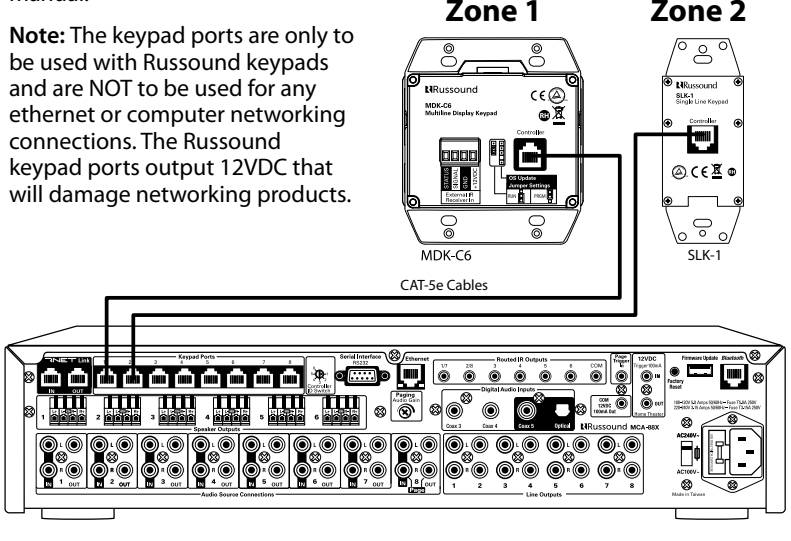
Each Russound dedicated keypad connects to a keypad port near the top left on the rear of the controller. These RJ-45 ports support MDK-C5, MDK-C6 and SLK-1 keypads.

Eight keypad ports correspond to the eight zones supported by the MCA-88X. When a connected keypad is powered on, the zone becomes active and the corresponding zone LED lights up on the front of the MCA-88X controller.

Connections are made using CAT-5e with RJ-45 connectors using T568A wire configuration. For a clean installation when wiring from a keypad port use a CAT-5e patch cable to connect from the keypad port to a RJ-45 wall plate (optional). Using the same T568A RJ-45 wiring configuration, use CAT-5e cable from the wall plate to the keypad. Maximum CAT-5e cable length is 250 feet between the controller and the keypad.

If more keypads are desired for a zone, use an optional SA-ZX3 keypad splitter with a Russound 1201A (12VDC, 1A) power supply at the controller end. All keypads on an SA-ZX3 control the same zone. More detailed information regarding SA-ZX3 installation and operation can be found in its installation manual.

Note: The keypad ports are only to be used with Russound keypads and are NOT to be used for any ethernet or computer networking connections. The Russound keypad ports output 12VDC that will damage networking products.

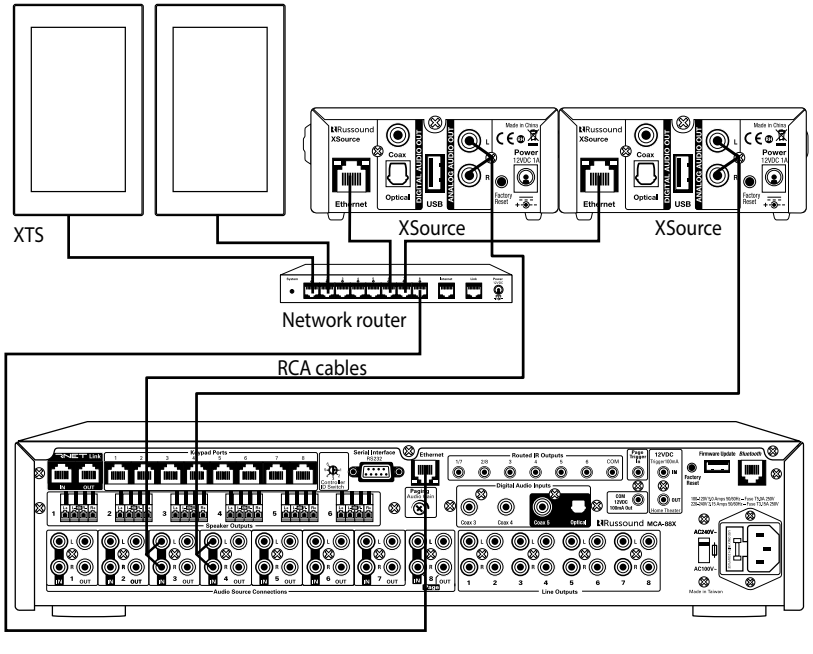


Keypad connection to the MCA-88X

XTS In-wall Touchscreen Connections

The XTS In-wall Touchscreen is an IP-connected ethernet networked device. It needs to be connected to the same ethernet network as the MCA controller. XTS touchscreens DO NOT connect into keypad ports of Russound controllers.

Connect all XTS touchscreens to the nearest ethernet network switch or to the router of the network where the MCA controller is connected.



XTS connection to the MCA-88X

Speaker Output Connections

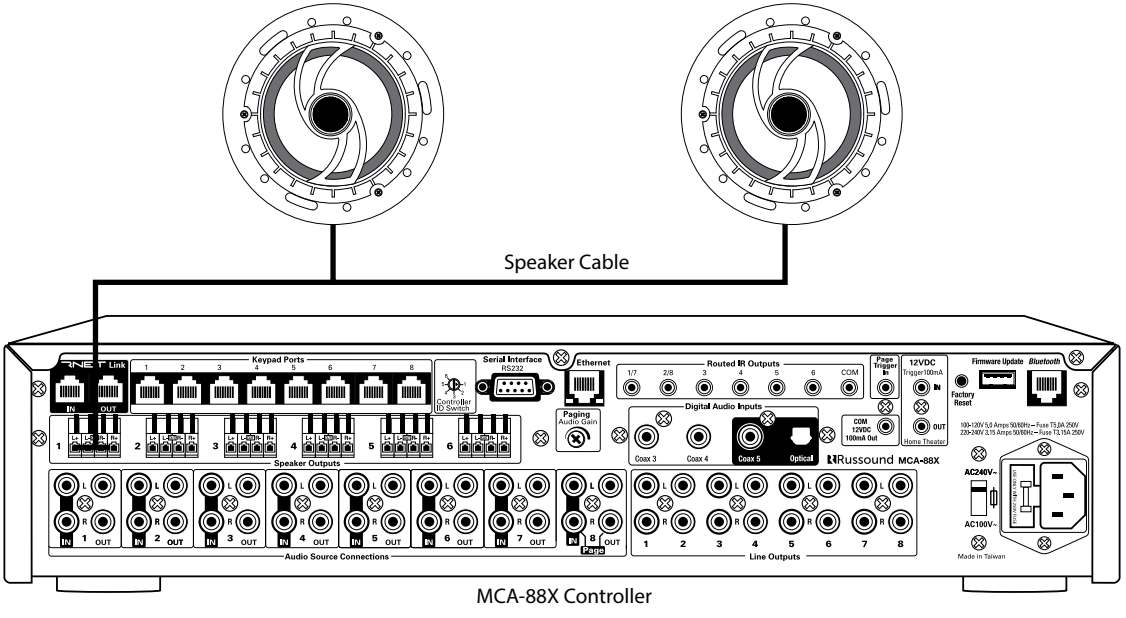
The MCA-88X offers amplified speaker outputs for zones 1-6. These 40 watt per channel stereo speaker level outputs have high-current two-channel digital amplifiers. Each speaker connection requires a minimum 8 ohm load.

Line level outputs are available for all 8 zones and each of these outputs can be configured for fixed or variable output.

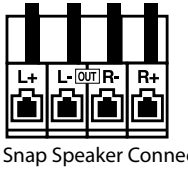
The speakers are connected to the MCA-88X using the supplied modular snap speaker connectors. Each of these color coded connectors is designated for the speaker set of a particular amplified zone. To avoid confusion, connect one zone speaker set at a time starting with Zone 1, taking care to keep zone and speaker wire identities straight.

Strip 1 to 2 inches (2.5 to 5 cm) off the end of each speaker cable jacket. Then strip ¼ inch (0.7 cm) of insulation off each wire. Twist the speaker wire strands together so there are no strands separated from the bundle.

Lift the locking lever for each connection until it locks open and insert the proper speaker wire, matching channel and polarity for all four wires. Snap the lever down. Check to make sure there are no stray strands of wire outside the terminals. If there are, remove the wire, twist the strands together, and reconnect the wire to the terminal. Insert the modular connector into its designated output on the back of the MCA-88X.



MCA-88X Controller



Snap Speaker Connector (detachable)

Speaker Output Connections

SOURCE CONNECTIONS

RNET Source Data Connections

The RNET Link ports can be used to connect the MCA-88X to other Russound RNET-enabled source equipment. The connection is made using a CAT-5e patch cable from either of the two RNET Link ports on the controller to either of the two RNET Link ports of the RNET-enabled source. RNET ports are parallel, bidirectional connections, meaning that the ports are identical and either one can be used for any RNET connection. Ports are labeled with an IN and an OUT for convenience in labeling of connecting wires, but either port can be used for any RNET connection. Another CAT-5e patch cable can be used to link out of that source to another RNET-enabled source in the system. Use a standard CAT-5e patch cable with an RJ-45 connector on each end.

Along with RNET data signals, the RNET ports pass source IR signals.

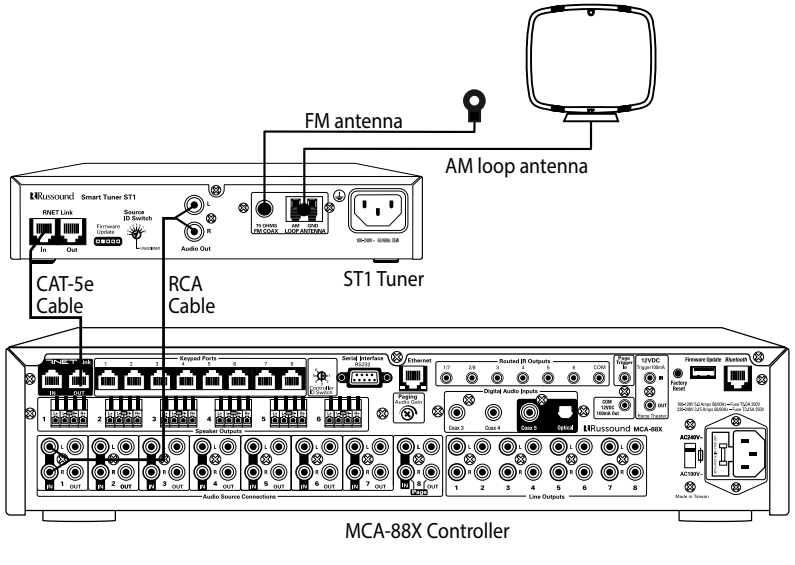
To avoid potential cross-talk between the source-specific IR repeating signal lines, the cable cannot exceed 18 inches in length.

Source Audio Connections

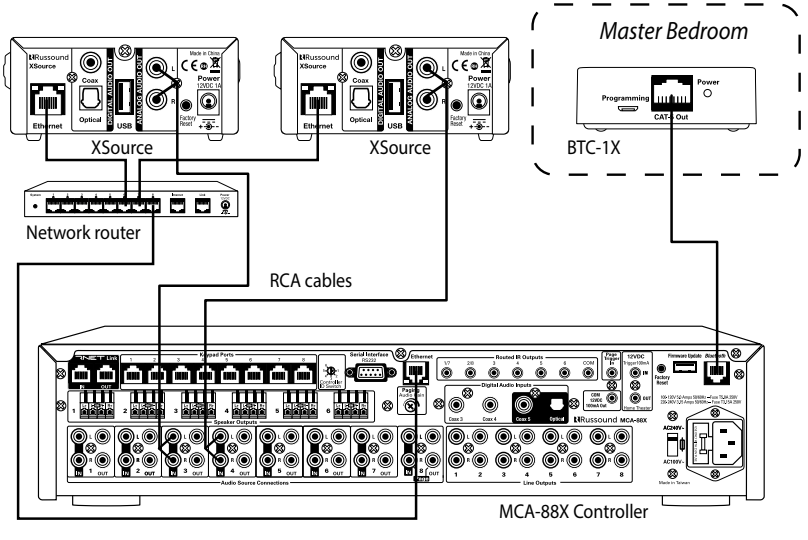
On the MCA-88X, sources 1 through 8 have standard stereo audio inputs. All source inputs have audio signal sensing. These sources can be programmed during zone setup to be global sources, or zones can be individually programmed to restrict access to sources. The optional *Bluetooth* source is configured by default to be Source ID 1. The internal media streamer is configured by default to be Source ID 2.

The diagram below illustrates how to connect an XSource to an MCA-88X. It is recommended to connect the XSource to the MCA-88x starting at Source ID#3. This will allow you to use the *Bluetooth* connection on Source ID 1 and the internal streamer on source ID 2 in addition to the XSource connected to any unused source input on the MCA-88X.

Connect each source output using quality RCA signal cables. Connect left and right audio outputs from each source to the corresponding inputs on the MCA-88X controller.



RNET Source Connection to MCA-88X



Audio Source Connection to MCA-88X

Primary Zone

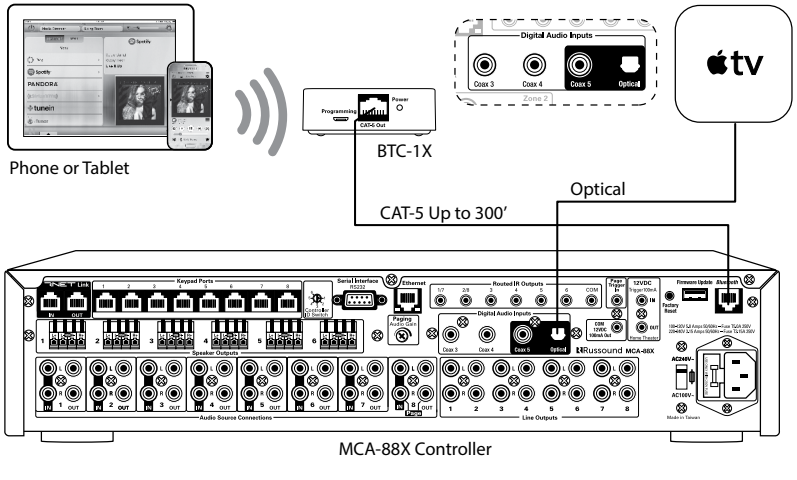
The MCA-88X supports a Primary Zone feature that allows a zone to serve as the default zone for a source. This feature is designed to allow easy access for services like Spotify and AirPlay to instantly turn on the default zone and start playing music from your phone. By default, Zone 1 is configured as the Primary Zone for the built-in XStream media streamer.

Bluetooth Connection (Optional)

The MCA-88X supports a connection for the optional Russound BTC-1X *Bluetooth* module. The BTC-1X *Bluetooth* module can be located up to 300 feet away from the MCA-88X using CAT-5 wire terminated via T568A, allowing the user to connect their smartphone or tablet via *Bluetooth* within range of the BTC-1X in their living area while the MCA-88X is remotely located.

The *Bluetooth* connection takes up Source #1. If the *Bluetooth* connection is not being used then Source #1 can be configured for a different analog source type.

Using Web Config, a Primary Zone can be set for *Bluetooth*, allowing a specific zone to serve as the default zone for *Bluetooth*.



Digital Audio Inputs

The MCA-88X supports digital source inputs, for both coaxial and optical audio connections. Sources 3, 4, and 5 are available as either analog or digital inputs. Web Config enables you to designate whether to use the analog connection or the digital connection for each of these sources. Use only one type of connection for each source.

The MCA-88X features a built-in XStream digital media streamer that offers popular streaming services. By default, source 2 is configured as a Russound Media Streamer for the internal media streamer.

The MCA-88X supports Apple's AirPlay technology. AirPlay enables you to listen to your iTunes library or other audio content from any AirPlay-enabled Apple device through the MCA-88X. With AirPlay, your iOS device becomes an extension of your audio system.

AirPlay is configured to a primary zone in order to allow easy access for AirPlay to instantly turn on a zone and start playing music from your phone or computer. By default, zone 1 is the primary AirPlay zone.

When AirPlay is selected from iTunes or an iOS mobile device, the MCA-88X will turn the primary AirPlay zone on and select the internal streamer as the source. If the primary AirPlay zone was playing a different source when AirPlay is selected, the zone will automatically change the source to the internal media streamer.

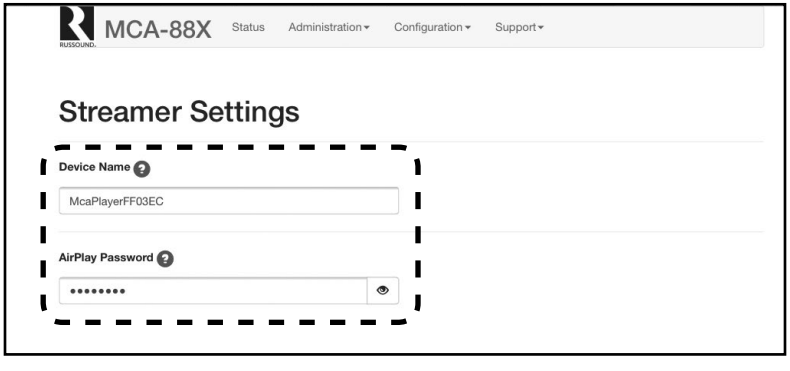
When the MCA-88X is actively streaming AirPlay, the volume control on the primary AirPlay zone and the AirPlay-enabled device are linked, which means a change in volume on the AirPlay-enabled device will also change the zone volume level of the MCA-88X.

Setting device name

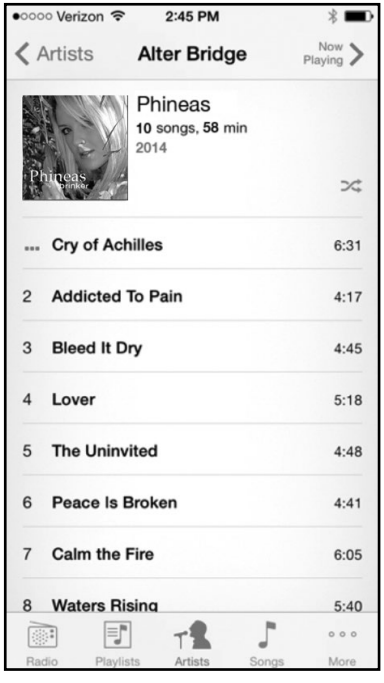
Using Web Config, the internal streamer can be given a unique device name. Under Configuration, select "Stream settings." Under Device name, enter the desired name for the streamer. This name will appear in the list of available AirPlay devices to stream to on the iOS device.

AirPlay Password

The MCA-88X supports an optional AirPlay password feature that when set, requires a password in order for an iOS device to stream to the MCA-88X using AirPlay. Under Setup, select "Streamer settings." Under AirPlay Password, enter the desired password. Next, select the MCA-88X from the list of available AirPlay devices to stream to on the iOS device. A message will appear on the iOS device, prompting for the AirPlay password. Once the correct password is entered, the iOS device can successfully stream music to the MCA-88X. The iOS device will retain the password for future use.

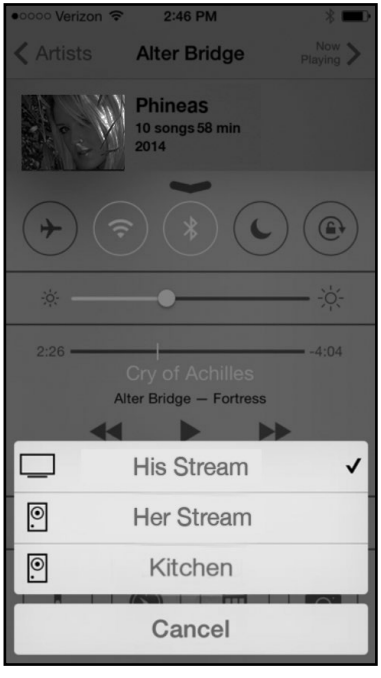


How to use AirPlay on your iOS device:



Open your music app and choose an artist from your playlist.

Swipe from the bottom of the screen to the top of the screen to reveal the AirPlay menu.



When you tap the AirPlay icon, a list of devices will appear for you to stream to. The MCA-88X will appear either as the streamer name or unique device name that's been assigned. Select the MCA-88X device name and the music will begin playing.

Using This Device With Spotify Connect

Spotify is an award-winning digital music service that gives you on-demand access to over 20 million tracks. Spotify makes it easier than ever to discover, manage and share music with your friends, while making sure that artists get a fair deal. Spotify lets you listen to millions of songs – the artists you love, the latest hits and discoveries just for you.

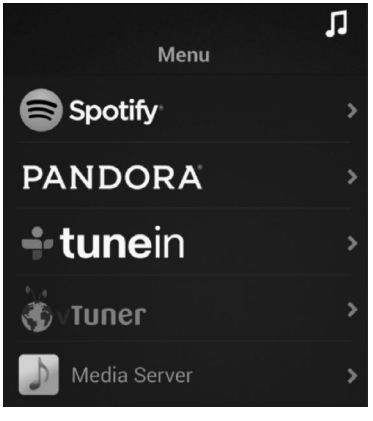
Spotify is not only extremely popular in the US but also worldwide. Spotify is available in 57 markets globally, making it the largest worldwide availability of any streaming service.

The MCA-88X system supports Spotify Connect, allowing you to play Spotify on your MCA-88X system using the Spotify App on your phone or tablet.

In order to get Spotify, the Spotify App must be installed on the phone or tablet that is connected to the same network as your Russound system. The Spotify App is available for download from the App Store for iOS devices and from the Google® Play Store for Android®devices. However, in order to use Spotify on your Russound system, a Spotify Premium Account is required. New users to Spotify can receive a 30-day free trial from Spotify by going to www.spotify.com/freetrial.

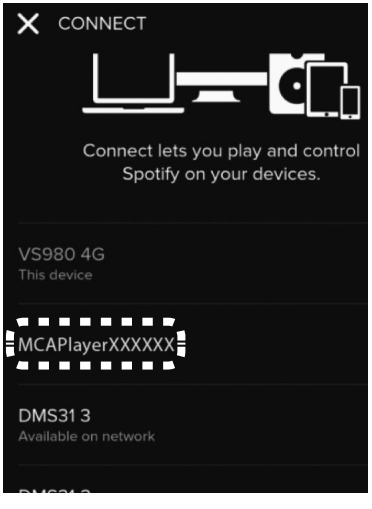
Step 1. Connect MCA-88X to the same Wi-Fi network as your phone, tablet or PC running the Spotify app.

Step 2. In the MyRussound app, go to the streaming services menu and choose Spotify. The Spotify app will open. If your phone/tablet doesn't have the Spotify App installed, you will be taken directly to the App Store (iOS) or the Google Play Store (Android) to download and install it.



Step 3. Play any song to navigate to the Now Playing screen. Press the Spotify Connect Logo (speaker within a circle on the bottom right of the Spotify app).

Step 4. In the Connect menu, choose your Russound device from the list of available devices that appear.



Step 5. Once you have selected your Russound device, your Spotify music will play on your Russound device. Your music is now being streamed from the Spotify server and can be controlled from your MyRussound™ App or keypad, or you can continue controlling your music from the Spotify App.

Since the Spotify App streams from the Spotify server rather than from the phone/tablet, the phone/tablet is no longer required in order to continue playing your Spotify music. Unlike AirPlay, the music will continue playing if your phone/tablet gets disconnected from the Wi-Fi network or if you get a phone call.

Controlling the volume:

On the MCA-88X, when Spotify is playing, the volume control of the zone and the Spotify App are linked. This means that if you change the volume on the Spotify App, the volume of the zone and connected user interfaces will also change.

Note: when mute is selected on the MyRussound App, the Spotify App will indicate minimum volume.

For information on how to set up and use Spotify Connect please visit www.spotify.com/connect

The Spotify Software is subject to third party licenses found here : www.spotify.com/connect/third-party-licenses.

Pandora provides a customized experience allowing you to create up to 100 stations based on your musical preferences. You can access the same Pandora account on all network-connected MCA-88X streams.

To listen to Pandora, you will need to subscribe to Pandora Radio service and obtain a valid username and password. This is done easily by accessing the Pandora Radio web-site to create either a free or paid account. The MCA-88X will allow you to login to Pandora and start your listening experience. If you have not created any stations prior to logging into the MCA-88X, you will be prompted to do so after entering the Pandora menu option.

You can now play any Pandora stations that exist in your library as well as using the options available to create new stations using any of these three features.

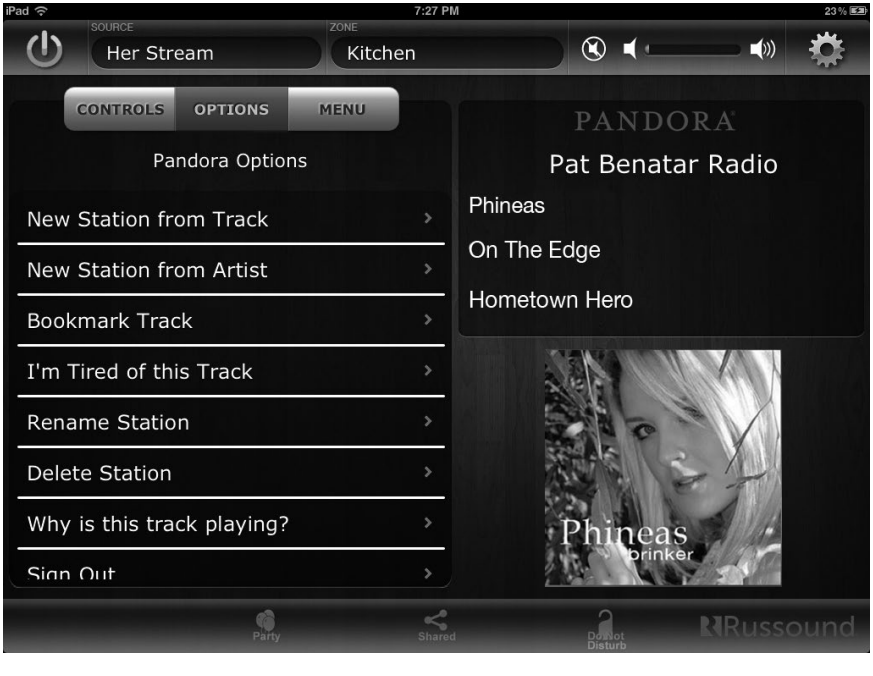
- Create New Station: this allows you to search by artists, song titles, and genres.
- New Station from Track: this will create a new station based on the song that is currently playing
- New Station from Artist: this will create a new station based on the artist that is currently playing

You will have the ability to rate songs by giving them a 'Thumbs Up' or 'Thumbs Down'. Giving a song thumbs up will cause Pandora to play that song more often on a particular station. 'Thumbs Up' will also fine-tune your station by playing more songs with similar characteristics. Give a song a 'Thumbs Down' will cause Pandora to remove the song from being played on a particular station. You will also have access to other Pandora features such as book-marking tracks, putting tracks on the shelf for a while, renaming stations, deleting stations, and finding out more information about why a track is playing.

NOTE: When using the MDK-C6 keypads, you will need to press the Previous (|<) button in order to access the Pandora Options menu.

MDK-C6 Now Playing Screen

MyRussound App Now Playing Screen



SiriusXM Internet Radio delivers a variety of commercial-free music including Pop, Rock, Country, R&B, Hip-Hop, Jazz, Classical and much more, plus expert sports talk and analysis. You also get exclusive entertainment, talk, comedy, family programming, local traffic and weather and news from your most trusted sources

There are a variety of programming packages available, including the option of adding "The Best of XM" programming to the SiriusXM Internet Radio service. "The Best of XM" service is not available to Sirius Canada subscribers at this time. Please check with Sirius Canada for any updates using the numbers and web address below.

Family friendly packages are also available to restrict channels that feature mature programming.

To subscribe to SiriusXM Internet Radio, U.S. customers should visit www.sirius.com/internetradio or call 1-888-539-SIRI (1-888-539-7474).

Canadian customers should visit www.siriuscanada.ca

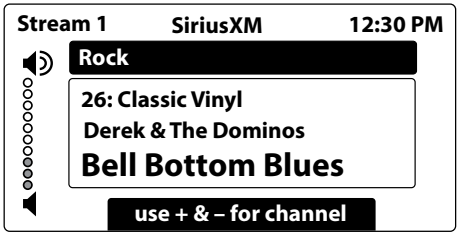
Current XM Radio Online subscribers will need to log into the XM online account manager and update their password in order for their credentials to work on a SiriusXM Internet Radio compatible device. If the username is over 50 character subscribers need to update the username on the same screen.

SiriusXM Internet radio permits one instance of streaming content per subscription. So while, the same user account credentials can be entered into all streaming modules of multiple MCA-88X products, only one can stream content at any given time. Selection from another streaming module will disconnect prior instances of SiriusXM internet radio streaming. Once account credentials are entered, they are saved. After logging out the username and password can be cleared from the log in screen to prevent unwanted access.

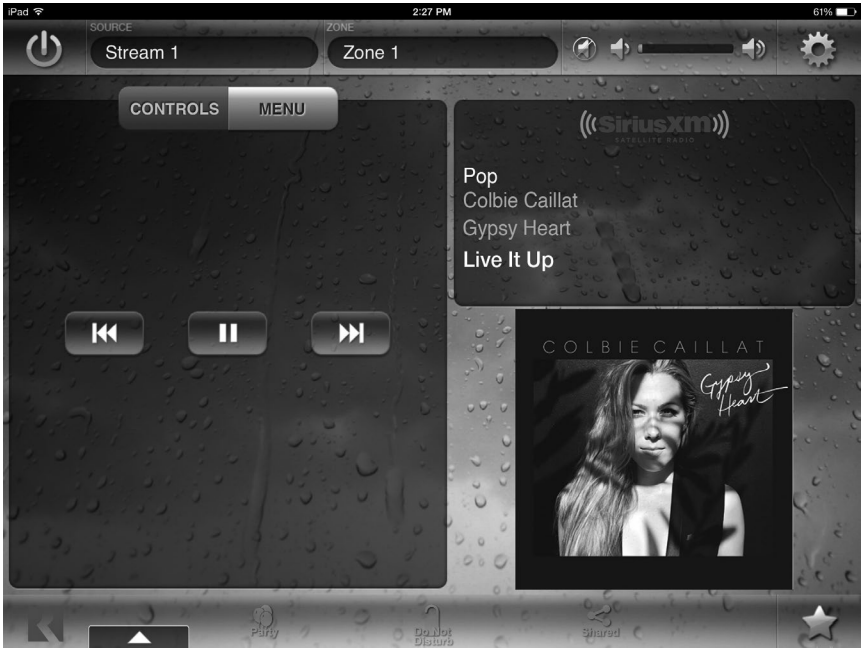
SiriusXM channels are filtered by categories so the user will first be prompted for the selection of the category, then the list of all channels within that category will be presented for selection.

To listen to SiriusXM Internet Radio, you'll need to subscribe to SiriusXM Internet Radio service and obtain a username and password. SiriusXM Internet Radio is available to residents of the United States and Canada.

MDK-C6 Now Playing Screen



MyRussound App Now Playing Screen

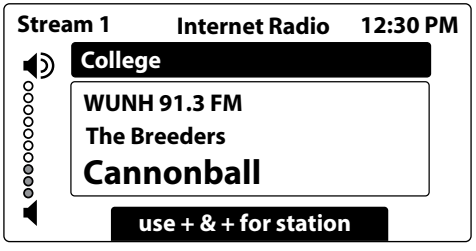


LISTENING TO TUNEIN™ INTERNET RADIO

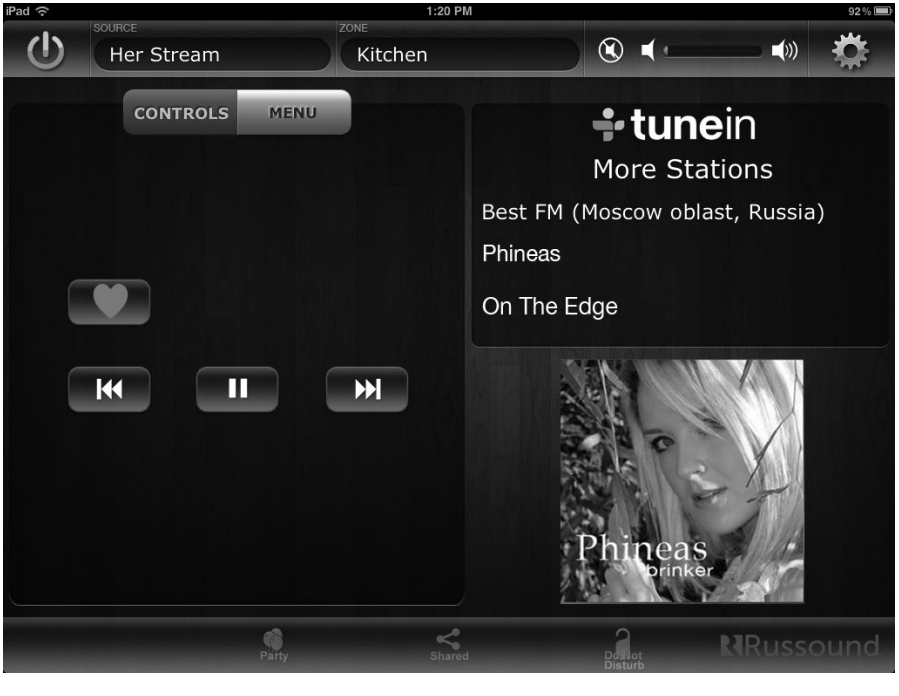
TuneIn™ Internet Radio can be accessed on the MCA-88X and is supported through all supported user interfaces. TuneIn™ lets you listen to the world's radio from the any MCA-88X connected in the home. Whether you love sports, music, news, or comedy, TuneIn gives you the best of what's live with 70,000 radio stations as well as two million on-demand programs. Over 40 million listeners use TuneIn every month, across 200 platforms worldwide. You do not need to subscribe to TuneIn radio with the MCA-88X to enjoy content streaming from the cloud. Listening is easy and the choices are abundant.

For more information on TuneIn and to access online, visit at: http://www.tunein.com.

MDK-C6 Now Playing Screen



MyRussound App Now Playing Screen



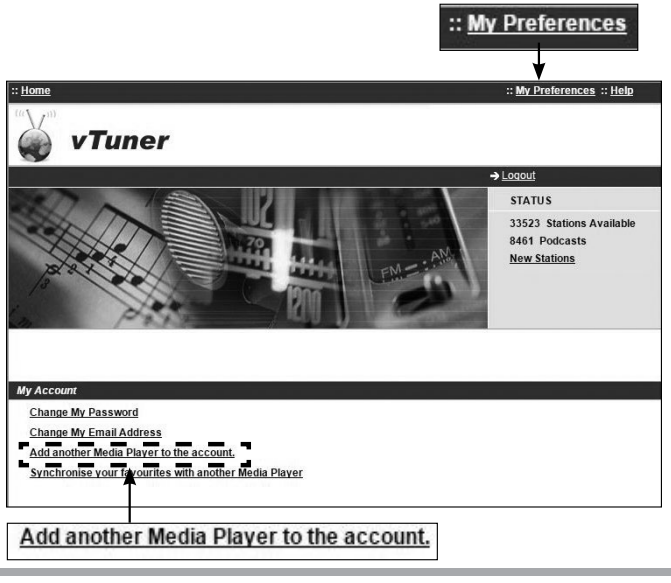
vTuner Internet Radio can be accessed through any supported user interface. vTuner Internet Radio provides access to thousands of internet radio stations and Podcasts from around the world. Users can filter content by Local Stations, Location, Genre, New Stations, Most Popular, and Favorites.

Users can access the online web portal at:
http://russound.vtuner.com

Using the MCA-88X and vTuner, users can search stations & podcasts, create favorites, and even add stations not listed in the vTuner database.

Users can create an account for the vTuner online web portal, users will need to provide the Access Code of their MCA-88X as well as a valid email address and a password. Select the "Get access code" option within the vTuner menu to display the access code.

At the vTuner web portal, create an account and access the My Preferences page. Here you can enter the unique Access Code for each MCA-88X stream.



MDK-C6 Now Playing Screen

MyRussound App Now Playing Screen

The MCA-88X can access audio files that reside on a network connected computer or NAS storage device that is UPnP/DLNA compliant. UPnP (Universal Plug and Play) and DLNA (Digital Living Network Alliance) protocols permit network connected devices to discover each other and share content and control. Many media player software programs feature UPnP/DLNA capabilities, and more networked storage devices are providing UPnP/DLNA server functionality.

The MCA-88X supports multiple file formats: MP3 (CBR, VBR), WAV (8, 16, and 24-bit), OGG Vorbis, FLAC (8, 16, and 24-bit). AAC and AAC+ file formats, which are used by Apple for music purchased through iTunes, can also be played. Any content that is protected with DRM (Digital Rights Management) can not be played back.

Users can also install UPnP/DLNA media server software on their computers to access iTunes library content and control it from a Russound user interface.

MDK-C6 Now Playing Screen

MyRussound App Now Playing Screen

Linking Multiple Controllers

The RNET Link ports can be used to connect two or more (up to 6) MCA-88X controllers. The connection is made using a CAT-5e patch cable from one of the RNET Link ports of the first controller and into one of the RNET Link ports of the next controller. Along with RNET data signals, the RNET ports pass source IR signals.

The CAT-5e patch cable must have an RJ-45 connector on each end with T568A wiring configuration. **It cannot exceed 18 inches (45.7 cm) in length to avoid potential cross-talk between the source-specific IR repeating signal lines.**

Use standard RCA cables to link audio sources between multiple controllers. Connect the left and right source outputs on each controller to the corresponding source inputs on the next controller. Ethernet connection to the LAN is only required on Controller #1 in a multi-controller system.

When using the BTC-1X *Bluetooth* on Source 1, connect the Source 1 OUT on Controller 1 to the Source 1 IN on Controller 2. Continue the audio loop to other controllers, if necessary.

Note: Only a single BTC-1X may be connected in a system. The connection is made to Controller 1. The audio signal is then passed to each additional controller as described in the previous paragraph.

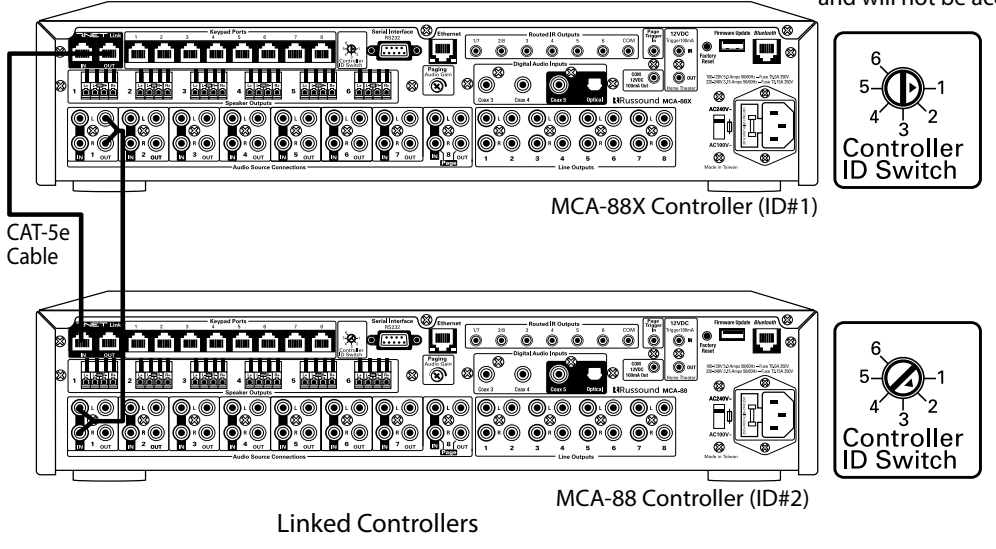
Only a single internal streamer from an MCA-88X may be used in a system. If using more than one controller, use MCA-88 controllers as the slave controllers.

Controller ID Switch Settings

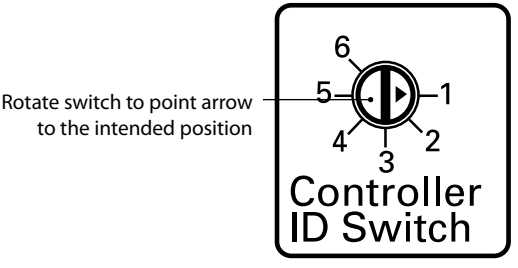
The Controller ID switch is a rotary switch with six positions. It is used to set the controller ID number for multiple controllers.

If two or more controllers are connected using the RNET Link ports, each controller must have a unique controller ID prior to being connected through the RNET ports. Set each controller's ID switch to a unique number. Any multiple controller configuration requires that one controller be set to controller ID #1. This action must be performed before the system setup procedure is completed through Web Config and before powering up the system. The small arrow on the dial should point at the desired setting.

Note: We recommend using the MCA-88 controller as a slave unit. By linking two MCA-88X controllers, the streamer on the slave unit will be deactivated and will not be accessible.



Linked Controllers



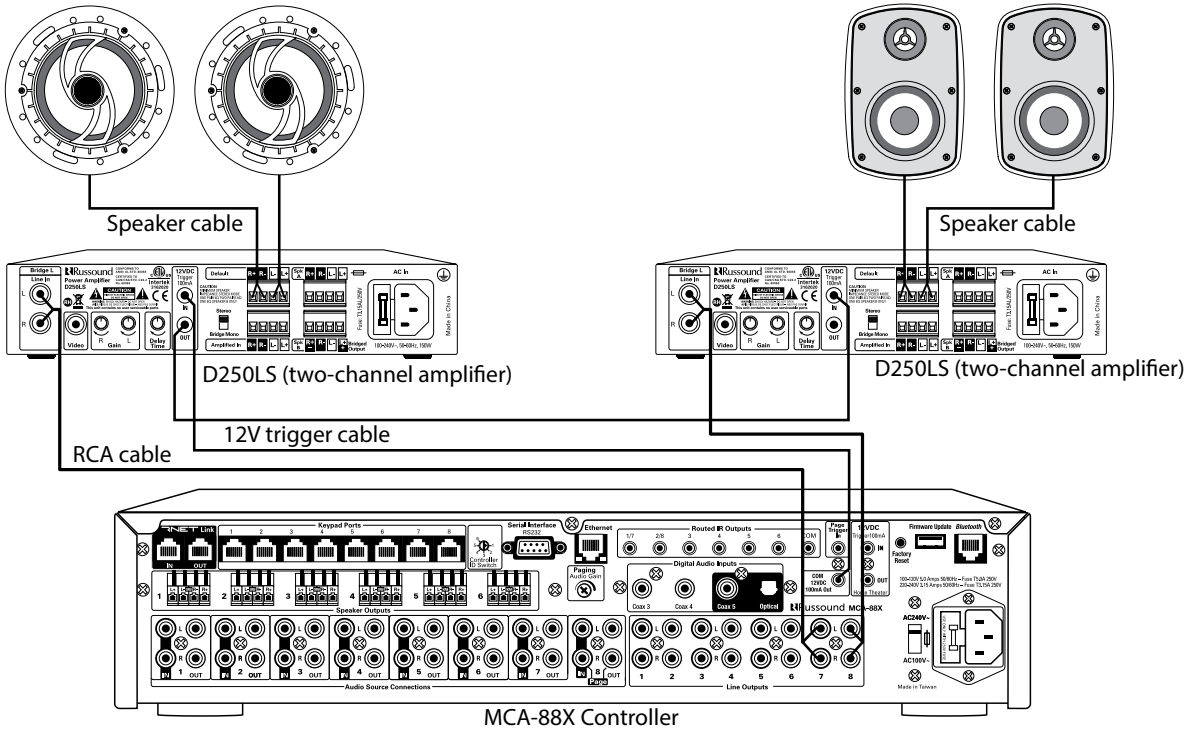
Fixed and Variable Line Level Outputs

All zones have line level outputs which can be used for additional amplification when needed, such as for outdoor zones or larger rooms. The Zone Line Output can be set to Variable (default) or Fixed (Always On).

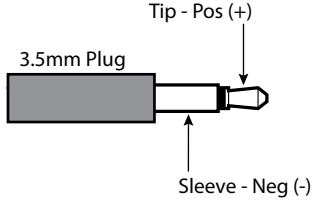
NOTE: When the Line out connections are set at Fixed, the zone audio signal is always on. Zones 7 and 8 do not have dedicated amplification and must use the line level outputs. Russound recommends dedicated amplifiers for outdoor areas or large rooms where more power is needed. The Russound D250LS is perfect for such applications.

Common 12VDC Trigger Output

The Com 12VDC 100mA Out can be used to trigger additional amplification when needed. This output supplies 12VDC 100mA when any one zone is turned on. As long as at least one zone is on, the output will remain active while turning additional zones on/off. The output will become inactive once all zones of the controller are turned off. This output is per controller. In a multi-controller scenario you will need to use the output of the controller that the amplifier is being connected to for its particular zone.



Typical Amplifier Connection



Polarity of 3.5mm Plug

Paging Audio IN

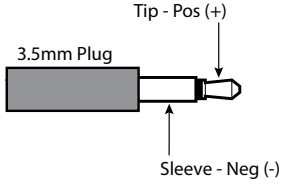
The MCA-88X has a paging audio input on Source 8 (right channel only) that accepts line level audio signals via an RCA cable. The paging input interfaces with the page output of a telephone system or other peripheral device. When a page event is engaged, it interrupts audio outputs for all enabled zones. System paging can be disabled permanently in each zone by software programming or temporarily with Do Not Disturb. To utilize Source 8 for paging input, it must be configured as a page source in Web Config.

Note: If Source 8 is enabled for paging events then only seven other source inputs are available.

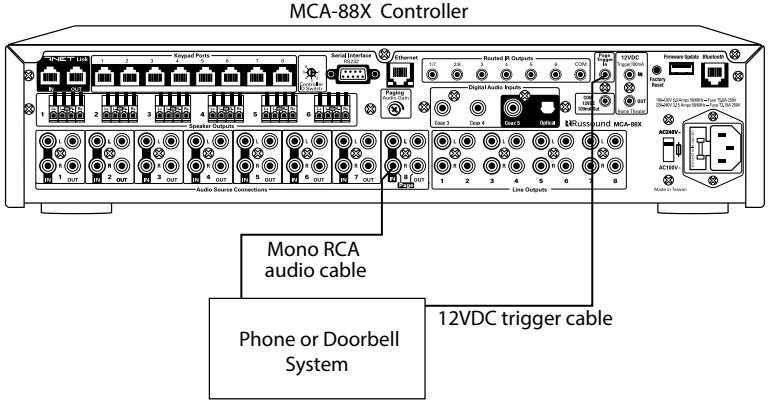
Page Trigger IN

The page trigger input is used to trigger a page event. Paging is configurable per zone using Web Config. A 12VDC trigger selects the audio input from Source 8 (if configured in software as the Page Input) and sends it to any zone that does not have page disabled or that is not in Do Not Disturb mode.

Note: The diagram at right shows the required wiring to the 12VDC Page trigger in from the phone system - this will initiate the page.



Polarity of 3.5mm Plug



Typical Paging Configuration
(if using source 8 for paging events)

Home Theater Triggers

These triggers are used to integrate with home theater systems that utilize a 12VDC trigger. The MCA-88X can be used to power manage sources that are being shared with the home theater system. For example, the power management system will check to see the state of the home theater before powering down source gear. Refer to the sample configuration diagram on the next page for connections.

IN

This 12VDC Trigger input will have different functionality based on the state of the system and the state of the trigger. The connections for the trigger are made using a two-conductor cable with 3.5mm male mini-plug. The tip is positive (+) and the sleeve is negative (-).

"System Off" (all zones have been off for at least 5 minutes): If 12VDC is applied to this input, it will activate the power management ON command to the sources. While all zones are still OFF and 12VDC is removed, the system will wait 5 minutes and then activate the power management OFF command to the sources.

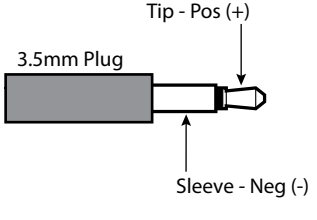
"System On" (at least one zone is on): If 12VDC is present but all zones get turned OFF, the power management OFF commands will not be sent until 5 minutes after the 12VDC is removed from the trigger.

Note: If the trigger is not being used, power management will operate normally.

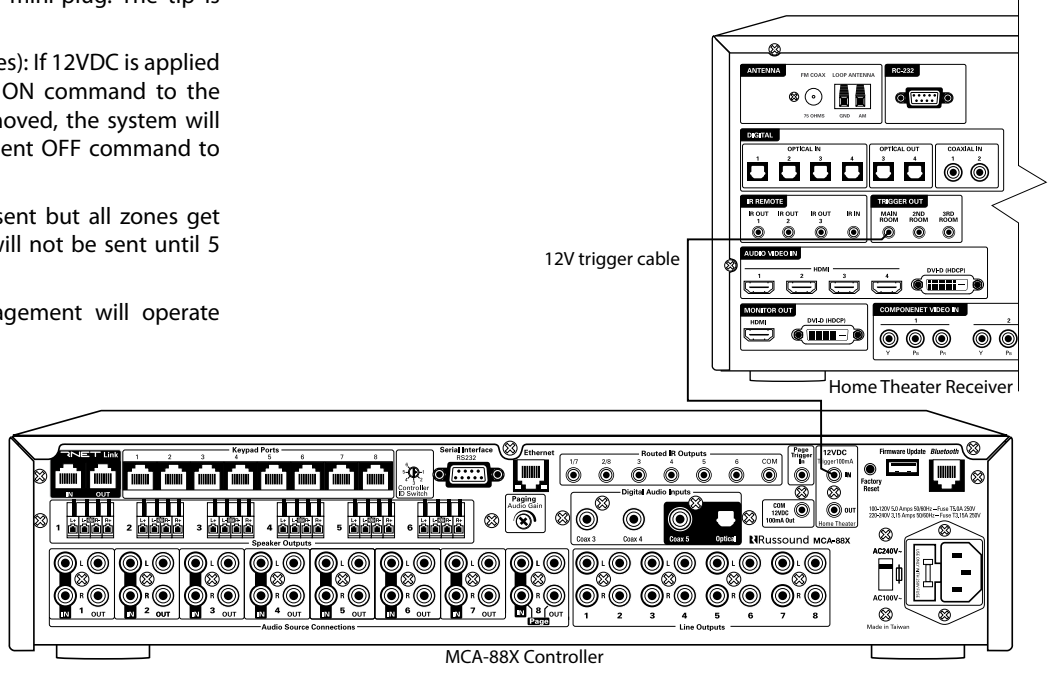
OUT

The 12VDC trigger out can be used to engage any 12VDC trigger device or component such as the Russound D850 Amplifier. The connections for the trigger out are made using a two-conductor cable with 3.5mm male mini-plug ports at each end. The tip is positive (+) and the sleeve is negative (-).

The output is a pass-through of the Home Theater trigger input. It can be used to activate additional devices whenever the Home Theater trigger is active.



Polarity of 3.5mm Plug



Sample Configuration - Home Theater Trigger

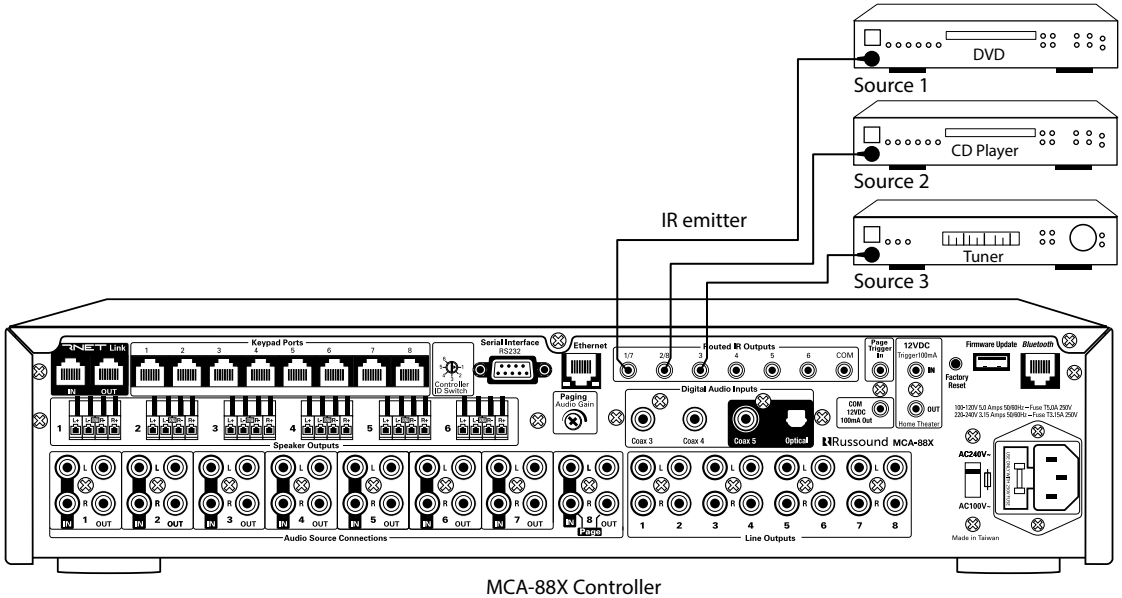
Routed IR Outputs

Six routed IR emitter outputs are supported by the MCA-88X IR engine and support IR pass-through. Sources 1 and 7 share an output as do Sources 2 and 8, allowing IR routing to up to 6 total sources. A common IR output is also available. The IR signals are carried by the RNET Link cable to additional controllers.

Attach the end of the IR emitter with the 3.5mm plug to the IR emitter port. Remove the adhesive back at the other end of the emitter and attach the emitter over the source component's IR window. When using the IR routed outputs, in order to control this source component with IR, the source must be selected at the keypad receiving the command.

Common IR

This output is supported by the MCA-88X IR engine and supports IR pass-through from any of the IR sources or zones. This allows control of any source equipment without that source being selected on the keypad. The connection for the common IR output is made using an IR emitter with a 3.5mm plug. An IR Connecting Block can be used to expand the common IR output to more than one source.



MCA-88X Controller

IR Connections to MCA-88X

Start up

1. Make connections of sources, speakers, network and keypads to the controller(s).

2. In a multiple controller configuration, set the controller IDs to unique numbers. Use CAT-5e linking cables of no more than 18 in (45.7 cm) to link the controllers. Link by interconnecting the RNET Link ports.

3. Plug in and power the sources and controllers.

4. The Power LED on the front panel of each controller should be lit. The zone LEDs will cycle in a moving pattern until the controller is fully booted, at which time the zone LEDs will go off. The Power LED will indicate network status. Below is a summary of the front panel LED states:

Boot: solid red LED

Startup: red LED will turn solid yellow after approx. 20 sec. Zone LEDs will blink 1 second apart

Network Status: OK - solid green LED, Error - blinking yellow LED

Firmware Update: red LED blinking at fast rate

Firmware Update Error: red LED blinking at normal rate to display various error codes. Error codes are derived from the number of times LED blinks

5. Unlock the system using your Russound Certified Installer Credentials.

6. Perform a firmware update check using either Web Config. Update all Russound system components if required.

7. Configure the system using Web Config.

8. Check operation of the keypads, power on, and cycle through sources. For correct operation, each RNET source must be configured with a unique source ID and must match the assignment within Web Config.

9. Check zone keypads. The zone LED should be lit on the front of the controller if the corresponding keypad is on. The LED will not be lit if the keypad is not turned on or is absent.

10. Check operation of all keypad functions.

11. Check for functional IR signal pass-through (if applicable).

12. The system is now ready to use.

Troubleshooting

- When the controller and the keypads are powered ON, all the corresponding zone LEDs on the face of the controller will be green. Improper connection may cause one or more LEDs not to be lit. Check all connections.
- Cycle power by pressing the power button, waiting 10 seconds, and then pressing the power button again.
- Check connections from the keypads and speakers to the controller(s).
- If a keypad doesn't respond to commands ensure the OS update jumper on the rear of the keypad is in the RUN position (on the lower pins).
- Check networking connections and power cycle the equipment to check for communication. Keep connections as simple as possible and connect only the MCA to a dedicated router directly. Once communication is confirmed, connect other devices back onto the network.
- Check for firmware updates available for your Russound equipment to make sure the MCA is up-to-date to take advantage of any additional features and supporting services. From the Admin tab in Web Config, select System Check.
- For more system installation and network troubleshooting tips, check out our Support center at www.russound.com.

Factory Initialization

If you are having trouble discovering or connecting to your MCA-88X on the network, and power cycling the unit and any switch or router that is connected to it does not resolve the issue, you can reset the MCA-88X to a DHCP connection by performing the following step:

- Press and hold the Reset button on the rear of the controller for 3 seconds and release.

For a full factory initialization, erasing all configuration settings:

- Press and hold the Reset button on the rear of the controller for 10 seconds.

Note: Performing a factory initialization will restore the unit to its factory default state, including software lockdown. The unit will require valid Russound Certified Installer credentials and an internet connection in order to unlock the device again.
If you have saved a backup copy of your configuration using the Backup and Restore function in Web Config, you can restore your settings quickly.

MCA-88X Multizone Controller

Dimensions:	17"W x 3.5"H x 17.2"D (43.2 x 9 x 44 cm)
Weight:	28.8 lbs. (13.1 kg)
Power Supply:	100-120 VAC, 60Hz 220-240 VAC, 50Hz
Fuse Rating:	100-120V/T5.0A 250V US and Canada 220-240V/T3.15A 250V International
Frequency Response:	20Hz-20kHz +/- 1 dB at 1W output into 8 ohms
Minimum Impedance:	8 ohms
Watts per channel:	40W* *1kHz into 8 ohms 2 channels at full power, 10 channels at 1/8th
Total Harmonic Distortion:	<0.05%, 1W output into 8 ohms 20Hz-20kHz
Signal to Noise Ratio:	93 dB unweighted, 96 dB A-weighted
Audio Source Inputs:	8 stereo RCA line level, 3 coax,1 optical (maximum of 8 total inputs)
Audio Zone Outputs:	6 Speaker Level 40W/ch (8 line level, fixed or variable selectable)
Common Trigger:	Out, 12VDC, @100mA
Home Theater Trigger:	In/Out, 12VDC (pass-through)
Page Trigger:	In, 12VDC
Speaker connection:	6 detachable 4 pole connectors
Keypad ports:	8 RJ-45 T568A standard
IR Outputs:	Up to 6 routed, with two shared outputs and 1 common
Communication ports:	USB (firmware update only) 1 Serial RS-232, 19.2 kHz baud rate 1 Ethernet RJ-45, 10/100 Base T 2 RJ-45 RNET link ports

The Russound MCA-88X Controller Amplifier is guaranteed against all defects in materials and workmanship for two (2) years from the date of purchase. During this period, Russound will replace any defective parts and correct any defect in workmanship without charge for either parts or labor.

For this warranty to apply, the unit must be installed and used according to its written instructions. If service is necessary, it must be performed by Russound. The unit must be returned to Russound at the owner's expense and with prior written permission. Accidental damage and shipping damage are not considered defects, nor is damage resulting from abuse or from servicing by an agency or person not specifically authorized in writing by Russound.

This warranty does not cover:

- Damage caused by abuse, accident, misuse, negligence, or improper installation or operation
- Power surges and lightning strikes
- Normal wear and maintenance
- Products that have been altered or modified
- Any product whose identifying number, decal, serial number, etc. has been altered, defaced or removed.

Russound sells products only through authorized Dealers and Distributors to ensure that customers obtain proper support and service. Any Russound product purchased from an unauthorized dealer or other source, including retailers, mail order sellers and online sellers will not be honored or serviced under existing Russound warranty policy. Any sale of products by an unauthorized source or other manner not authorized by Russound shall void the warranty on the applicable product.

Damage to or destruction of components due to application of excessive power voids the warranty on those parts. In these cases, repairs will be made on the basis of the retail value of the parts and labor. To return for repairs, the unit must be shipped to Russound at the owner's expense, along with a note explaining the nature of service required. Be sure to pack the unit in a corrugated container with at least three (3) inches of resilient material to protect the unit from damage in transit.

Before returning a unit for repair, call Russound Tech Support at (866) 888-7466 for a Return Authorization number. Write this number on the shipping label and ship to:

Russound: ATTN: Service, 1 Forbes Road, Newmarket, NH 03857

Due to continual efforts to improve product quality as new technology and techniques become available, Russound/FMP, Inc. reserves the right to revise system specifications without notice.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Safety Instructions

1. Read Instructions - All the safety and operating instructions should be read before the appliance is operated.
2. Retain Instructions - The safety and operating instructions should be retained for future reference.
3. Heed Warnings - All warnings on the appliance in the operating instructions should be adhered to.
4. Follow Instructions - All operating and user instructions should be followed.
5. Water and Moisture - The appliance should not be used near water; for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool. The apparatus shall not be exposed to dripping or splashing liquids and no objects filled with liquids, such as vases, shall be placed on the apparatus. Do not touch the appliance with wet hands. Do not handle the appliance or power cord with wet or damp hands. If water or any other liquid enters the appliance cabinet, take it to qualified service personnel for inspection.
6. Cleaning - The appliance should be cleaned only as recommended by the manufacturer. From time to time you should wipe off the front and side panels and the cabinet with a soft cloth. Do not use rough material, thinners, alcohol or other chemical solvents or cloths since this may damage the finish or remove the panel lettering.
7. Ventilation - The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings, or placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings. Place the unit in a well-ventilated location, leaving at least 2 inches (5 cm) of clearance on all sides, top and rear of unit for air flow. If ventilation is blocked, the unit may overheat and malfunction.
8. Heat - The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.
9. Grounding or Polarization - Precaution should be taken so that the grounding or polarization means of an appliance is not defeated.
10. Power Cord Protection - Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, receptacles, and the point where they exit from the appliance.
11. Power Sources - The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.
12. Main Power Disconnect - The power switch is a double-pole switch. When the switch is in the "Off" position, the appliance is completely disconnected from the main power.
13. Non-Use Periods - The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.
14. Attachments - Only use attachments/accessories specified by the manufacturer.
15. Carts and Stands - The appliance should be used only with a cart or stand that is recommended by the manufacturer. An appliance and cart combination should be moved with care. Quick stops, excessive force and uneven surfaces may cause the appliance and cart combination to overturn.

16. Wall or Ceiling Mounting - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
17. Location of the Appliance - Do not mount this unit under a kitchen cabinet. Do not expose the appliance to direct sun light or heating units as the appliance internal components' temperature may rise and shorten the life of the components. Avoid damp and dusty places.
18. Object and Liquid Entry - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through the openings.
19. Servicing - The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.
20. Damage Requiring Service - The appliance should be serviced by qualified service personnel when: A. The power supply cord or the plug has been damaged; B. Objects have fallen, liquid has been spilled into the appliance; C. The appliance has been exposed to rain; or D. The appliance does not appear to operate normally; or E. The appliance has been dropped or the enclosure is damaged.

Conforms to UL60065
Certified to CAN/CSA IEC60065

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of or more of the following measures: reorient or relocate the receiving antenna; increase the separation between the equipment and receiver; connect the equipment into an outlet on a circuit different from that to which the receiver is connected, or consult the dealer or an experienced radio/TV technician for help.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Russound®

MCA-88X

8 Source, 8 Zone Controller Amplifier

Installation Manual

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