ELAN Home Systems
Life Just Got Better

Audio Integration Note

Manufacturer:	Russound
Model Number(s):	**ACA-E5 / ZXP-E5 / ST2 (AM/FM/XM/Sirius)**
Comments:	5.0.682/5.1.217 -5.9.28 control with virtual keypads 6.0.236 and newer includes zone controller integration only, no virtual keypads for source control.
Document Revision Date:	10/31/12

OVERVIEW AND SUPPORTED FEATURES

The Russound ACA-E5 is an 8-zone, 12 source AV switcher that supports RS-232 for reliable control and feedback in ELAN. The ACA-E5 may be used in a stack with additional ACA-E5's or ZXP-E5's for up to 48 zones. The ZXP-E5 is an audio only, 6-zone expander for the ACA-E5. In addition, control of attached RNET devices through the ACA-E5 serial connection is possible and supported by ELAN.

THE FOLLOWING FEATURES ARE SUPPORTED:

Traditional Whole-House Audio: The ACA-E5/ZXP-E5 has keypads in each zone that control the volume and source. Volume and Source control are available in all zones from ELAN.

Support for IR: The ACA-E5/ZXP-E5 has IR outputs that can provide signals to each of the sources, enabling transport control (Play, Pause, Stop, etc) for equipment that has IR control. The ACA-E5/ZXP-E5 has a built-in library of existing codes, as well as the ability to learn codes.

Support for Video: The ACA-E5 (**not** the ZXP-E5) sends both audio and video (composite only) to each zone.

Support for AM/FM/Satellite Radio (v5.0-v5.9): Control and feedback from AM/FM/XM/Sirius radio, whether from internal tuner modules or RNET ST-2 tuners, is available in ELAN.

Support for iBridge over RNET (v5.0-v5.9): Control and feedback of the Russound iBridge is available in ELAN when the iBridge is connected to the Sphere system.

Multi-Chassis: Multiple ACE-E5's and/or ZXP-E5's may be stacked together and communicate via RNET to increase the number of zone outputs. ELAN supports control of multiple chassis installs over a single serial connection.

THE FOLLOWING FEATURES ARE UNSUPPORTED:

Virtual Keypads for source control (v6): source control via virtual keypads is not supported in version 6.0.

RDS: RDS Data info for AM/FM tuners is not supported.

Triggers, Paging, Doorbell: Control and feedback from Triggers, Paging and Doorbell features are not supported.

Party and Do-Not-Disturb Modes: Control of Party and Do-Do-Not disturb is not available in ELAN.

Sub-zones: ACA-E5's may have a sub-zone module installed. Sub-zones are not currently supported in ELAN.

OSD/HR2/TS2 Controllers: The g! Software On-Screen Display, HR2 and the TS2 **WILL NOT FUNCTION CORRECTLY** with this zone controller's source devices and is specifically **NOT** supported.

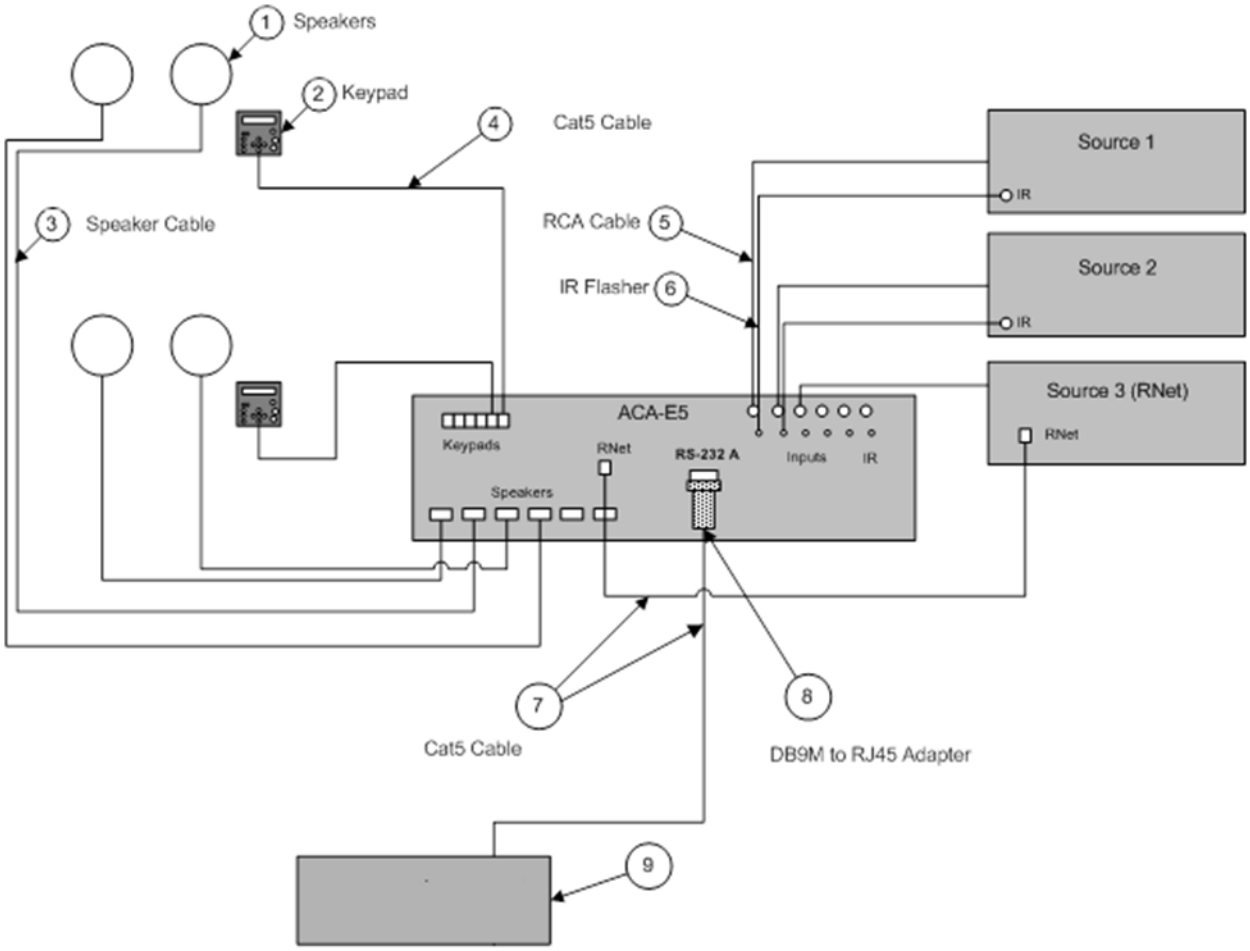
Source control in an “output from zone” configuration: virtual keypads for source control will not work unless they are directly in a Russound zone. They will not work when a zone from Russound is configured as a source in another zone controller.

INSTALLATION OVERVIEW

1. During the rough-in phase, install speaker wire for the speakers and Cat5 cable for keypads, in each zone.
2. Also during the rough-in phase, run a two Cat5 wires from the location of the ACA-E5 back to the Network Assembly of the **ELAN** system for RS-232 communications. Refer to the **RS-232 Connection Options** Integration Note for other options.

   Note: The second Cat-5 is required for connection to the Ethernet Switch if you will be controlling a SMS3 from the ACA-E5 keypads, and may also be used for programming the ACA-E5.
3. Mount the speakers and keypads in each zone, and install the ACA-E5/ZXP-E5 and the sources.
4. Program the ACA-E5/ZXP-E5. This includes setting the number of sources, the names for each source, and the IR codes for each source. **Note:** Disconnect the serial connection to ELAN prior to programming the unit. The ACA-E5 may be programmed via USB, Serial or Ethernet.
5. If you have multiple ACA-E5/ZXP-E5 units in the system, remember to set the Controller Number for the first ACA-E5 to 1, the second to 2 and so on.
6. Test the entire ACA-E5/ZXP-E5 system to ensure that all the sources play correctly in every zone, and that the keypad buttons behave correctly from the keypads.
7. If the system includes one or more RNet devices (such as the ST2 tuner), they should be connected to the ACA-E5 with RNet according to the standard Russound procedure.
8. Connect the **ELAN** system to the ACA-E5 system electrically. See the wiring diagrams for more information. If the system includes multiple ACA-E5/ZXP-E5 units or other RNet components (such as the ST2 tuner), only the first ACA-E5 is connected to the **ELAN** system. Other equipment will be controlled via RNet and do not require additional serial connections.
9. If the system includes an RNet tuner, such as the ST2, then record the ID for both tuners in the ST2 (the ST2 includes two separate tuners: two AM/FM or one AM/FM and one XM etc.). This procedure is explained later in **ACA-E5/ZXP-E5 Programming**.
10. Configure the **ELAN** system for the ACA-E5/ZXP-E5 and confirm communication between the ACA-E5/ZXP-E5 and the **Controller**.
11. Test the system by changing sources in a zone to confirm the correct source plays, and by testing the **ELAN** interface transport control and media server controls.

CONNECTION DIAGRAMS



BILL OF MATERIALS

#	Device	Manufacturer	Part Number	Protocol	Connector Type	Notes
1	Speakers	N/A		Analog	Wire	
2	Keypad	Russound	KLK-E5	Serial	RJ45F	
3	Speaker Cable	N/A	N/A	Analog	Wire	
4	Cat5 Cable Assy.	Installer	N/A	RS-485	RJ-45 Male X RJ-45 Male	
5	RCA Cable	Various	N/A	Analog	RCA X RCA	
6	IR Flasher	Various	N/A	IR	Mini Jack X IR Flasher	
7	Cat5 Cable	Installer	N/A	Rnet	RJ-45 Male X RJ-45 Male	
8	DB9M to RJ45 Adapter	ELAN	HA-CB-307	RS-232	DB-9 Male X RJ-45 Female	
9	Controller	ELAN	varies	RS-232	RJ-45 Female	

ACA-E5/ZXP-E5 PROGRAMMING

Once the equipment is installed and connected you must program the ACA-E5/ZXP-E5 according to Russound guidelines. The Sphere system is programmed using SCS-E5 software, and may be programmed via Ethernet, USB, or serial. Special steps that relate to ELAN are provided below:

IMPORTANT NOTE:

To avoid any conflict or odd behavior disconnect the serial cable from the ELAN controller prior to programming the Russound devices.

MULTIPLE ACA-E5/ZXP-E5 UNITS

If you need more than 8 zones, you can add additional ACA-E5 or ZXP-E5 units: the maximum number of units is 6, which delivers audio in up to 48 zones.

When you configure the ACA-E5/ZXP-E5 in the **ELAN** system, you will need to know the **Controller Number** for each. Set the Controller Number for the first ACA-E5 to 1, the second to 2, and so on.

ST2 AM/FM, XM, SIRIUS TUNER SOURCES

If you have a ST2 tuner, then you will need to know the **Tuner ID** for each tuner. Since each ST2 has two built in tuners, there are two IDs that you must know for each ST2.

In addition, the Tuner ID must be the same as the corresponding source number of the ACA-E5/ZXP-E5. In other words, if a tuner is connected as source #1, then that tuner must have a RNet/Tuner ID of 1.

The ST2 factory defaults for the Tuner IDs are tuner #1 = 1, and tuner #2 = 2, which corresponds to connecting the ST2 into the ACA-E5/ZXP-E5 sources 1 and 2. For the ST2-XM tuner, the factory defaults are the XM tuner is #1 and the AM/FM tuner is #2. For the ST2-Sirius tuner, the factory defaults are the Sirius tuner is #1 and the AM/FM tuner is #2.

Consult the ST2 documentation for instructions on checking or changing the tuner IDs.

ACA-E5 INTERNAL TUNER

The ACA-E5 includes an AM/FM tuner set to source/RNet ID 12, which is optional (you may choose to use 12 as an input instead). The ACA-E5 also includes a slot for optional AM/FM, XM or Sirius modules to be installed, setup on source/RNet ID 11. In all cases, the tuner must be accurately programmed in Russound software for control via ELAN. The Tuner ID must be the same as the corresponding source number of the ACA-E5/ZXP-E5. In other words, if a tuner is connected as source #1, then that tuner must have a RNet/Tuner ID of 1

FIRMWARE REVISIONS

ELAN has tested the Sphere system with the following firmware revisions. To obtain the firmware revisions of your equipment, use the SCS-E5 software to connect to the unit. Open the Tools Menu, and choose System Check to Perform a System Check. This will display current firmware of all devices installed.

ACA-E5	ACA-E5 Internal AM/FM Tuner	ZXP-E5	iBridge Dock	ST-2 XM Tuner	ST-2 AM/FM Tuner	SMS3
App v03.00.06/01.04.12 Boot v01.01.03	App v03.00.06	App v01.00.00	App v2.03.01	App v4.00.13	App v4.01.00	App v3.02.00

SMS3 Stream Sources

If you have a SMS3 that you wish to control via ACA-E5/ZXP-E5 keypads, you must wire both of the following:

- RNet cables between the ACA-E5 and SMS3
- Ethernet Cables from the SMS3 and the ACA-E5 to the same Switch/Router

During SCS-E5 programming, assign each output (Stream) of the SMS3 to a Source Input on the ACA-E5. For control via RNet, the SMS3 and ACA-E5 must both be connected to the same network as well as via RNet cabling.

During SMS3 programming, set each stream to the correct RNet ID. The RNet ID should correspond to the correct source input numbers on the ACA-E5.

See the SMS3 Integration Note or Russound documentation for full details.

Note: ELAN will control the SMS3 through Ethernet, regardless of its inclusion into your RNet device network.

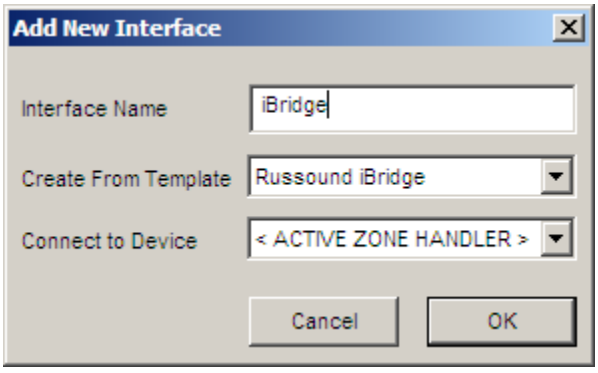
iBridge

The iBridge will need to be configured and working with Russound keypads prior to integration with ELAN. Note the ID rotary dial on the rear of the iBridge must be configured to the source number being used on the Sphere zone controller.

Note that iBridge may be directly connected via RNET to certain sources on the ACA-E5, or it may require an adapter module—see Russound documentation for details.

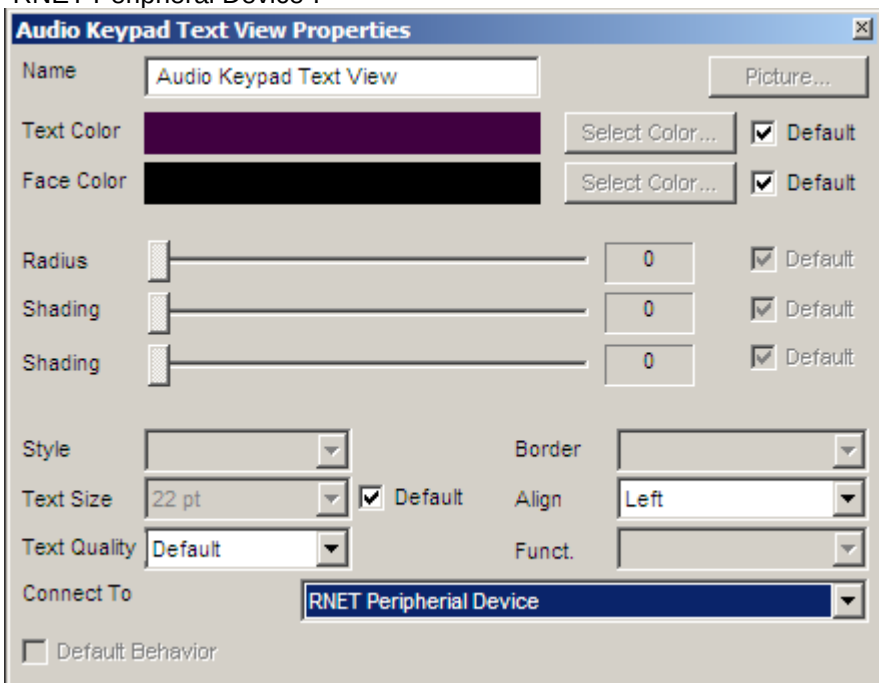
ELAN Configuration Details:

1. Add a Russound RNET Peripheral Device under Media: Keypad Controllers.
    - The iBridge should use the same Communication Device as the Sphere zone controller.
    - Assign the correct RNET ID to the RNET Peripheral Device.
2. Add a Keypad Interface for the iBridge.
    - Right-Click on Keypad Interfaces and Add New. Name as desired.
    - Choose Template: Russound iBridge
    - Connect to: <ACTIVE ZONE HANDLER>



3. Modify each resolution of the keypad interface to display correct current track information.

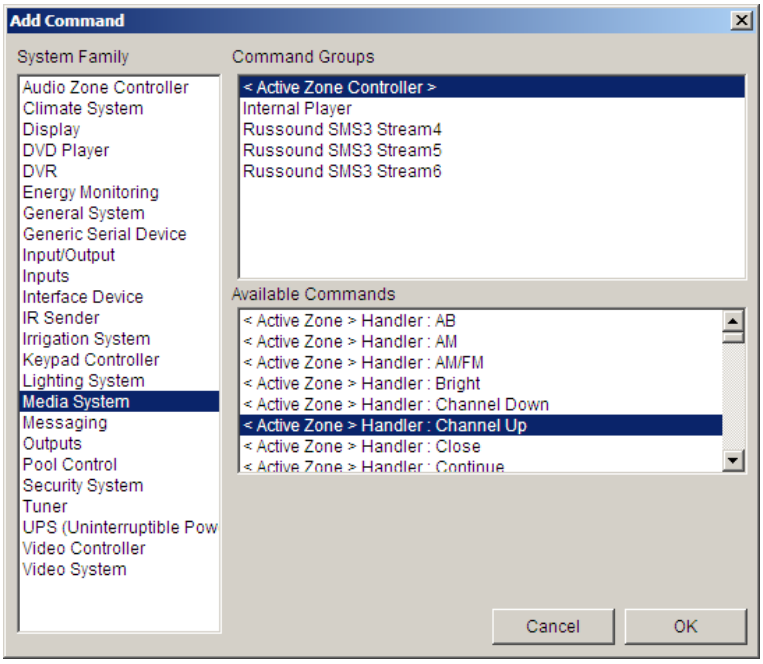
- Click on the Audio Keypad Text View box at the top and set the Connect To field to “RNET Peripheral Device”.



VIEWER INTERFACE FOR IR SOURCES

With IR Sources, the source interface can be customized to match the device type, with built-in templates for many standard devices. IR sent from Russound should be mapped in the ELAN interface to **<Active Zone Handler>.**

For example:



ELAN CONFIGURATION DETAILS

The following table provides settings used in the ELAN Configurator when connecting to a ACA-E5/ZXP-E5 system. Please refer to the Configurator Reference Guide for more details. In the table below:

- "<Select>" Select the appropriate item from the list (or drop-down) in the Configurator.
- "<User Defined>", etc. Type in the desired name for the item.

Devices	Variable Name	Setting	Comments
Communication Devices	**Name**	<User Defined> (Default: **Russound RNet**)	
	Type	**Serial Port**	
	Communication Type	**Russound RNet**	
	Location	<User Defined> (Not Required)	
	Com Port	<Select>	
ST-2 Audio Tuners (See Note 1)	**Name**	<User Defined>(Default: **Radio**)	
	Device Type	<Select> (Default: **Russound ST2-AM/FM Tuner**)	
	Location	<User Defined> (Not Required)	
	Comm Device	<Select> (Default: **Russound RNet**)	
	RNET ID	<Select> (Default: **1**)	
Internal Audio Tuners (See Note 1)	**Name**	<User Defined>(Default: **Radio**)	
	Device Type	<Select> (Default: **Russound Internal BAND Tuner**)	BAND equals the type of tuner, ex. AM/FM.
	Comm Device	<Select> (Default: **Russound RNet**)	
	RNET ID	<Select> (Default: **1**) (See Note 2)	Must match Rnet ID. AM/FM internal is 12, Add'l card tuner is 11.
Audio Zone Controllers	**Name**	<User Defined> (Default: **Russound CAV6.6/CAM6.6**)	
	Device Type	**Russound CAV6.6/CAM6.6**	
	Location	<User Defined> (Not Required)	
	Comm Device	<Select> (Default: **Russound RNet**)	
	Controller No.	<Select> (Default: **1**) (See Note 3)	Add a Zone Controller for each chassis (see Note 3)
Sources	**Name**	<User Defined>	
	Source Device	<Select>	On additional chassis, setup each source as "Shared Source"
	Source Volume	<Select> (Some sources -- see Note 5)	
	Show Source	<Select>	
Zones	**Name**	<User Defined>	
	Show Zone	<Select>	

Notes:

1. The tuner is optional. If you add one ST2 tuner to your system, you must add **TWO** tuners in the configurator: one to represent each of the tuners in the ST2.
2. Each ST2 includes two separate tuners. The default Tuner ID of the first is 1 and the default Tuner ID of the second is 2. The ID must match the Rnet ID.
3. For systems with multiple ACA-E5/ZXP-E5 units, remember to set the Controller Number for the first to 1, the second to 2 and so on.
4. For systems with devices that have controllable volume (such as an AudioTron), select the desired volume (normally 100%).

COMMON MISTAKES

1. Improper programming of the ACA-E5/ZXP-E5. Make sure you complete programming of the Russound equipment, and that it functions properly as a stand-alone system, before attempting to connect and control from the **ELAN** system.
2. Improperly setting the Controller Numbers for systems with multiple ACA-E5/ZXP-E5 units. Remember to set the Controller Number for the first ACA-E5 to 1, the second to 2 and so on. The Controller Number must match the corresponding Controller Number set for that ACA-E5/ZXP-E5 in the Configurator.
3. Improperly setting the RNet IDs for RNet devices. Typically the RNet ID must be programmed in the RNet device, and must match the source number on the ACA-E5.
4. Programming the Russound while it is connected to the ELAN controller. There may be some odd behavior if the Russound system is programmed while connected to a ELAN controller.