SpeakerCraft®

SYSTEM DESIGN GUIDE

MRA-664

VERSION 1 - SPRING 2015

Includes:

SpeakerCraft Software Applications.

Multi Room & MultiZone Applications.

Overview of the SpeakerCraft Ecosystem.

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How to use this Design Guide

Application

Section provides you with detailed info for a specific application.

Do This First

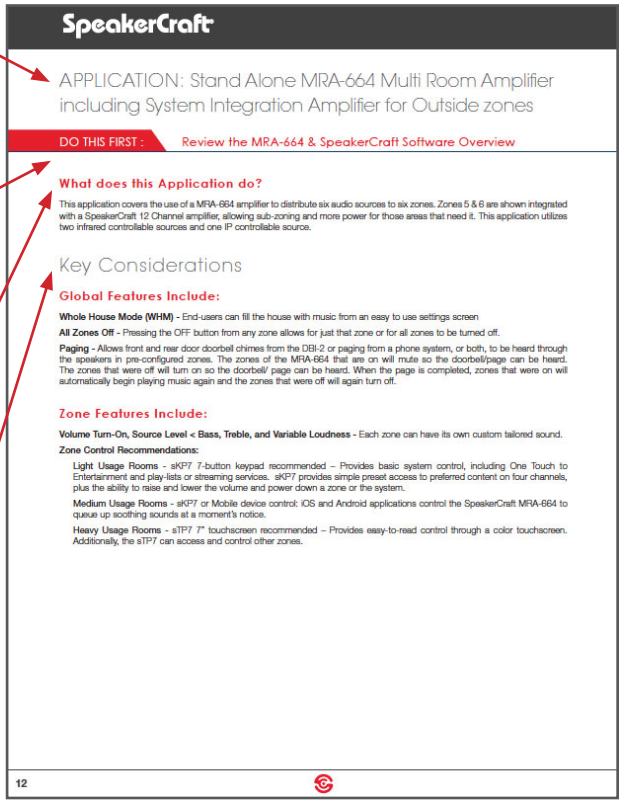
Installation instructions on what you need to know before you begin.

What does this Application Do?

Description of Application.

Key Considerations

Important information that you need to consider when planning your design.



SpeakerCraft

APPLICATION: Stand Alone MRA-664 Multi Room Amplifier including System Integration Amplifier for Outside zones

DO THIS FIRST : Review the MRA-664 & SpeakerCraft Software Overview

What does this Application do?

This application covers the use of a MRA-664 amplifier to distribute six audio sources to six zones. Zones 5 & 6 are shown integrated with a SpeakerCraft 12 Channel amplifier, allowing sub-zoning and more power for those areas that need it. This application utilizes two infrared controllable sources and one IP controllable source.

Key Considerations

Global Features Include:

Whole House Mode (WHM) - End-users can fill the house with music from an easy to use settings screen

All Zones Off - Pressing the OFF button from any zone allows for just that zone or for all zones to be turned off.

Paging - Allows front and rear door doorbell chimes from the DBI-2 or paging from a phone system, or both, to be heard through the speakers in pre-configured zones. The zones of the MRA-664 that are on will mute so the doorbell/page can be heard. The zones that were off will turn on so the doorbell/ page can be heard. When the page is completed, zones that were on will automatically begin playing music again and the zones that were off will again turn off.

Zone Features Include:

Volume Turn-On, Source Level < Bass, Treble, and Variable Loudness - Each zone can have its own custom tailored sound.

Zone Control Recommendations:

Light Usage Rooms - sKP7 7-button keypad recommended – Provides basic system control, including One Touch to Entertainment and play-lists or streaming services. sKP7 provides simple preset access to preferred content on four channels, plus the ability to raise and lower the volume and power down a zone or the system.

Medium Usage Rooms - sKP7 or Mobile device control: iOS and Android applications control the SpeakerCraft MRA-664 to queue up soothing sounds at a moment's notice.

Heavy Usage Rooms - sTP7 7" touchscreen recommended – Provides easy-to-read control through a color touchscreen. Additionally, the sTP7 can access and control other zones.

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Customer Benefits

What this application does for your customer.

Installation Benefits

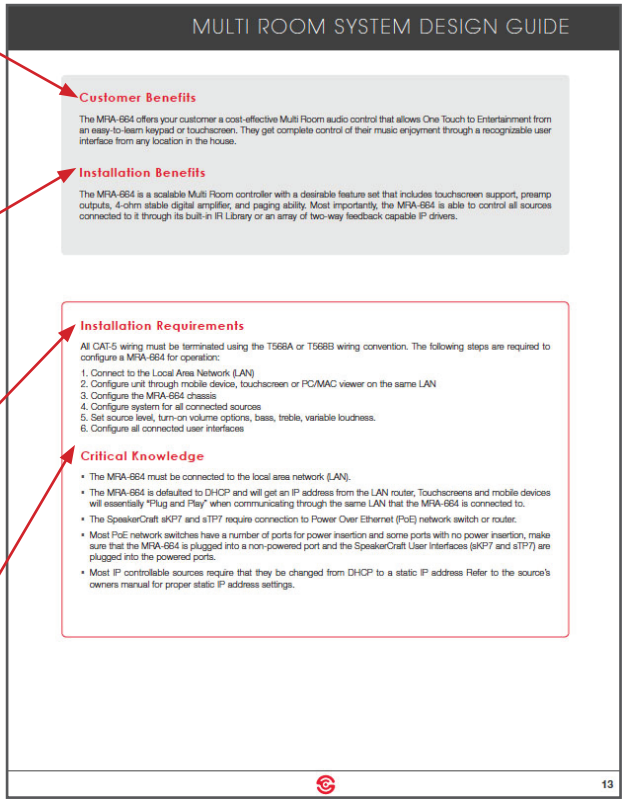
What the application does for you.

Installation Requirements

Specific installation details that you need to know.

Critical Knowledge

These are the "must know" details regarding installation.



MULTI ROOM SYSTEM DESIGN GUIDE

Customer Benefits

The MRA-664 offers your customer a cost-effective Multi Room audio control that allows One Touch to Entertainment from an easy-to-learn keypad or touchscreen. They get complete control of their music enjoyment through a recognizable user interface from any location in the house.

Installation Benefits

The MRA-664 is a scalable Multi Room controller with a desirable feature set that includes touchscreen support, preamp outputs, 4-ohm stable digital amplifier, and paging ability. Most importantly, the MRA-664 is able to control all sources connected to it through its built-in IR Library or an array of two-way feedback capable IP drivers.

Installation Requirements

All CAT-5 wiring must be terminated using the T568A or T568B wiring convention. The following steps are required to configure a MRA-664 for operation:

1. Connect to the Local Area Network (LAN)
2. Configure unit through mobile device, touchscreen or PC/MAC viewer on the same LAN
3. Configure the MRA-664 chassis
4. Configure system for all connected sources
5. Set source level, turn-on volume options, bass, treble, variable loudness.
6. Configure all connected user interfaces

Critical Knowledge

- The MRA-664 must be connected to the local area network (LAN).
- The MRA-664 is defaulted to DHCP and will get an IP address from the LAN router, Touchscreens and mobile devices will essentially "Plug and Play" when communicating through the same LAN that the MRA-664 is connected to.
- The SpeakerCraft sKP7 and sTP7 require connection to Power Over Ethernet (PoE) network switch or router.
- Most PoE network switches have a number of ports for power insertion and some ports with no power insertion, make sure that the MRA-664 is plugged into a non-powered port and the SpeakerCraft User Interfaces (sKP7 and sTP7) are plugged into the powered ports.
- Most IP controllable sources require that they be changed from DHCP to a static IP address Refer to the source's owners manual for proper static IP address settings.

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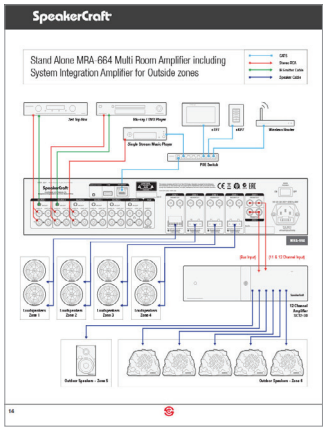
Each chapter in the System Design Guide is divided into sections to make comprehension easier. Each section contains specific information that is presented with graphic examples to further aid in understanding. Below is a description of what information is contained within each section.

The Cable Diagram

Section shows all connection points with color coded line connections.



SpeakerCraft

Stand Alone MRA-664 Multi Room Amplifier including System Integration Amplifier for Outside zones

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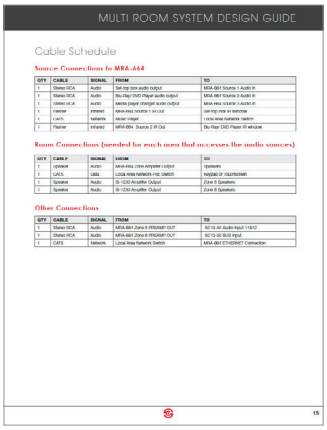
The Cable Schedule

Section lists all cables used in cabling diagrams (sometimes shown on application page).



MULTI ROOM SYSTEM DESIGN GUIDE

Cable Schedule

Source Connections to MRA-664

Room Connections (needed for each area that accesses the audio sources)

Other Connections

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OVERVIEW: MRA-664 & The SpeakerCraft Ecosystem

SpeakerCraft MRA-664 Multi-Room Audio Controller

The SpeakerCraft MRA-664 multi-room audio controller delivers amazing sound throughout the home using a simple, intuitive user interface with options that include a handheld remote, a seven-button keypad pre-programmed for zones, and a choice of touch panel devices. The MRA-664 may also be managed from a variety of mobile devices like the iPhone®, iPad®, Android® phone & tablets, third party control system, plus Windows® or Mac®-based computers, that provide not only control but display metadata such as playlists and album art—even station information.* The intuitive interface renders identically across devices enabling simple and convenient control by all.

The SpeakerCraft Ecosystem

The SpeakerCraft ecosystem centers around the MRA-664 controller which uses SpeakerCraft keypads, touch panels, remotes, virtually all current Apple and Android phones and tablets, providing users with multiple wired and wireless interface options.

OVERVIEW: MRA-664 FEATURES

Leading Features:

Chassis Control: Six unique zones with six distinct input sources. The SpeakerCraft MRA-664 is the leading solution for multi-room audio integrating automation and A/V control.

Source Control: Two-way metadata*, IP and IR control of a variety of popular devices. The SpeakerCraft app includes an extensive pre-defined IR database.

Home Theater Control: Manage audio and video components effortlessly and turn any home into an enviable oasis.

Easy Configuration: Tablet-based configuration eliminates hours of complicated programming. The SpeakerCraft MRA-664 wizard easily configures macros, user interfaces and end user favorites in just minutes.

Mobile App: iOS and Android applications control the SpeakerCraft MRA-664 to queue up soothing sounds at a moment's notice.

Best-in-Class Software Platform: SpeakerCraft software platform scales for future expansion including lighting control and climate/thermostat control.

TCP/IP: A simple backbone for control with no proprietary wiring.

Meta Data: When connected to compatible devices*, SpeakerCraft software delivers metadata to the industry's widest selection of user interfaces.

Preamp Outputs: Connect an external amplifier to provide more power for a large area such as a patio, or for a zone where higher than normal volume levels are desired. The preamp outputs can be switched for fixed or variable levels.

Paging Inputs: Connect a telephone system and/or doorbell to provide paging throughout the home. Overrides all other inputs and can be configured to work in any number of zones

Whole House Mode: The Whole House Mode turns on all zones (or a pre-configured number of zones) to play the same source of music, instantly filling the house with music.

Extended Features:

Expandable to 12 Zones: Simply add another SpeakerCraft MRA-664 Controller to create a system with twelve zones.

8-CH High-Performance Digital Amplifier: The advanced digital amplifiers deliver 30 watts per channel to each zone. Low impedance capability (4Ω stable) provides speaker connection flexibility.

Custom Tailored Sound: Independent bass, treble, and loudness controls enable the customization of each zone to optimize performance.

3rd Party Control Compatible: The SpeakerCraft MRA-664 may be controlled by 3rd Party Control Systems such as ELAN, Control4, Savant, Crestron, RTi, URC, AMX, etc.

*The level of Metadata feedback is limited to the source and service.

MRA-664

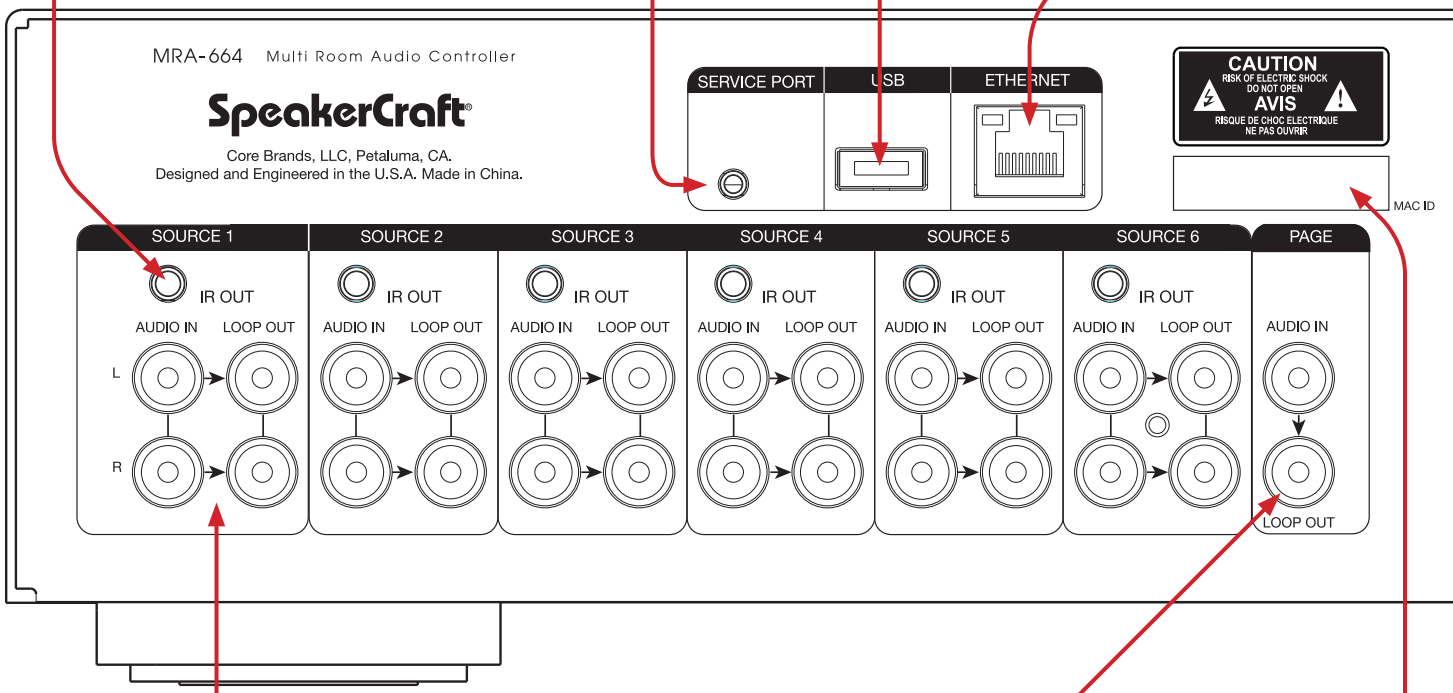
CHASSIS CONNECTIONS

IR OUT 1-6
Assignable IR outputs

SERVICE PORT
For factory service only

USB
Connect only SpeakerCraft approved devices

ETHERNET
10/100 LAN connection



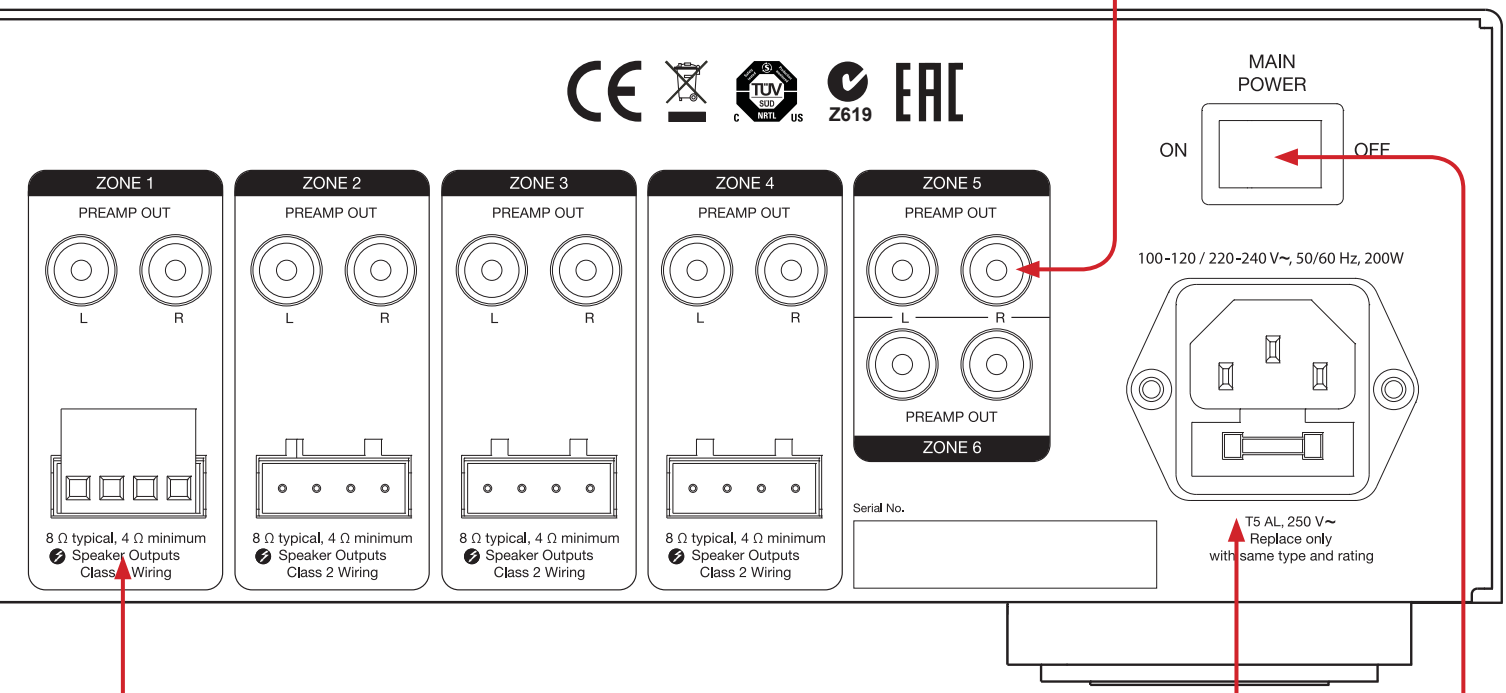
SOURCE 1-6
Analog source inputs with loop outputs

PAGE
Door bell or page input with loop output

MAC ID
For chassis programming

PREAMP OUTPUT ZONE 1-6

Analog stereo Preamp level outputs for each zone



AMPLIFIED OUTPUT ZONES 1-4

Quick connect / disconnect speaker terminal for zones 1-4

AC Power Connection

Main Power

OVERVIEW: Keypads & Touchscreens

Intuitive Tablet and Smartphone Interface

iOS, Android, Windows and Mac OS X applications control the SpeakerCraft MRA-664 to queue up soothing sounds at a moment's notice.

The sHR200 Home Theater and whole house Wi-Fi Remote Control is a sleek extension of the intuitive SpeakerCraft system. The sHR200 features all of the function of a touchscreen packaged in the contemporary styled remote control. A stylish charging base is included and keeps the sHR200 ready to grab-and-go.

The sKP7, 7 Button keypad, delivers a simple interface that the end user to easily select their favorite sources, adjust volume, and turn off the system - all at the touch of a button. This next-gen keypad is simple to use and easy to navigate.

The sTP7, 7" high-resolution touchscreen, is wall-mountable in either portrait or landscape orientation to best suit the needs of the room. The sTP7 features a proximity sensor to wake it from sleep without any touch required and provides a dedicated SpeakerCraft user interface for a more customized experience.

OVERVIEW: sHR200 Wi-Fi Remote Control

Zone Power

Tap to turn current room off, press and hold to turn all rooms off.

Touchscreen

Simply touch an icon to navigate menus, control source components, and more. Lets you see real-time status of Now Playing, and with future system feature expansion, your lighting, climate, and security systems.

Soft Buttons

These buttons correspond to labels shown at the bottom of the touchscreen. Functions vary depending on device or menu selected.

Press to go to Main Menu.

Rooms

When placed on the charging cradle the sHR200 is switched to control the primary room. To change rooms press this button and select a new room.

Media

Press and choose a source or return to the currently playing source. Press and hold zone settings (when available).

Navigation

Use these buttons for navigating your TV, DVD, cable or satellite box, etc.

Transport Buttons

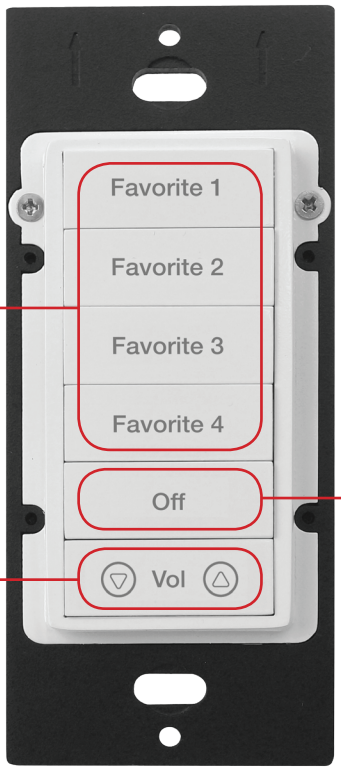
For use with DVD, CD, MP3, SAT, DVR, Cable, etc.

Numeric Buttons

PLEASE NOTE:

Use of the sHR200 remote will vary depending on the configuration of your system.

OVERVIEW: sKP7 Keypad



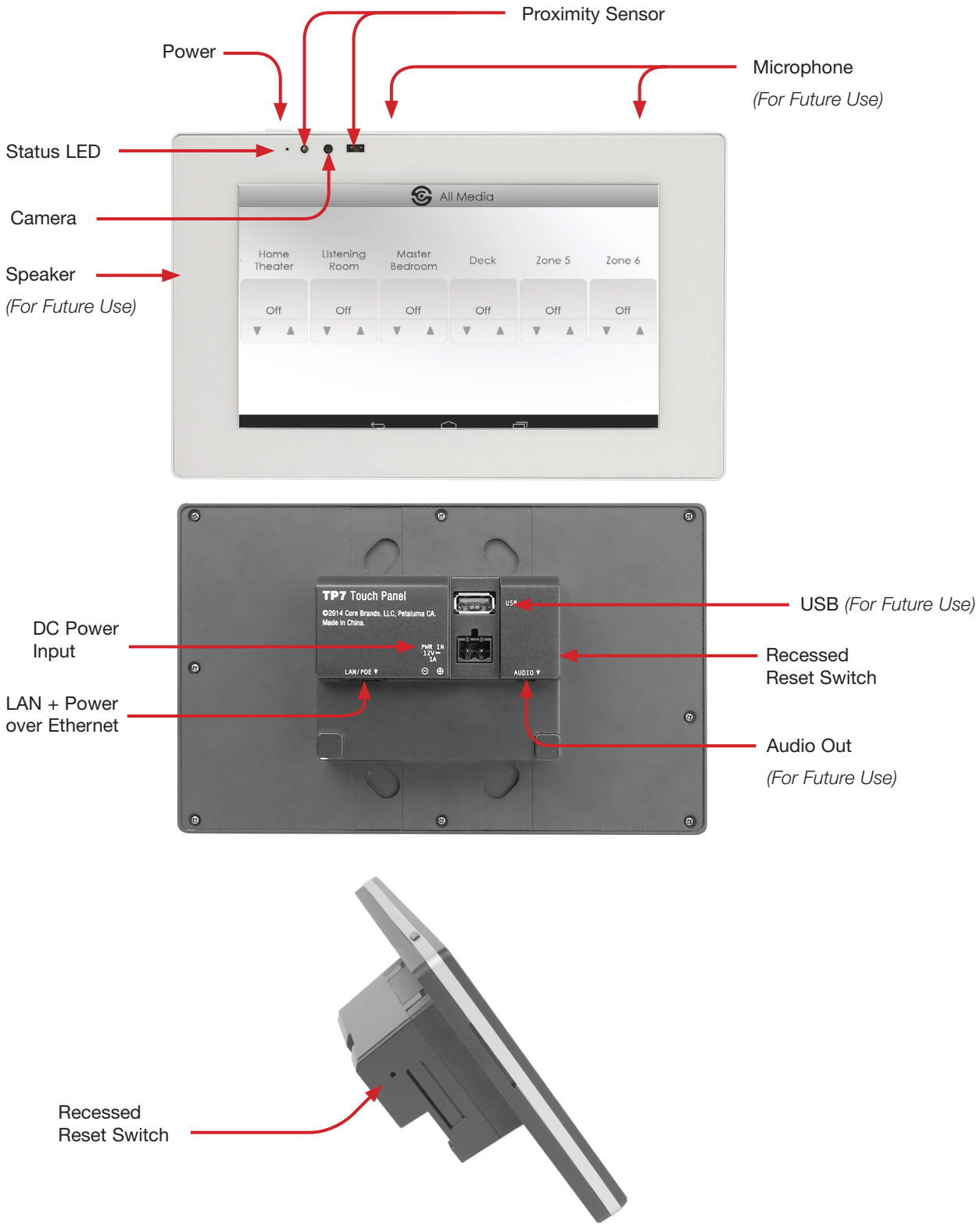
Source Buttons:
Configured in the SpeakerCraft Software. Press and hold to set Audio Presets on the fly.

Volume Up / Down:
Adjusts volume for the assigned zone.

Off Button:
Press once for Zone Off. Press and hold for All Zones Off.

Ethernet Port:
RJ-45 Connection
IEEE 802.3at PoE Compliant
13W Max Draw (@48V⎓ 270 mA Max)

OVERVIEW: sTP7 Touchscreen



APPLICATION: Stand Alone MRA-664 Multi Room Amplifier including System Integration Amplifier for Outside zones

DO THIS FIRST : Review the MRA-664 & SpeakerCraft Software Overview

What does this Application do?

This application covers the use of a MRA-664 amplifier to distribute six audio sources to six zones. Zones 5 & 6 are shown integrated with a SpeakerCraft 12 Channel amplifier, allowing sub-zoning and more power for those areas that need it. This application utilizes two infrared controllable sources and one IP controllable source.

Key Considerations

Global Features Include:

Whole House Mode (WHM) - End-users can fill the house with music from an easy to use settings screen

All Zones Off - Pressing the OFF button from any zone allows for just that zone or for all zones to be turned off.

Paging - Allows paging from a phone system, to be heard through the speakers in pre-configured zones. The zones of the MRA-664 that are on will mute so the page can be heard. The zones that were off will turn on so the page can be heard. When the page is completed, zones that were on will automatically begin playing music again and the zones that were off will again turn off.

Zone Features Include:

Volume Turn-On, Source Level < Bass, Treble, and Variable Loudness - Each zone can have its own custom tailored sound.

Zone Control Recommendations:

Light Usage Rooms - sKP7 7-button keypad recommended – Provides basic system control, including One Touch to Entertainment and play-lists or streaming services. sKP7 provides simple preset access to preferred content on four channels, plus the ability to raise and lower the volume and power down a zone or the system.

Medium Usage Rooms - sKP7 or Mobile device control: iOS and Android applications control the SpeakerCraft MRA-664 to queue up soothing sounds at a moment's notice.

Heavy Usage Rooms - sTP7 7" touchscreen recommended – Provides easy-to-read control through a color touchscreen. Additionally, the sTP7 can access and control other zones.

Customer Benefits

The MRA-664 offers your customer a cost-effective Multi Room audio control that allows One Touch to Entertainment from an easy-to-learn keypad or touchscreen. They get complete control of their music enjoyment through a recognizable user interface from any location in the house.

Installation Benefits

The MRA-664 is a scalable Multi Room controller with a desirable feature set that includes touchscreen support, preamp outputs, 4-ohm stable digital amplifier, and paging ability. Most importantly, the MRA-664 is able to control all sources connected to it through its built-in IR Library or an array of two-way feedback capable IP drivers.

Installation Requirements

All CAT-5 wiring must be terminated using the T568A or T568B wiring convention. The following steps are required to configure a MRA-664 for operation:

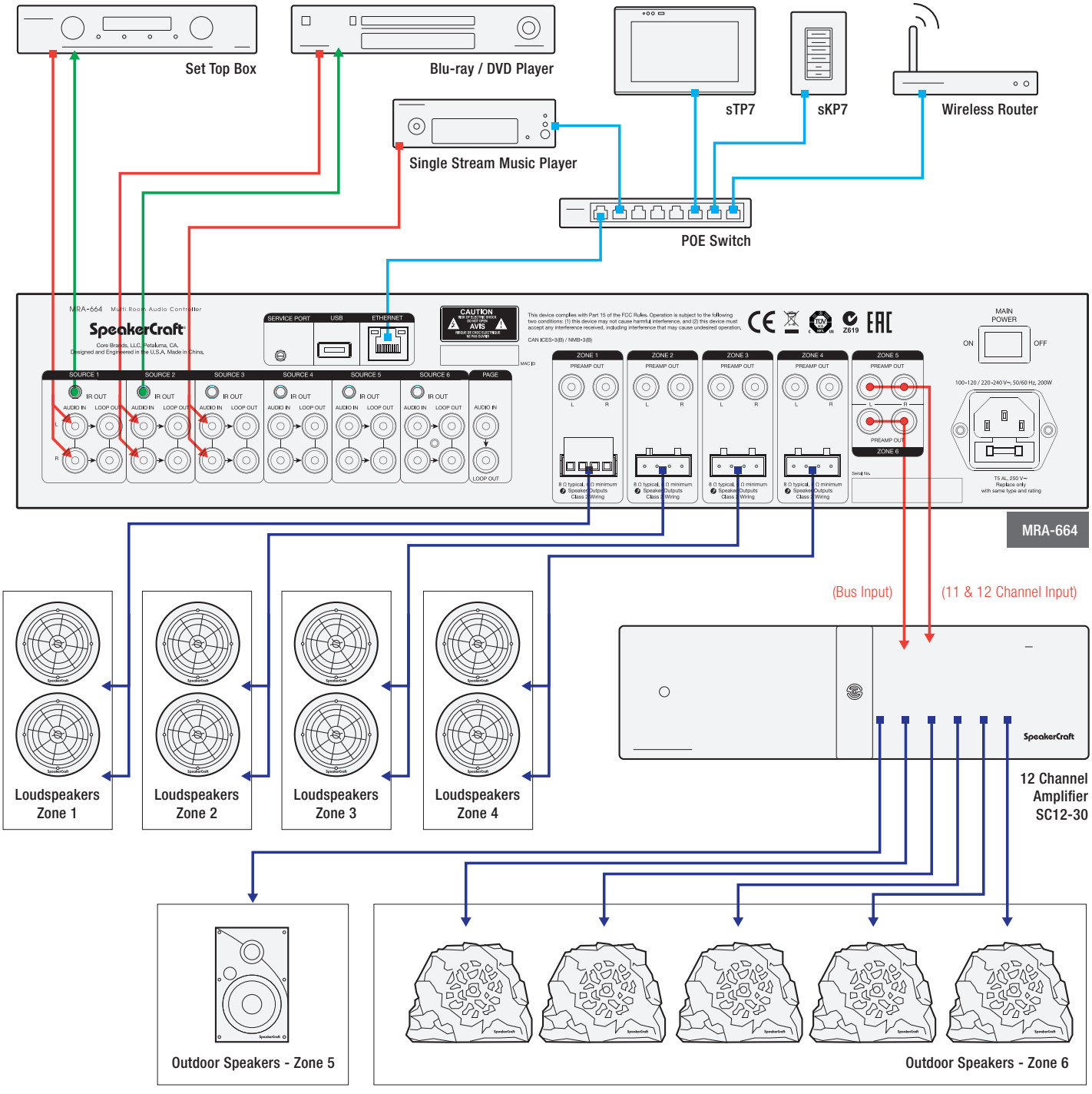
1. Connect to the Local Area Network (LAN)
2. Configure unit through mobile device, touchscreen or PC/MAC viewer on the same LAN
3. Configure the MRA-664 chassis
4. Configure system for all connected sources
5. Set source level, turn-on volume options, bass, treble, variable loudness.
6. Configure all connected user interfaces

Critical Knowledge

- The MRA-664 must be connected to the local area network (LAN).
- The MRA-664 is defaulted to DHCP and will get an IP address from the LAN router, Touchscreens and mobile devices will essentially “Plug and Play” when communicating through the same LAN that the MRA-664 is connected to.
- The SpeakerCraft sKP7 and sTP7 require connection to Power Over Ethernet (PoE) network switch or router.
- Most PoE network switches have a number of ports for power insertion and some ports with no power insertion, make sure that the MRA-664 is plugged into a non-powered port and the SpeakerCraft User Interfaces (sKP7 and sTP7) are plugged into the powered ports.
- Most IP controllable sources require that they be changed from DHCP to a static IP address Refer to the source’s owners manual for proper static IP address settings.

Stand Alone MRA-664 Multi Room Amplifier including System Integration Amplifier for Outside zones

CAT5
Stereo RCA
IR Emitter Cable
Speaker Cable



Cable Schedule

Source Connections to MRA-664

QTY	CABLE	SIGNAL	FROM	TO
1	Stereo RCA	Audio	Set-top box audio output	MRA-664 Source 1 Audio In
1	Stereo RCA	Audio	Blu-Ray/ DVD Player audio output	MRA-664 Source 2 Audio In
1	Stereo RCA	Audio	Media player changer audio output	MRA-664 Source 3 Audio In
1	IR Emitter	Infrared	MRA-664 Source 1 IR Out	Set-top Box IR Window
1	CAT5	Network	Music Player	Local Area Network Switch
1	IR Emitter	Infrared	MRA-664 Source 2 IR Out	Blu-Ray/ DVD Player IR window

Room Connections (needed for each area that accesses the audio sources)

QTY	CABLE	SIGNAL	FROM	TO
1	Speaker	Audio	MRA-664 Zone Amplifier Output	Speakers
1	CAT5	Data	Local Area Network PoE Switch	Keypad or Touchscreen
1	Speaker	Audio	SC12-30 Amplifier Output	Zone 5 Speakers
1	Speaker	Audio	SC12-30 Amplifier Output	Zone 6 Speakers

Other Connections

QTY	CABLE	SIGNAL	FROM	TO
1	Stereo RCA	Audio	MRA-664 Zone 5 PREAMP OUT	SC12-30 Audio Input 11&12
1	Stereo RCA	Audio	MRA-664 Zone 6 PREAMP OUT	SC12-30 BUS Input
1	CAT5	Network	Local Area Network Switch	MRA-664 ETHERNET Connection

APPLICATION: Whole Home Audio with an Extender Chassis (12 zones) and System Integration Amplifier for Outside zones

DO THIS FIRST : Review the MRA-664 & SpeakerCraft Software Overview

What does this Application do?

This application covers the use of a MRA-664 Multi Room Amplifier to distribute audio to 12 zones, as well as using a System Integration Amplifier to power outdoor zones. Sources in this application are examples of sources that use infrared control and a multiple stream music player using IP control.

Key Considerations

Global Features Include:

Whole House Mode (WHM) - End-users can fill the house with music from an easy to use settings screen

All Zones Off - Pressing the OFF button from any zone allows for just that zone or for all zones to be turned off.

Paging - Allows paging from a phone system, to be heard through the speakers in pre-configured zones. The zones of the MRA-664 that are on will mute so the page can be heard. The zones that were off will turn on so the page can be heard. When the page is completed, zones that were on will automatically begin playing music again and the zones that were off will again turn off.

Zone Features Include:

Volume Turn-On, Source Level < Bass, Treble, and Variable Loudness - Each zone can have its own custom tailored sound.

Powering Outdoor Areas: The amplifier power of the MRA-664 is sufficient for indoor applications, but outdoor applications may require a more powerful amplifier. A SpeakerCraft System Integration Amplifier is recommended when more power is needed. The MRA-664 has preamp outputs. Each one provides an audio signal to the amplifier that can be switched between variable level (volume level controlled by keypad) or fixed level (volume level controlled by a separate volume control).

Zone Control:

Light Usage Rooms - sKP7 7-button keypad recommended – Provides basic system control, including One Touch to Entertainment and play-lists or streaming services. sKP7 provides simple preset access to preferred content on four channels, plus the ability to raise and lower the volume and power down a zone or the system.

Medium Usage Rooms - sKP7 or Mobile device control: iOS and Android applications control the SpeakerCraft MRA-664 to queue up soothing sounds at a moment's notice.

Heavy Usage Rooms - sTP7 7" touchscreen recommended – Provides easy-to-read control through a color touchscreen. Additionally, the sTP7 can access and control other zones.

Multichassis Configuration: When using two MRA-664's you have access to these features and capabilities:

- Global features such as Party Mode
- All Zones Off
- All other sources are shared between the chassis (maximum of 6)

Customer Benefits

The MRA-664 offers your customer a cost-effective Multi Room audio controler that allows One Touch to Entertainment from an easy-to-learn keypad or touchscreen. They get complete control of the whole house audio system through a recognizable user interface from any location in the house.

Installation Benefits

The MRA-664 is a scalable Multi Room controller with a desirable feature set that includes touchscreen support, preamp outputs, 4-ohm stable digital amplifier, and paging ability. Most importantly, the MRA-664 is able to control all sources connected to it through its built-in IR Library or an array of two-way feedback capable IP drivers. The SC12-30 amplifier is used in this application because it can be configured to 12 channel mode or adjacent channels can be bridged for higher output power for those speakers and areas that need it.

Installation Requirements

All CAT-5 wiring must be terminated using the T568A or T568B wiring convention. The following steps are required to configure a MRA-664 for operation:

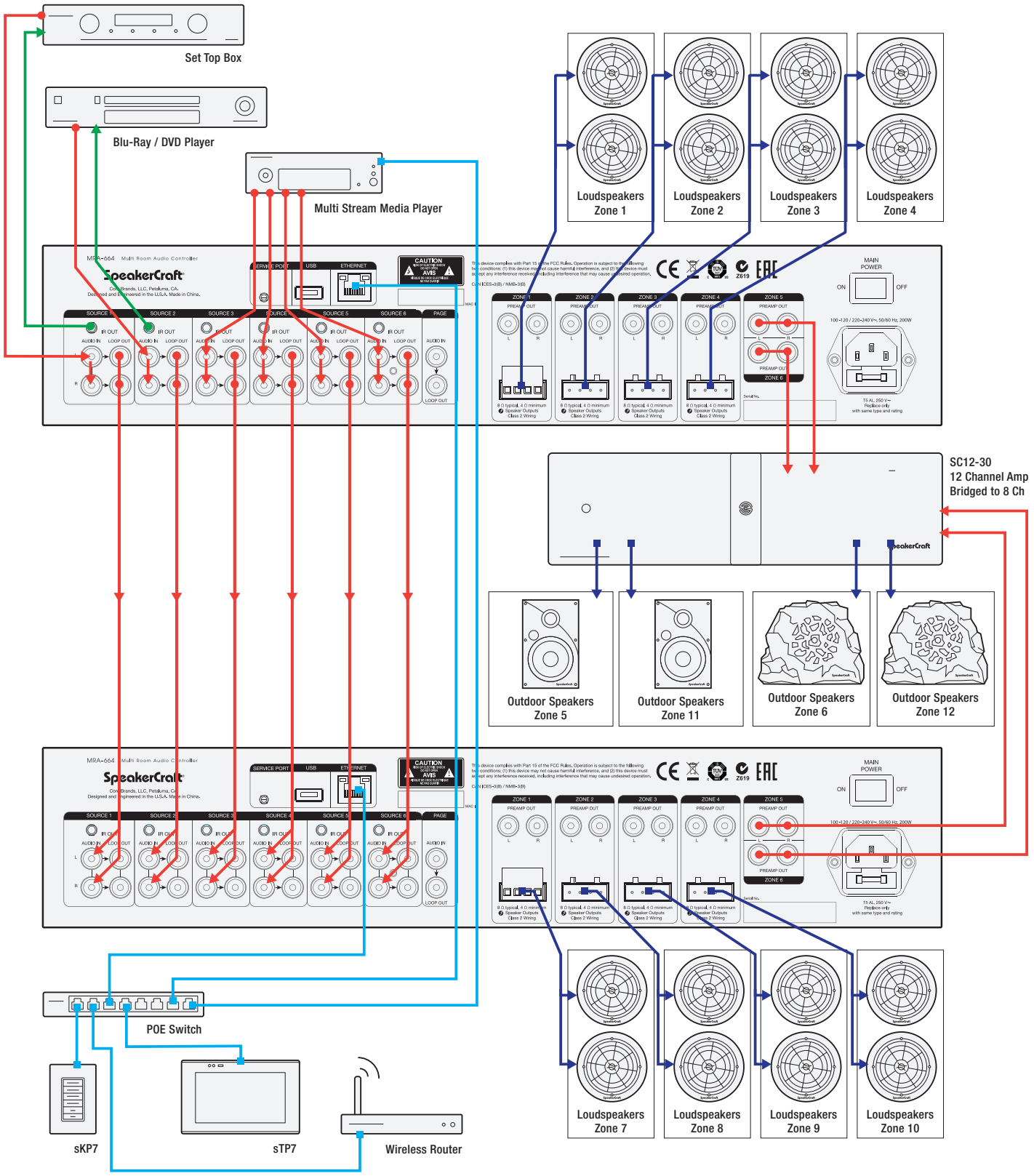
1. Connect to the Local Area Network (LAN)
2. Configure unit through mobile device, touchscreen or PC/MAC viewer on the same LAN
3. Configure the MRA-664 chassis
4. Configure system for all connected sources
5. Set source level, turn-on volume options, bass, treble, variable loudness.
6. Configure all connected user interfaces.

Critical Knowledge

- Both MRA-664 chassis must be connected to the local area network (LAN).
- The MRA-664 is defaulted to DHCP and will get an IP address from the LAN router, Touchscreens and mobile devices will essentially “Plug and Play” when communicating through the same LAN that the MRA-664 is connected to.
- Most PoE network switches have a number of ports for power insertion and some ports with no power insertion. Make sure that the MRA-664 is plugged into a non-powered port and that the sKP7 is plugged into a powered port.
- The sTP7 can also be plugged into a powered port, OR it can be powered by an external power supply.
- Most IP controllable sources require that they be changed from DHCP to a static IP address Refer to the source’s owners manual for proper static IP address settings.

Whole Home Audio with a Extender Chassis (12 zones) and Systems Integration Amplifier for Outside zones

CAT5
Stereo RCA
IR Emitter Cable
Speaker Cable



Cable Schedule

Source Connections to MRA-664

QTY	CABLE	SIGNAL	FROM	TO
1	Stereo RCA	Audio	Set-top box audio output	Master MRA-664 Source 1 Audio In
1	Stereo RCA	Audio	DVD changer 4 audio output	Master MRA-664 Source 2 Audio In
1	Stereo RCA	Audio	Media Player Stream 1 audio output	Master MRA-664 Source 3 Audio In
1	Stereo RCA	Audio	Media Player Stream 2 audio output	Master MRA-664 Source 4 Audio In
1	Stereo RCA	Audio	Media Player Stream 3 audio output	Master MRA-664 Source 5 Audio In
1	Stereo RCA	Audio	Media Stream 4 audio output	Master MRA-664 Source 6 Audio In
1	IR Emitter	Infrared	MRA-664 Source 1 IR Out	Set-top box IR window
1	CAT5	Network	Music Player	Local Area Network Switch
1	IR Emitter	Infrared	MRA-664 Source 2 IR Out	DVD changer IR window
1	Stereo RCA	Audio	Master MRA-664 Source 1 Loop Out	Extender MRA-664 Source 1 Audio In
1	Stereo RCA	Audio	Master MRA-664 Source 2 Loop Out	Extender MRA-664 Source 2 Audio In
1	Stereo RCA	Audio	Master MRA-664 Source 3 Loop Out	Extender MRA-664 Source 3 Audio In
1	Stereo RCA	Audio	Master MRA-664 Source 4 Loop Out	Extender MRA-664 Source 4 Audio In
1	Stereo RCA	Audio	Master MRA-664 Source 5 Loop Out	Extender MRA-664 Source 5 Audio In
1	Stereo RCA	Audio	Master MRA-664 Source 6 Loop Out	Extender MRA-664 Source 6 Audio In

Room Connections (needed for each area that accesses the audio sources)

QTY	CABLE	SIGNAL	FROM	TO
1	Speaker	Audio	MRA-664 Zone Amplifier Output	Speakers
1	CAT5	Data	Local Area Network PoE Switch	Keypad or Touchscreen
1	Speaker	Audio	SC12-30 Amplifier Output	Zone 5 Speakers
1	Speaker	Audio	SC12-30 Amplifier Output	Zone 6 Speakers
1	Speaker	Audio	SC12-30 Amplifier Output	Zone 11 Speakers
1	Speaker	Audio	SC12-30 Amplifier Output	Zone 12 Speakers

Other Connections

QTY	CABLE	SIGNAL	FROM	TO
1	Stereo RCA	Audio	Master MRA-664 Zone 5 PREAMP OUT	SC12-30 Audio Input 7&8
1	Stereo RCA	Audio	Master MRA-664 Zone 6 PREAMP OUT	SC12-30 Audio Input 10&12
1	Stereo RCA	Audio	Extender MRA-664 Zone 5 PREAMP OUT	SC12-30 Audio Input 1&2
1	Stereo RCA	Audio	Extender MRA-664 Zone 6 PREAMP OUT	SC12-30 Audio Input 4&6
1	CAT5	Network	Local Area Network Switch	Master MRA-664 ETHERNET Connection
1	CAT5	Network	Local Area Network Switch	Extender MRA-664 ETHERNET Connection

APPLICATION: MRA-664 Multi Room Amplifier Integrated with a Home Theater System for Unified Control

DO THIS FIRST : Review the MRA-664 & SpeakerCraft Software Overview

What does this Application do?

This application covers the integration of a MRA-664 Multi Room Amplifier and a home theater receiver with shared sources between the two.

Key Considerations

Global Features Include:

Whole House Mode (WHM) - End-users can fill the house with music from an easy to use settings screen

All Zones Off - Pressing the OFF button from any zone allows for just that zone or for all zones to be turned off.

Paging - Allows paging from a phone system, to be heard through the speakers in pre-configured zones. The zones of the MRA-664 that are on will mute so the page can be heard. The zones that were off will turn on so the page can be heard. When the page is completed, zones that were on will automatically begin playing music again and the zones that were off will again turn off.

Zone Features Include:

Volume Turn-On, Source Level < Bass, Treble, and Variable Loudness - Each zone can have its own custom tailored sound.

Powering Outdoor Areas: The amplifier power of the MRA-664 is sufficient for indoor applications, but outdoor applications may require a more powerful amplifier. A SpeakerCraft System Integration Amplifier is recommended when more power is needed. The MRA-664 has preamp outputs. Each one provides an audio signal to the amplifier that can be switched between variable level (volume level controlled by keypad) or fixed level (volume level controlled by a separate volume control).

Zone Control:

Light Usage Rooms - sKP7 7-button keypad recommended – Provides basic system control, including One Touch to Entertainment and play-lists or streaming services. sKP7 provides simple preset access to preferred content on four channels, plus the ability to raise and lower the volume and power down a zone or the system.

Medium Usage Rooms - sKP7 or Mobile device control: iOS and Android applications control the SpeakerCraft MRA-664 to queue up soothing sounds at a moment's notice.

Heavy Usage Rooms - sTP7 7" touchscreen recommended – Provides easy-to-read control through a color touchscreen. Additionally, the sTP7 can access and control other zones.

Multichassis Configuration: When using two MRA-664's you have access to these features and capabilities:

- Global features such as Party Mode
- All Zones Off
- All other sources are shared between the chassis (maximum of 6)

Customer Benefits

The MRA-664 offers your customer a cost-effective Multi Room audio control that allows One Touch to Entertainment from an easy-to-learn keypad, handheld remote, or touch panel. They get complete control of their music enjoyment through a recognizable user interface from any location in the house.

The sHR200 provides a dedicated hard button/touchscreen interface that is both elegant and easy to use.

Installation Benefits

The MRA-664 is a scalable Multi Room controller with a desirable feature set that includes touchscreen support,preamp outputs, 4-ohm stable digital amplifier, and paging ability. Most importantly, the MRA-664 is able to control all sources connected to it through its built-in IR Library or an array of two-way feedback capable IP drivers.

Installation Requirements

1) The MRA-664 and Home Theater receiver must be connected to the same Local Area Network (LAN)

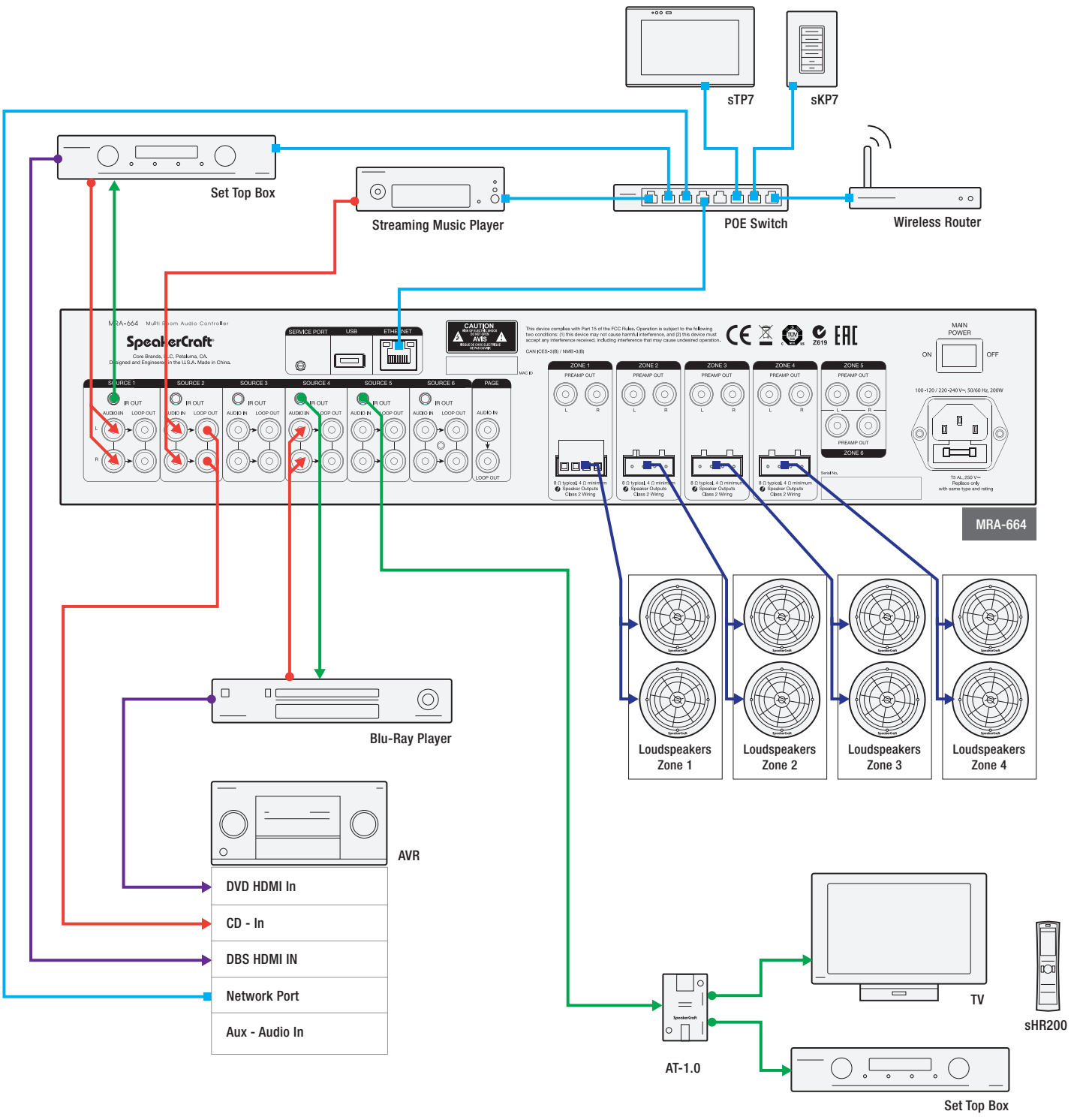
2) When sHR200 WiFi Remote Control is desired for Home Theater and Whole House Audio control, the MRA-664 and Home Theater Receiver must be set for independent static IP addresses. Use the Project Documentation Worksheet (supplied with the MRA-664) to document all system connections and IP addresses.

3) Most IP controllable sources require that they be changed from DHCP to a static IP address. Refer to the sources owners manual for proper static IP address settings

Critical Knowledge

- A static IP address must be set on the MRA-664 to use the sHR200 Wifi remote Control.
- Most PoE network switches have a number of ports for power insertion and some ports with no power insertion. Make sure that the MRA-664 is plugged into a non-powered port and that the sKP7 is plugged into a powered port.
- The sTP7 can also be plugged into a powered port, OR it can be powered by an external power supply.
- Additionally if more than 6 IR Flasher ports are needed, then you can connect one of the IR outputs to a SpeakerCraft IR Main System Unit (MSU) to provide additional un-routed IR Flasher ports.

MRA-664 Multi Room Amplifier Integrated with a Home Theater System for unified control



Cable Schedule

Source Connections to MRA-664

QTY	CABLE	SIGNAL	FROM	TO
1	Stereo RCA	Audio	Set-top box audio output	MRA-664 Source 1 Audio In
1	HDMI	HDMI	Set-top box HDMI output	Home Theater AVR DBS HDMI input
1	Stereo RCA	Audio	MRA-664 Source 2 Loop Out	Home Theater CD Audio input
1	Stereo RCA	Audio	Media Player audio output	MRA-664 Source 2 Audio In
1	Stereo RCA	Audio	Blu-Ray audio output	MRA-664 Source 4 Audio In
1	HDMI	HDMI	Blu-Ray HDMI output	Home Theater AVR DVD HDMI input
1	Flasher	Infrared	MRA-664 Source 1 IR Out	Set-top Box
1	CAT5	Network	Music Player	Local Area Network Switch
1	Flasher	Infrared	MRA-664 Source 4 IR Out	Blu-Ray IR Window
1	3.5 mm w Flying leads	Infrared	MRA-664 Source 5 IR Out	IR Sensor Input of AT-1.0

Room Connections (needed for each area that accesses the audio sources)

QTY	CABLE	SIGNAL	FROM	TO
1	Speaker	Audio	MRA-664 Zone Amplifier Output	Speakers
1	CAT5	Data	Local Area Network PoE Switch	Keypad or Touchscreen

Other Connections

QTY	CABLE	SIGNAL	FROM	TO
1	CAT5	Network	Local Area Network Switch	MRA-664 ETHERNET Connection
1	CAT5	Network	Local Area Network Switch	Home Theater AVR Network connection
1	IR Emitter	Infrared	Emitter Port of AT-1.0	Theater Set-top box
1	IR Emitter	Infrared	Emitter Port of AT-1.0	Theater TV

APPLICATION: Telephone Paging Interface

DO THIS FIRST : Review the MRA-664 & SpeakerCraft Software Overview

What does this Application do?

This application covers the integration of the MRA-664 with a Telephone paging system. The SpeakerCraft MRA-664 is designed with an audio sensing interrupt connection. This connection allows standardised Telephone Paging systems to pass house-wide paging through all configured audio zones. An end-user can pick up any phone and with a couple of button presses, send a voice communication through the speakers in each configured zone. Zones can be configured to not allow telephone pages through with very simple wizard steps. Configured zones that are on playing music will mute the music allowing the page to come through, when the page is concluded the zone will revert to their original state.

Key Considerations

The paging input connection is designed to work with paging systems that adhere to the Panasonic protocol of paging output (two seconds of tone to activate the paging circuit followed by the audio signal of the page). Additionally the paging output should be a mono audio signal connection, as the connection on the MRA-664 is a mono audio input RCA.

Customer Benefits

Telephone paging integration is a desired feature, especially for larger houses, allowing telephone pages not only come from other phones but from the distributed audio speakers that may be in areas where paging phones may not be. Additionally the seamless way the phone paging is configured rooms can very easily be setup to responde to the pages while others are in a “Do Not Disturb” state. When a page is initiated, the configured zones that are on will mute and play the page, the configured zones that are off will turn on an play the page and when concluded the configured zones revert to their original state.

Installation Benefits

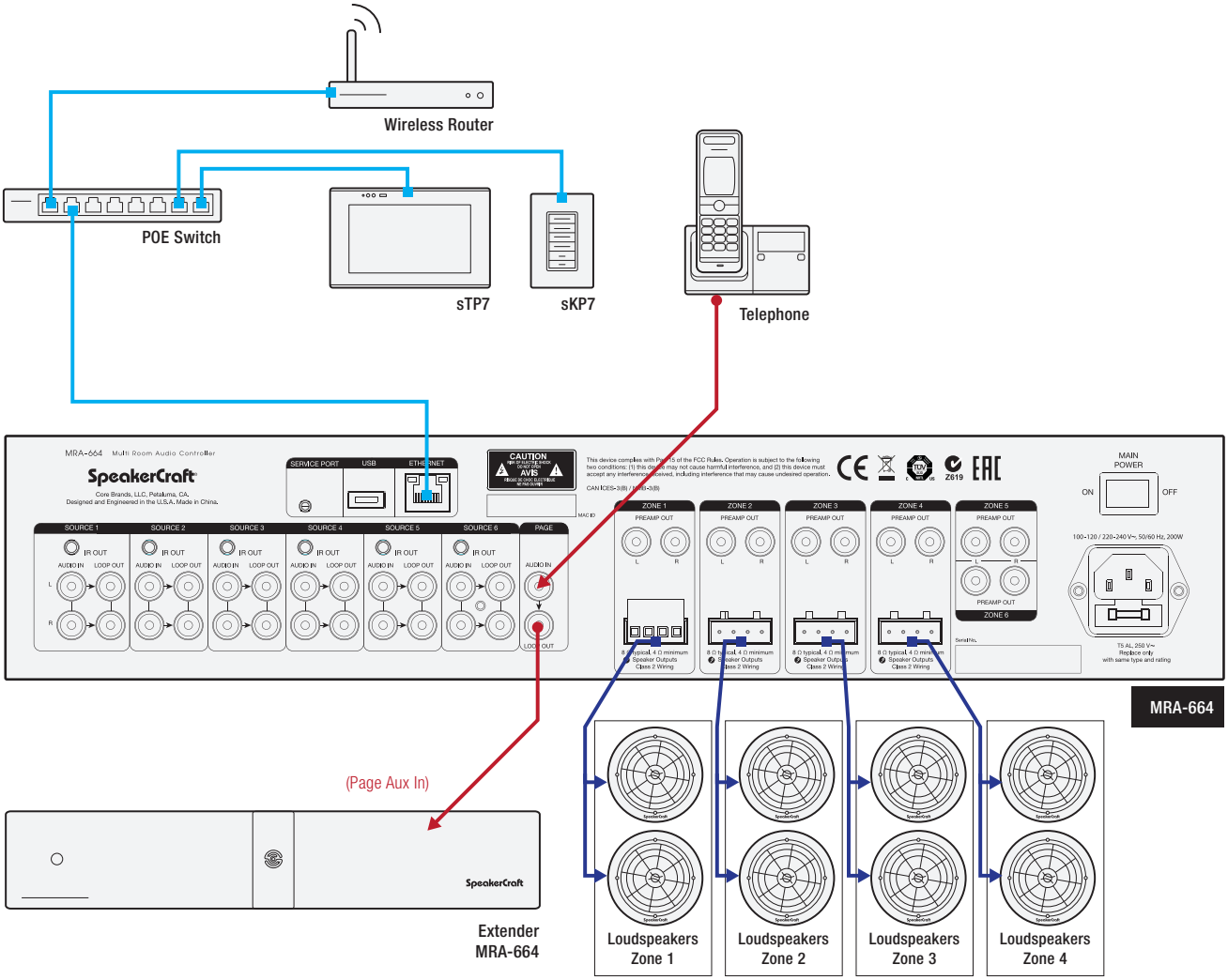
This easy add-on to any MRA-664 system requires very little wiring and adds a desirable feature to the Multi Room system. Additionally, it adds a feature that is difficult for competitors to replicate, which makes your system design hard to copy.

Critical Knowledge

Telephone paging systems must adhere to the Panasonic protocol of paging output. That protocol is 2 seconds of tone to activate the paging circuit then the audio of the page. The paging output should be a mono audio signal connection, as the connection on the MRA-664 is a mono audio input RCA.

MRA-664 Multi Room Amplifier Integrated with a Doorbell Alert System

CAT5
Mono RCA
Speaker Cable



Cable Schedule

Doorbell Interface Connections

QTY	CABLE	SIGNAL	FROM	TO
1	Mono RCA	Audio	Telephone KSU Page Output	Master MRA-664: PAGE AUDIO IN
1	Mono RCA	Audio	Master MRA-664: PAGE AUDIO OUT	Extender MRA-664: PAGE AUDIO IN

General System FAQs

Why are there no keypad connections on the rear of the MRA-664?

The MRA-664 is an IP based system and as such has no keypad connections on the rear. All user interfaces use internet protocol to communicate with the MRA-664 system through the local area network (LAN), either hard-wired or via Wi-Fi. The MRA-664 and all user interfaces must be connected to the same local area network (LAN).

What is the amplification of the MRA-664?

The MRA-664's built in amplification is 30 watts per channel into an 8 ohm load, 45 watts per channel into a 4 ohm load. Most distributed audio loudspeakers are 8 ohm compatible, however some are 6 or 4 ohms for greater output. The MRA-664 internal amplifier can safely run loudspeakers that are 6 or 4 ohms.

Why or when should I use external amplifiers on the MRA-664?

An external amplifier should be used to expand the MRA-664 system. The MRA-664 has pre-amp outputs for every zone for this purpose. An external amplifier should be used on zones 1-4 if the 30 watts per channel is not enough to run the desired in zone loudspeakers, or if you wish to run more loudspeakers in that zone (i.e. outdoor area). The MRA-664 preamp outputs can be set for fixed or variable output depending on system design. On zones 1-4 the speaker outputs and pre-amp outputs can be used at the same time. An example of such usage could be to cover a patio and outdoor area as one large zone. This example would have the MRA-664's zone 4 speaker outputs going to a pair of SpeakerCraft OE (Outdoor Elements) loudspeakers under the eve of the patio and zone 4's variable pre-amp output going to a SpeakerCraft SC12-30 amplifier (bridged or un-bridged) to run a number of SpeakerCraft Ruckus Outdoor Rock loudspeakers scattered throughout the outdoor area. All loudspeakers in this area would play the same music source and go up and down together with the touch of a button on the zone's user interface.

Why or when should I use an additional MRA-664?

An additional MRA-664 should be used when more than 6 zones are needed in a project, expanding the basic 6 source 6 zone system architecture. A maximum of 2 (two) MRA-664's can be used to create a 6 source by 12 zone system design. Please see the system design starting on page 16 in this guide for more information.

How do I configure the MRA-664 system?

The MRA-664 is an IP based Multi Room Controller and as such configuration of the system is done through the local area network router using either the sTP7 Touch Panel, 7 inch or larger mobile device (iPad or Android) communicating through Wi-Fi on the same local area network or using the PC or MAC viewer software. Set-up (Configuration) is integrator-friendly through the SpeakerCraft Software Wizard and, the installer is whisked through simple decisions that quickly configure the system for sources, zone preferences, user interface customization and home theater control. The SpeakerCraft Wizard configuration screens are safely protected behind a password protected hidden screen.

Can I change the password for configuring the MRA-664 and HR200?

The MRA-664 and sHR200 (Wi-Fi remote) use the same password to gain access their configuration screen, this is a fixed password (cannot be changed) for ease of memory and should not be given to the end-user.

How is the system wired?

The MRA-664 system is wired using the same custom installation cables as previous SpeakerCraft Multi Room/MultiZone systems and are not included. Keypads and touch panels are wired using CAT5 or higher custom installation cabling. The sKP7 7-button keypads are connected using CAT5 or higher cable to a PoE (Power over Ethernet) network switch only. The sTP7 Touchpanel can be connected using CAT5 or higher cable to the same PoE switch or can be powered locally (local powering requires additional 2 conductor power cabling) The MRA-664 is wired to the network switch or router using CAT5 cabling. Sources are connected using line-level RCA cables for source audio and IR flasher cables (for control of IR sources) as needed. Streaming music sources must also be connected to the network switch or router for control (with compatible built-in drivers) and streaming services. The MRA-664 connects to your speakers using 2-conductor speaker wire. For most applications, we recommend you use 16 or 18 gauge wire. For speaker wiring runs longer than 80 feet we recommend 14 gauge wire.

How do I update the system for newer product integration?

The MRA-664 system and user interfaces such as the keypad and touchscreen use the SpeakerCraft Software. The SpeakerCraft Software is essentially the operating system and is pre-loaded at the factory. Based on production cycles and inventory stocking it is possible that the SpeakerCraft Software on the MRA-664 should be updated. Updating the SpeakerCraft Software can be accomplished by downloading the latest version from the SpeakerCraft Audio support site, then connecting the PC laptop to the Local Area Network (LAN) that the MRA-664 system is connected to, using a CAT5 cable and running the self-executing software update.

How do I integrate a Home Theater system?

The MRA-664 is a Multi Room Controller that can integrate a Home theater system one of two ways;

1) The Theater system is a separate zone (from the 6 built-in zones of the MRA-664)

a. All sources connected to the AVR can be shared with the Whole House Music capability of the MRA-664 using the zone 2 output of the AVR and an IP built-in driver with compatible AVR's

b. Any Whole house sources connected to the MRA-664 can be shared with the AVR by using the LOOP Output line level jacks of the MRA-664 connected to a source input of the AVR

2) The Theater system can be a zone on the MRA-664 by utilizing a zone pre-amp output of the MRA-664. An example would be the Zone Pre-amp out of zone 5 can be run to a single audio input of the Home Theater AVR, thus sharing all of the house-wide audio sources of the MRA-664 through one audio input of the AVR.

How many AVRs can I have?

The SpeakerCraft Software will allow for one Home Theater to be integrated.

What is 3rd Party Control Compatible?

3rd Party Control Compatible is an option that allows 3rd party control systems to control the SpeakerCraft MRA-664 as a distributed audio subsystem. The communications protocol document (titled SpeakerCraft Remote Management Guide) that programmers need to utilize this feature is available on the SpeakerCraft dealer website and contains all of the information for Programmers to reference while writing their integration scripts for their 3rd party control systems. The 3rd party control system must be on the same local area network (LAN) as the SpeakerCraft MRA-664 as communication is through the Ethernet connection (TCP/IP) on the rear of the MRA-664.

Source FAQs

Are there any sources built into the MRA-664?

No, there are no sources built-in to the MRA-664. There are 6 source Line Level inputs that will accommodate many different types of sources.

What sources can I integrate into the MRA-664 system?

The six source inputs are line level and can accommodate many different types of sources. Line level audio from any source can be brought into the MRA-664 even if the source is not IR controllable, examples of these would be legacy devices such as tape decks, basic iPod docks, CD players, computer audio, even phonographs (using a phono-preamp).

Sources that can be controlled from a MRA-664 user interface are separated into two categories; IR controllable and IP controllable.

The MRA-664 has a built-in IR database of codes to control sources from around the world! The IR database is cloud-based and is updated frequently. IR controllable sources are items like Cable or Satellite set-top boxes, Outboard AM/FM tuners, CD\DVD or BluRay Players, Media players like Apple TV and Roku, Game Systems and iPod docks.

The MRA-664 has built-in drivers for controlling sources via Internet Protocol (IP). These drivers are built-in, tested and allow two-way feedback and control of sources like Tuners\Internet Tuners built into AVR receivers from many third-party manufacturers. There are also two-way feedback drivers built-in to control media player sources such as Sonos, Autonomics, Yamaha Aventage and Logitech Music Service (LMS) based media players such as Fusion Research and S1Digital. The two-way feedback include various levels of Metadata and album art to be shown on the SpeakerCraft based user interfaces. The level of Metadata feedback is limited to the media player and music service.

How do I integrate an iPod into the system?

iPods as a source can be integrated two ways. An iPod can be a simple audio source with no control by taking the audio from the iPod and connecting it to the MRA-664 source audio input RCA connectors. The connection from the iPod can be from the headphone jack or from a dock line level audio output.Secondly, there are several IR controllable iPod Docks that are listed in the IR Database that provide basic control such as Play, Stop, Track\playlist skip forward and back. iPod Docks with SpeakerCraft IR control have no metadata feedback.

How do I integrate streaming music services into the MRA-664?

The MRA-664 does not have any music services built-in, music services are provided by third-party media players.

Media streaming services such as Spotify, TuneIn, Pandora and Rhapsody are subject to your country and media player availability. All IP controllable media players have support pages that detail the services available for their customers, additionally not all services are available world-wide. SpeakerCraft has a Technical Resource Dealer Website that has Integration Guides that detail some of the specifics for supported and unsupported features for the media players we have drivers for. It is recommended to always read these Integration Guides before selling/integrating a music service for a client.

How do I control more than 6 IR controllable sources?

The IR outputs on the back of the MRA-664 are available to be used with IR control sources and Home Theater TVs. There are 6 IR outputs that are completely assignable even though they are placed near the source audio inputs. This means the IR output located next to Source Input 1 can be used to control source 1 or can be re-assigned to control another source or the home theater TV (if needed). Use the SpeakerCraft software configuration screens to assign multiple sources or the Home Theater TV/sources to the same IR output of the MRA-664. Connect a SpeakerCraft dual headed IR Emitter (IRE-2.0) to control two devices from the single IR output. Alternatively connect a SpeakerCraft IR Amplified Terminator Unit (AT-1.0) to allow more than one IR Emitter to be utilized from any of the single IR output connections. Please refer to the system design on page 22 for reference and further details.

How do I add to/change the IR library?

The Cloud Based IR library is a very large collection of IR codes that SpeakerCraft has gathered, vetted, and verified to contain the largest amount of devices that are likely to be used with the MRA-664 system. The IR database has been captured so that function keys/buttons for sources are automatically mapped to interface templates to simplify the configuration process, and as such every device has been vetted and verified and is a representation of current and legacy devices from around the world. The database includes Domestic and International manufacturers in such categories as Media Management, Set-top Boxes (Cable and Satellite), CD players, DVD and Blu-ray players, Tuners, TVs/projectors, iPod docks and Gaming systems. Each category of source devices/TV/projectors has many manufacturers and service providers, including OEM manufacturers so the device you are looking for is likely to be in the IR database. The SpeakerCraft MRA-664 technical support-only website has a list of devices in the IR cloud database, however if you should find that a device that you need isn't in the library, a code is miss mapped, a code is missing, or a code doesn't function (for the latest model) there is an IR request form that can be filled out and submitted to SpeakerCraft Technical Support for addition/amending of the Cloud based IR Database. Once submitted these request are evaluated and the Database is amended. Once the Cloud database is amended then all the installer needs to do is remove the IR controlled device in question, power cycle the MRA-664 (while it is connected to the customer's network, with outside/internet connection), the MRA-664 then re-pings the "IR Cloud" to update the IR library, the IR controlled device can be re-added to the configuration and changes will be applied. The SpeakerCraft IR Cloud Database is updated regularly and the list of said devices is updated with when the last changes have been made.

User Interface FAQs

What are the available options for the customer to control the MRA-664 system?

The MRA-664 has many options for the end-user to operate the system, from the sHR200, a hand-held Wi-Fi remote control, the sKP7, a 7 button one-gang wall mounted keypad, the sTP7, a 7 inch portrait or landscaped mounted touch screen, a PC or MAC computer viewer, to mobile device control like iPhone, iPad, Android phone or tablets. Please refer to the section of this design guide on page 8 for more information.

How are the keypads and touch screens powered?

The sKP7 requires the use of a PoE (Power over Ethernet) injecting device. The PoE device must adhere to the IEEE 802.3at standard, 13w maximum draw (@48 V 270mA max). The sTP7 may be powered locally or with a PoE (Power over Ethernet) injecting device. When powering locally a 12v 1A power supply will need to be used. When powering the sTP7 with a PoE switch, or PoE injector, the device must adhere to the IEEE 802.3at standard, 13w maximum draw (@48 V 270mA max). There are a wide arrange of 3rd party PoE switches and injectors available to accommodate the system application.

Does the MRA-664 support more than one HR200?

Currently the SpeakerCraft Software driven MRA-664 supports only one sHR200 hand-held Wi-Fi remote. This remote control was designed to integrate both whole house music and home theater control into one remote that operates the same way the touch screen and mobile device control works, so your client needs to learn only one intuitive interface and he can use any of them!

Why do I see blank/unused buttons on my IR controllable source interface in the SpeakerCraft Viewer?

The MRA-664 was designed to be very easy to configure/set-up with the built-in wizard SpeakerCraft software. The SpeakerCraft configuration wizard screens auto-map function buttons for all devices and as such do not provide any “Dragging and Dropping” of IR commands but automatically map the most commonly used commands and the right level of control you should be providing the end-user. As an example, when a satellite set-top box is configured the Channel numbers, Channel Up, and Channel Down are automatically mapped along with other functions, but not all functions found on the original remote may be mapped and some buttons are left blank (with no function assigned/mapped) on the touch screen based user interface. This is a normal occurrence and should be no cause for alarm.

Replacement Questions

Are there any parts or pieces of SpeakerCraft previous Multi Room/MultiZone systems that are compatible with the new MRA-664 system?

The MRA-664 is not backward compatible with any other SpeakerCraft Multi Room system or user interfaces. The MRA-664 was designed with a completely new architecture to address SpeakerCraft Dealers/Installers and End-user request for mobile device control. This request for mobile device control and demand for streaming music services with feedback led to an architecture that is IP based, whereas none of the previous SpeakerCraft MultiZone were IP based. Previous SpeakerCraft MultiZone systems (MZC-66 or MZC-88 systems) can be completely pulled out including the user interfaces and the new MRA-664 can use the existing CAT5 and speaker wiring, however the CAT5 cable used for the keypad and touchscreens of the older SpeakerCraft MultiZone system should be examined to be terminated using T568A or T568B. That CAT5 cable can be used with the new SpeakerCraft user interfaces sKP7 and sTP7 but must be connected to the same customer’s local area network via a PoE switch. The speaker wire infrastructure can be used on the new MRA-664 Multi Room system.

ADDITIONAL INFORMATION

Warranty

All SpeakerCraft products are manufactured with reliability in mind and backed by factory warranties against defects in materials or workmanship. For details, see the warranty statement included with each product.

Customer Service and Technical Support

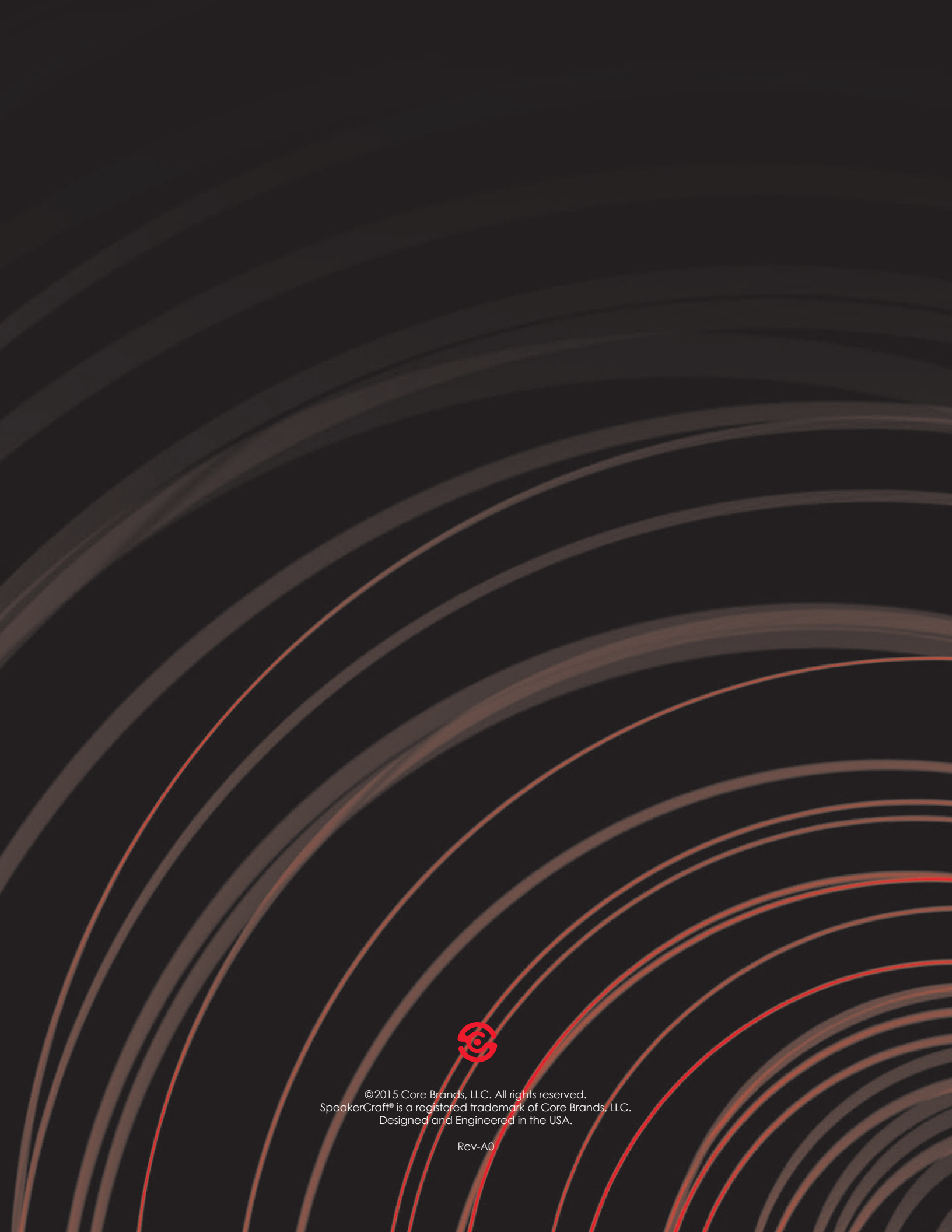
Call: 800-448-0976

Customer Service is available from 8:00 AM to 5:30 PM (PST)

Technical Support is available from 8:00 AM to 7:00 PM (PST)

Online at: www.SpeakerCraft.com or via email: techsupport@speakercraft.com

SpeakerCraft strives to constantly improve our products, all specifications may change without notice.



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Rev-A0