Integration Note

Manufacturer:	ELAN
Model Number(s):	**System S1616A (Multi-Zone Control)**
Minimum Core Module Version:	**g!** version 5.4, requires S1616A Firmware **2.0.2.2**
Document Revision Date:	05-25-2017

OVERVIEW AND SUPPORTED FEATURES

THE FOLLOWING FEATURES ARE SUPPORTED:

Traditional Whole-House Audio: The ELAN S1616A is a multizone - multisource audio switcher that can be controlled by the **g!** software using its VIA!Net port. The **g!** Viewer interface can be used to select sources by zone, and control volume in each zone.

Multiple S1616A units: Up to 16 ELAN S1616A units can be controlled using the VIA!Net port on the g! controller.

Independent Zone Settings: Volume, Bass, Treble, Loudness EQ, Do Not Disturb (DND) and Whole House Music (WHM) settings can be selected independently for each zone.

Audio Sense Inputs: HC Series controllers can receive feedback from the audio inputs on the rear of the S1616A chassis for use with Event Maps.

ELAN S1616A Programming: g! software supports programming ELAN S1616A features from Configurator.

Note: The S1616A is not configurable using VIA!Tools.

THE FOLLOWING FEATURES ARE NOT SUPPORTED:

Control from HomeBrick/MultiBrick: Control of an S1616A is only available from the HC Series controller's VIA!Net connection. The S1616A cannot be controlled from legacy HomeBrick/MultiBrick controllers.

NOTE: Sense inputs are not supported on SC Series Controllers.

Any feature not specifically noted as supported should be assumed to be unsupported.

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ELAN S1616A Configurations:

1. **Single Chassis Mode**: Single Chassis Mode supports source audio inputs in any combination of stereo or mono to a maximum of 16 total inputs. It supports integration of the C2 Communication Controller. Single Chassis Mode supports a maximum of 64 audio zones with up to 256 audio outputs (16 chassis required) in any combination or stereo or mono.

Number of Stereo Sources	Number of Mono Sources
8	0
7	2 max
6	4 max
5	6 max
4	8 max
3	10 max
2	12 max
1	14 max
0	16 max
The C2 Communication Controller requires the use of 1 Mono	

2. **Dual Chassis Mode:** Dual Chassis Mode supports stereo source audio inputs only, to a maximum of 16 total sources. It supports integration of the C2 Communication Controller. When a C2 Communications Controller is used there is a maximum of 15 stereo source inputs available. Dual Chassis Mode supports a maximum of 64 audio zones with up to 128 stereo pairs of audio output (8 chassis *pairs* required.)

   In Dual Chassis Mode each S1616A is dedicated to the Left or the Right channel audio outputs. A minimum of 1 chassis *pair* is required for a Dual Chassis Mode system.

INSTALLATION OVERVIEW

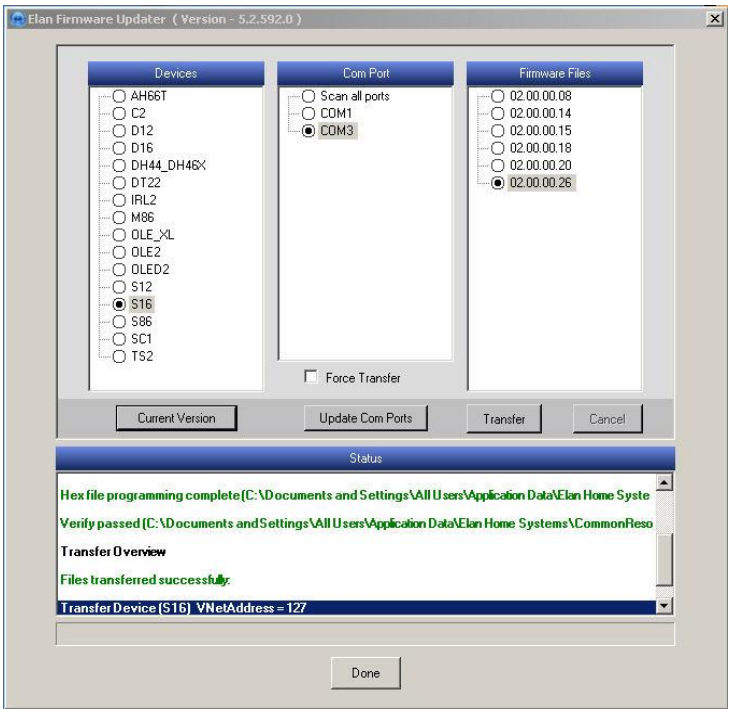
1. During the rough-in phase, install speaker wire for the speakers and Cat5 cable for keypads, in each zone.
2. Also during the rough-in phase, run a Cat5 wire from the location of the ELAN S1616A to the HCxx controller for VIA!Net communications.
3. Mount the speakers and keypads in each zone, and install the ELAN S1616As and the sources. Set the VIA!Net Unit IDs for the S1616As. Refer to the *S1616A Installation Manual* for VIA!Net Unit ID programming.
4. Connect the **g!** system to the ELAN S1616A system electrically. See the wiring diagrams for more information.
5. Configure the **g!** system for the ELAN S1616A and confirm communication between the ELAN S1616A and the Controller.
6. Test the system by changing sources in a zone to confirm the correct source plays and volume is controlled. Test source control for any sources that are to be controlled from the **g!** interface.

CHECK/UPDATE THE S1616A FIRMWARE

IMPORTANT! Verify that the S1616A firmware on <u>all chassis</u> is one of the supported versions listed in the document header above.

1. Connect a USB cable from your PC to the rear USB mini port on the S1616A.
2. Start the ELAN Firmware Updater by selecting it from your start button menu and navigating to it via the All Programs browser.
3. Click the **Update Com Ports** button.

4. To check the firmware: select the device as an S1616A and click the **Current Version** button. The application will search the com ports for the S1616A then report the current version of that chassis. If the firmware is supported then remove the USB cable.
5. If the firmware needs to be updated: select the device as an S1616, select the COM Port, and the proper firmware version then click the **Transfer** button. Wait for the transfer to complete and state that it was successful as shown in the screen on the right.
6. Remove the USB cable.



Important: After updating the firmware and Prior to writing the S1616A configuration from configurator to the S1616, all S1616s MUST be Factory Defaulted.

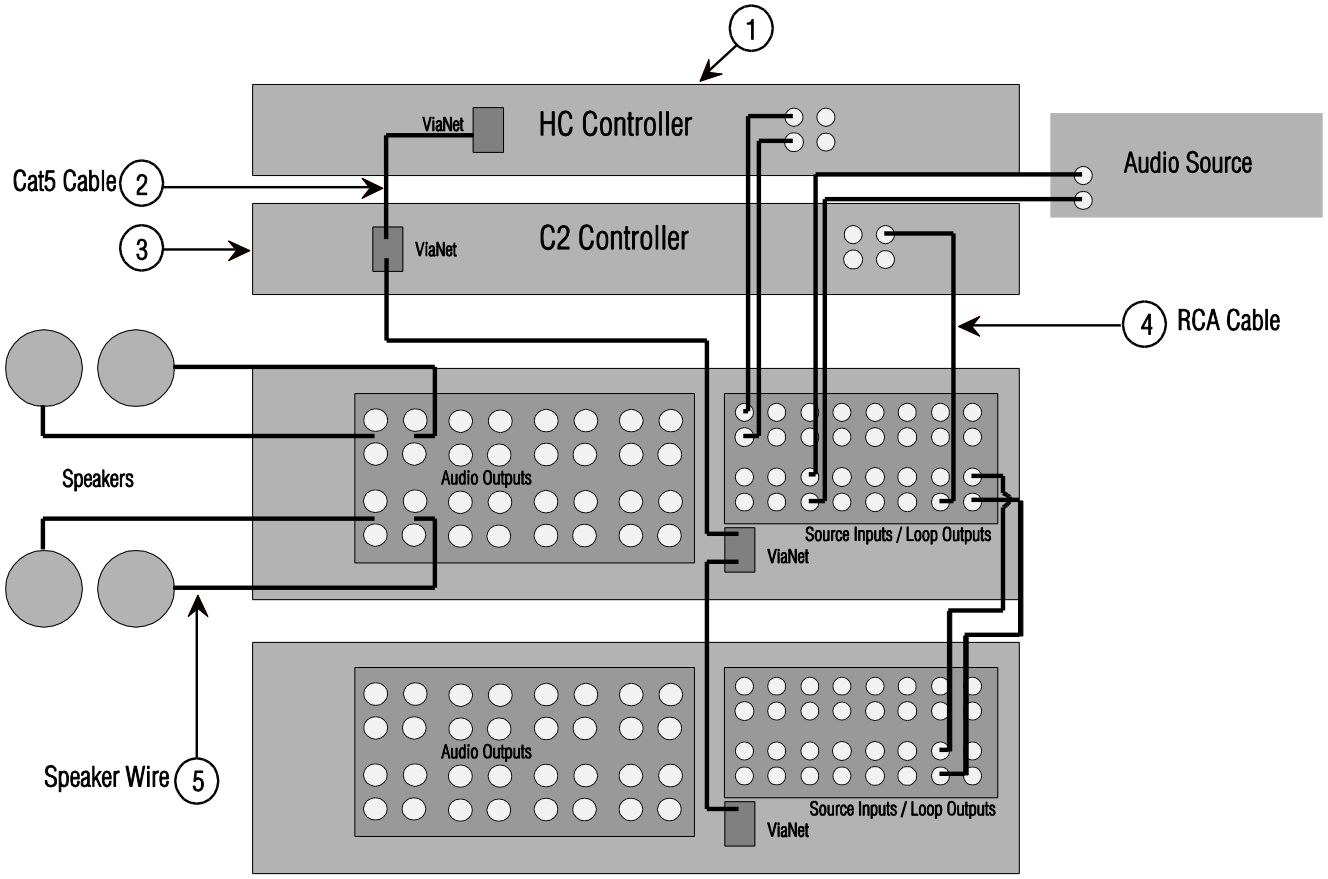
This procedure WILL reset the Unit IDs of all S1616 chassis to 1. In a multiple chassis installation. The Unit IDS will need to be reset to their correct values in order for the system to function correctly. Failure to do this will result in severe control and programming issues with the S1616

FACTORY DEFAULT PROCEDURE (FIRMWARE 2.0.2.2)

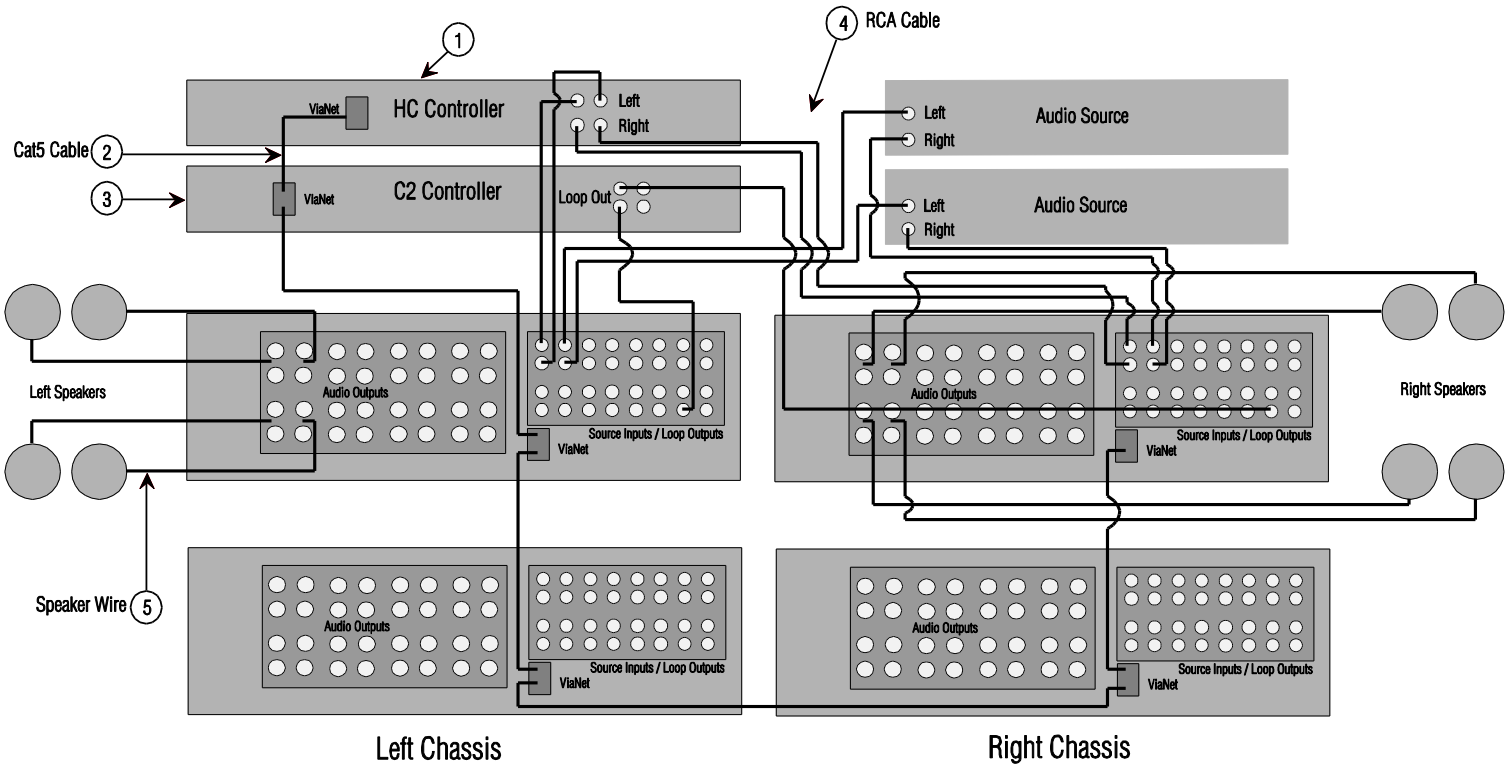
1. Power up the S1616A
2. Press an hold MENU button (about 5 seconds) until the System Status screen appears
3. Press and release the MENU button until the Utility menu appears
4. Press and release the CHANNEL button until the Restore Defaults option is displayed
5. Press and release the Arrow keys to select the appropriate Default options
6. Press the CHANNEL button to select the desired option
7. Use the Arrow keys to select Restore (or Cancel)
8. Press the CHANNEL button to set the unit to Factory Default condition. Rebooting will be displayed and then the ELAN boot screen.

CONNECTION DIAGRAMS

SINGLE CHASSIS MODE



DUAL CHASSIS MODE



BILL OF MATERIALS FOR SINGLE/DUAL CHASSIS MODE

#	Device	Manufacturer	Part Number	Protocol	Connector Type	Notes
1	Controller	ELAN	Various (e.g. HC12)6	VIA!Net	RJ45 Female	
2	Cat5 Cable	Installer	N/A	VIA!Net	RJ45 Male x RJ45 Male	Use ELAN VIA!Net Color Code
3	Communications Controller	ELAN	C2	VIA!Net	RJ45 Female	If used
4	RCA Cable	N/A	N/A	Analog	RCA x RCA	
5	Speaker Wire	N/A	N/A	N/A	Various	

g! CONFIGURATION DETAILS

The following table provides settings used in the **g!** Configurator when connecting to an ELAN S1616A system. Please refer to the ***g!*** *Configurator Reference Guide* for more details.

In the table below:

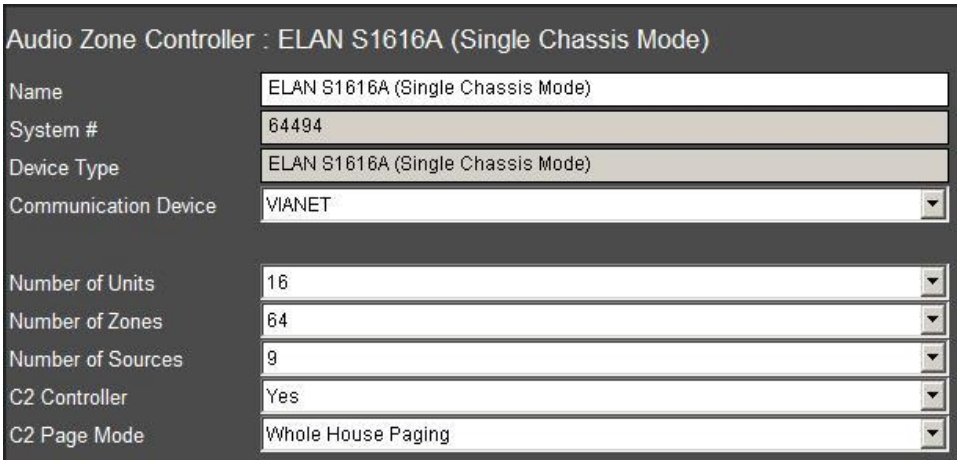
- "<Select>" Select the appropriate item from the list (or drop-down) in the Configurator.
- "<User Defined>", etc. Type in the desired name for the item.

Devices	Variable Name	Setting	Comments
Communication Devices	**Name**	**ViaNet** (Added by Default)	
	Type	**Serial Port / ViaNet HCxx**	
	Location	<User Defined> (Not Required)	
<RS-232 Sources>	Add any RS-232 controlled sources. Refer to the Integration Note for each specific source device.		
<IR Controlled Sources>	Add IR devices on the Input/Output tab for other IR controlled sources. Refer to the **Configurator Reference Guide** .		
Other Audio Devices / Interfaces	**Name**	<User Defined>	Add Interfaces for any source that does not have a built-in interface
	Template	<Select>	
	Default Device	<Select>	Select the RS-232 or IR controlled source for this interface
Audio Zone Controllers	**Name**	<User Defined> (Default: **ELAN S1616A**)	
	Device Type	**ELAN S1616A** (Single or Dual Chassis Mode)	
	Location	<User Defined> (Not Required)	
	Comm Device	VIANET	
Sources	**Name**	<User Defined>	
	Source Device	<Select>	Sources must be previously configured in order to allow selection.
	Source Volume	<Select>	See note 1
	Source Icon	<Select>	This icon appears on the source button in the Viewer Interface
	Display Name	<User Defined>	This text appears on the source button in the Viewer Interface
	Level	<Select>	Sets Source Input Gain Level for System Volume Balancing
Zones	**Name**	<User Defined>	
	Universal Receiver	<Select>	Zone IR Receiver assignment.
	Show Source	<Select>	Set to **No** for any inputs that are not used in that Zone
	Settings Interface	<Select>	Drop-down field used to select the Settings interface for the zone.
	Display 1 / 2	<Select>	Drop-down field used to select which television display is assigned to the zone.
	Slave Zone 1/2	<Select>	Drop-down field used to assign a slave zone to this zone.
Tab Layout	**Interface Tabs**	<Select>	Move any unused zones to the left into **Available Zones** to remove from the viewer
Notes:			
1. For systems with devices that have controllable volume (such as an AudioTron), select the desired volume (normally 100%).			

S1616A PROGRAMMING

g! software version 5.4 and higher is required to program the S1616A.

Note: This document shows one method for programming, however other options are available. Please refer to the Programming section of the *S1616A Installation Manual* for detailed programming information.

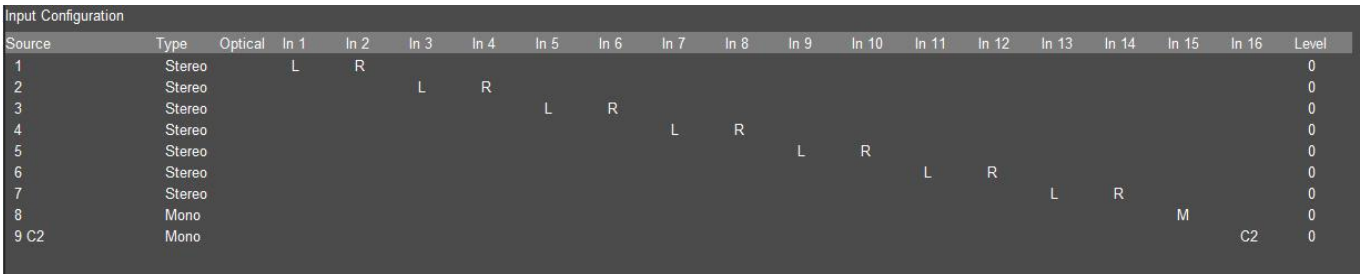


S1616A Settings: To access these settings. Click on the ELAN S1616A under Audio Zone Controllers on the Media Tab of Configurator.

Name	System Name (Editable).
Device Type	ELAN S1616A – Single or Dual Chassis Mode determined when the S1616A is added.
Communication Device	VIA!Net (Default Setting) .
Number of Units	The number of S1616As in the system. 1-16 **Single Mode** chassis are configurable; 1-8 **Dual Mode** chassis *pairs* are configurable.
Number of Zones	The number of Zones in the system. The **Number of Units** affects the **Number of Zones** available.
Number of Sources	The number of Sources in the system.
C2 Controller	Set to **Yes** if a C2 Controller is being integrated in the system, otherwise leave at the default setting of **No**.
C2 Page Mode	Default setting is **Whole House Page**. Set to **Group Page** if Page Groups will be used.

S1616A SOURCE INPUT CONFIGURATION

SINGLE CHASSIS MODE



Input Configuration

Source	Type	Optical	In 1	In 2	In 3	In 4	In 5	In 6	In 7	In 8	In 9	In 10	In 11	In 12	In 13	In 14	In 15	In 16	Level
1	Stereo		L	R															0
2	Stereo				L	R													0
3	Stereo						L	R											0
4	Stereo								L	R									0
5	Stereo										L	R							0
6	Stereo												L	R					0
7	Stereo														L	R			0
8	Mono																M		0
9 C2	Mono																	C2	0

S1616A Single Chassis Mode Source Settings: To access these settings, Select the S1616A node or click on Sources under the ELAN S1616A within Audio Zone Controllers on the Media Tab of Configurator.

Any Source can be assigned to any Input (Mono Source) or Input pair (Stereo Source).

Source Name	The names of the sources. Sources are assigned using the Source tree.
Type	Right click in the Type column to set Sources as Stereo or Mono.
Optical	Right click in the Optical column to set the Source input to the SPDIF optical inputs of the S1616A. Only Input pairs 1/2 and 9/10 can be set to Optical. Optical inputs are only available for systems that are comprised of a single S1616A. **IMPORTANT: The S1616 must be power Cycled after assigning the optical input for the source to function.**
In 1 – In 16	Right click in the **In** columns to assign inputs to Sources. Stereo Sources use input pairs (**In1 / In2, In3 / In4, etc.**), Mono Sources use single inputs. If a C2 Communications Controller is selected it will always default to **In 16**. This setting cannot be changed.
Level	The source volume level (gain). Use these adjustments (+ / –) on each source to maintain equivalent source volumes throughout the system.

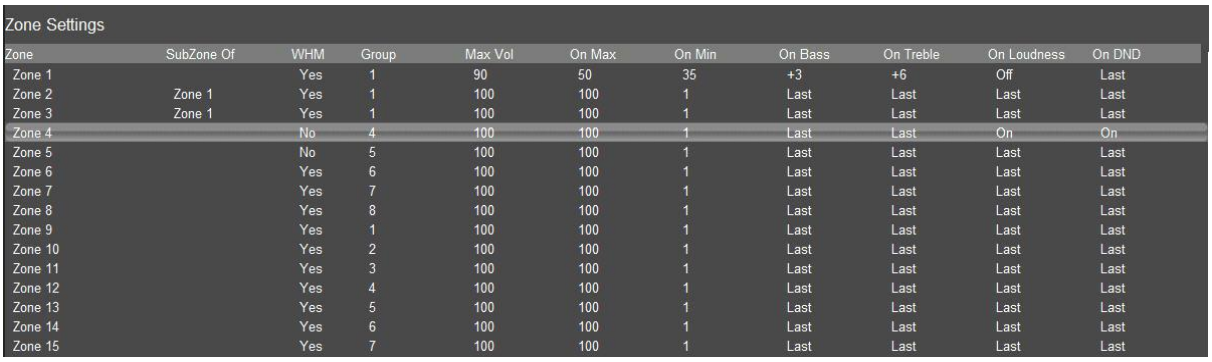
DUAL CHASSIS MODE

S1616A Dual Chassis Mode Source Settings: To access these settings, Select the S1616A node or click on Sources under the ELAN S1616A within Audio Zone Controllers on the Media Tab of Configurator.

Sources have dedicated Inputs. Source 1 uses Input 1; Source 2 uses Input 2, etc.

Source Name	The names of the sources. Sources are assigned using the Source tree.
Level	The source volume level (gain). Use these adjustments (+ / –) on each source to maintain equivalent source volumes throughout the system.
Note: Dual Chassis Mode, if a C2 Communications Controller is selected it will always default to **Source 16**. This setting cannot be changed.	

S1616A ZONE CONFIGURATION



Zone Settings

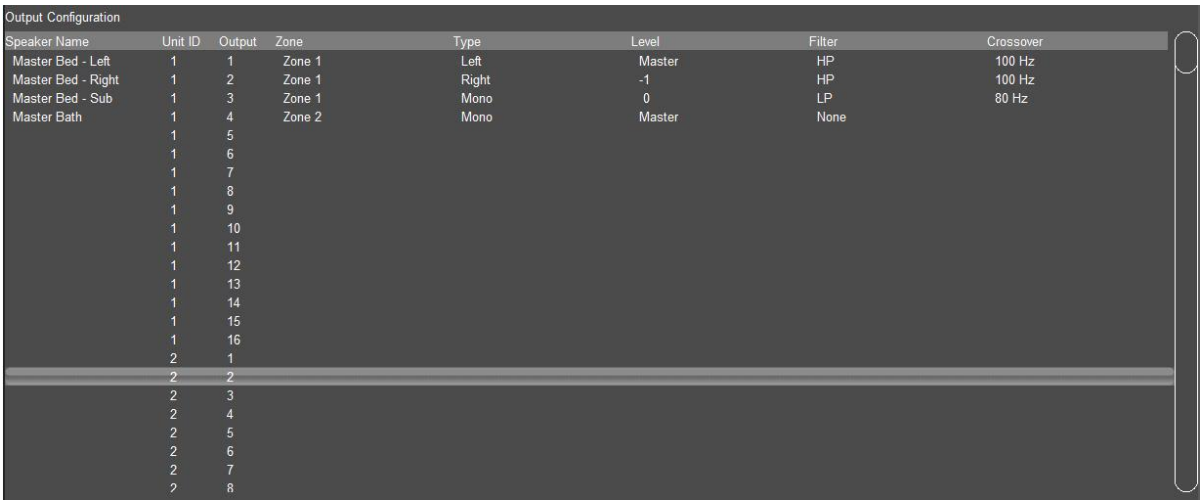
Zone	SubZone Of	WHM	Group	Max Vol	On Max	On Min	On Bass	On Treble	On Loudness	On DND
Zone 1		Yes	1	90	50	35	+3	+6	Off	Last
Zone 2	Zone 1	Yes	1	100	100	1	Last	Last	Last	Last
Zone 3	Zone 1	Yes	1	100	100	1	Last	Last	Last	Last
Zone 4		No	4	100	100	1	Last	Last	On	On
Zone 5		No	5	100	100	1	Last	Last	Last	Last
Zone 6		Yes	6	100	100	1	Last	Last	Last	Last
Zone 7		Yes	7	100	100	1	Last	Last	Last	Last
Zone 8		Yes	8	100	100	1	Last	Last	Last	Last
Zone 9		Yes	1	100	100	1	Last	Last	Last	Last
Zone 10		Yes	2	100	100	1	Last	Last	Last	Last
Zone 11		Yes	3	100	100	1	Last	Last	Last	Last
Zone 12		Yes	4	100	100	1	Last	Last	Last	Last
Zone 13		Yes	5	100	100	1	Last	Last	Last	Last
Zone 14		Yes	6	100	100	1	Last	Last	Last	Last
Zone 15		Yes	7	100	100	1	Last	Last	Last	Last

S1616A Zone Settings: To access these settings click on Zones under the ELAN S1616A within Audio Zone Controllers on the Media tab of Configurator.

Zone Name	Custom Name for Zone. Select the individual Zone Node in the tree to access the Name field.
SubZone Of	Right click to assign the Zone as a SubZone of another Zone. SubZones track to the same Source as their "master" Zone.
WHM	Determines if the Zone participates in WHM. Default is **Yes**. Right click to change.
Group	Right click to select a Group. Zones are assignable to any 1 of 8 Groups. Zones that are grouped track to the same Source. **Note:** Volume, EQ, DND and Loudness Control are always on a zone by zone basis and will not be affected by Grouping.
Max Vol	The Maximum volume allowed for a zone. Use this setting to prevent unpleasant volume levels or speaker damage in a zone. Right click to change.
On Max	The maximum volume level for a zone when it is turned on. If the zone is turned off with the volume above this point, it will return to this level when reactivated. Right click to change.
On Min	The minimum volume level for a zone when it is turned on. If the zone is turned off with the volume below this point, it will return to this level when reactivated. Right click to change.
On Bass	The bass level for a zone when it is turned on. If the zone is turned off with the level different, it will return to this level when reactivated. Right click to change.
On Treble	The treble level for a zone when it is turned on. If the zone is turned off with the level different, it will return to this level when reactivated. Right click to change.
On Loudness	The Loudness setting for a zone when it is turned on. If the zone is turned off with the setting different, it will return to this setting when reactivated. Right click to change.
On DND	The DND setting for a zone when it is turned on. If the zone is turned off with the setting different, it will return to this setting when reactivated. Right click to change.

S1616A OUTPUT CONFIGURATION

SINGLE CHASSIS MODE

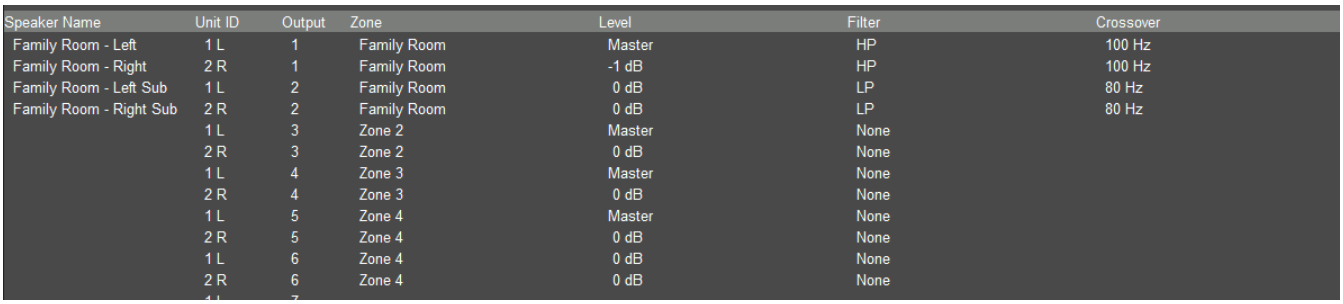


S1616A Single Chassis Mode Output Settings: To access these settings, Select the S1616A node or click on Outputs under the ELAN S1616A within Audio Zone Controllers on the Media Tab of Configurator.

Speaker Name	Enter Custom Name for the Speaker Output. This is for reference only. Right click to open the Name edit function.
Unit ID	The VIA!Net Unit ID of the chassis.
Output	The number of the physical Speaker Output of the chassis.
Zone	The Zone to which the Output is assigned. Right click to open the Zone assignment function.
Type	Assigns the speaker as a Left, Right or Mono output. Right click to open the assignment function.
Level	Allows the Output volume of a speaker to be adjusted relative to the “Master” speaker in the zone. This first Output assigned to a given Zone is the Master. The Master can be reassigned to a different speaker in the zone. Right click to open the adjustment function.
Filter	Enables a High Pass or Low Pass crossover for the Output. Right click to open the Filter function.
Crossover	Determines the frequency for the Filter. Right click to open the crossover set point function.

S1616A Output Configuration

Dual Chassis Mode



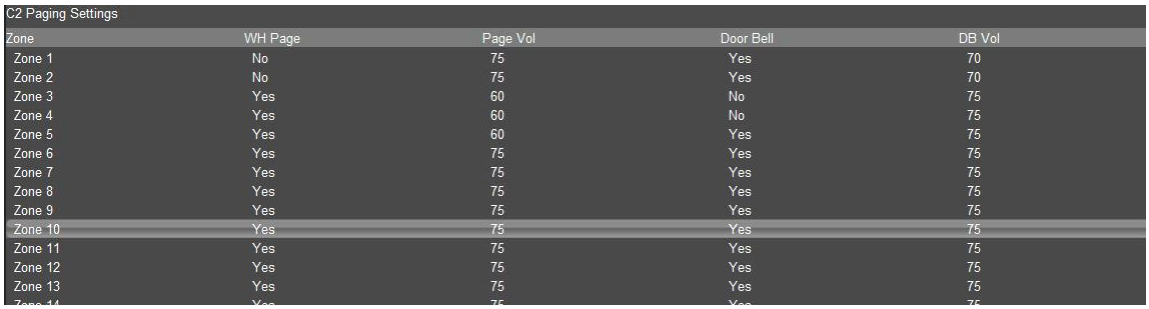
Speaker Name	Unit ID	Output	Zone	Level	Filter	Crossover
Family Room - Left	1 L	1	Family Room	Master	HP	100 Hz
Family Room - Right	2 R	1	Family Room	-1 dB	HP	100 Hz
Family Room - Left Sub	1 L	2	Family Room	0 dB	LP	80 Hz
Family Room - Right Sub	2 R	2	Family Room	0 dB	LP	80 Hz
	1 L	3	Zone 2	Master	None	
	2 R	3	Zone 2	0 dB	None	
	1 L	4	Zone 3	Master	None	
	2 R	4	Zone 3	0 dB	None	
	1 L	5	Zone 4	Master	None	
	2 R	5	Zone 4	0 dB	None	
	1 L	6	Zone 4	0 dB	None	
	2 R	6	Zone 4	0 dB	None	

S1616A Dual Chassis Mode Output Settings: To access these settings, Select the S1616A node or click on Outputs under the ELAN S1616A within Audio Zone Controllers on the Media Tab of Configurator.

Speaker Name	Enter Custom Name for the Speaker Output. This is for reference only. Right click to open the Name edit function.
Unit ID	The VIA!Net Unit ID of the chassis.
Output	The number of the physical Speaker Output of the chassis.
Zone	The Zone to which the Output is assigned. Right click to open the Zone assignment function.
Level	Allows the Output volume of a speaker to be adjusted relative to the “Master” speaker in the zone. This first Output assigned to a given Zone is the Master. The Master can be reassigned to a different speaker in the zone. Right click to open the adjustment function.
Filter	Enables a High Pass or Low Pass crossover for the Output. Right click to open the Filter function.
Crossover	Determines the frequency for the Filter. Right click to open the crossover set point function.

S1616A C2 CONFIGURATION

WHOLE HOUSE MODE



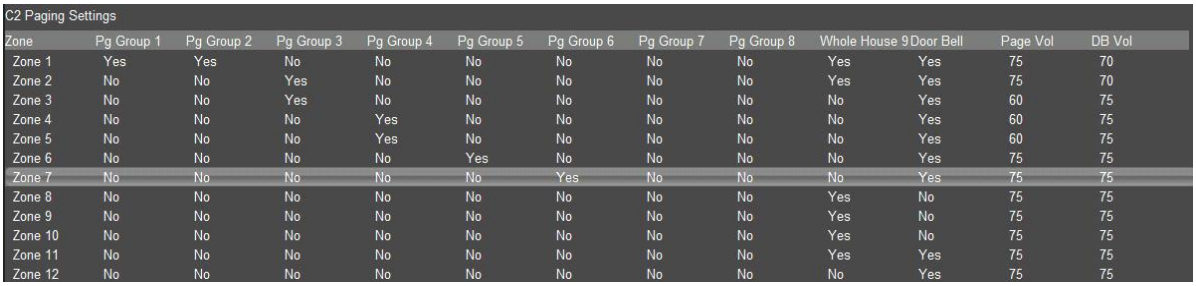
C2 Paging Settings

Zone	WH Page	Page Vol	Door Bell	DB Vol
Zone 1	No	75	Yes	70
Zone 2	No	75	Yes	70
Zone 3	Yes	60	No	75
Zone 4	Yes	60	No	75
Zone 5	Yes	60	Yes	75
Zone 6	Yes	75	Yes	75
Zone 7	Yes	75	Yes	75
Zone 8	Yes	75	Yes	75
Zone 9	Yes	75	Yes	75
Zone 10	Yes	75	Yes	75
Zone 11	Yes	75	Yes	75
Zone 12	Yes	75	Yes	75
Zone 13	Yes	75	Yes	75

S1616A C2 WHM Paging Settings: To access these settings click on Zones under the ELAN S1616A within Audio Zone Controllers on the Media Tab of Configurator.

Zone Name	Custom Name for Zone. Select the individual Zone Node in the tree to access the Name field.
WH Page	Determines if the Zone participates in Whole House Paging. Default is **Yes**. Right click to change.
Page Vol	The Page volume for a zone. Right click to change.
Door Bell	Determines if the Zone participates in Door Bell audio. Default is **Yes**. Right click to change.
DB Vol	The Door Bell volume for a zone. Right click to change.

GROUP PAGING MODE



C2 Paging Settings

Zone	Pg Group 1	Pg Group 2	Pg Group 3	Pg Group 4	Pg Group 5	Pg Group 6	Pg Group 7	Pg Group 8	Whole House 9	Door Bell	Page Vol	DB Vol
Zone 1	Yes	Yes	No	No	No	No	No	No	Yes	Yes	75	70
Zone 2	No	No	Yes	No	No	No	No	No	Yes	Yes	75	70
Zone 3	No	No	Yes	No	No	No	No	No	No	Yes	60	75
Zone 4	No	No	No	Yes	No	No	No	No	No	Yes	60	75
Zone 5	No	No	No	Yes	No	No	No	No	No	Yes	60	75
Zone 6	No	No	No	No	Yes	No	No	No	No	Yes	75	75
Zone 7	No	No	No	No	No	Yes	No	No	No	Yes	75	75
Zone 8	No	No	No	No	No	No	No	No	Yes	No	75	75
Zone 9	No	No	No	No	No	No	No	No	Yes	No	75	75
Zone 10	No	No	No	No	No	No	No	No	Yes	No	75	75
Zone 11	No	No	No	No	No	No	No	No	Yes	Yes	75	75
Zone 12	No	No	No	No	No	No	No	No	No	Yes	75	75

S1616A C2 Group Paging Settings: To access these settings click on Zones under the ELAN S1616A within Audio Zone Controllers on the Media Tab of Configurator.

Zone Name	Custom Name for Zone. Select the individual Zone Node in the tree to access the Name field.
Pg Group 1 - 8	Determines if the Zone participates in Group Paging for that Page Group. Default is **No**. Right click to change.
Whole House 9	Determines if the Zone participates in Whole House Paging. Default is **No**. Right click to change.
Door Bell	Determines if the Zone participates in Door Bell audio. Default is **Yes**. Right click to change.
Page Vol	The Page volume for a zone. Right click to change.
DB Vol	The Door Bell volume for a zone. Right click to change.
Note:	Zones may participate in more than 1 Group.

S1616A PROGRAMMING FUNCTIONS

1. **Import Settings from S1616A:** Use this function to read chassis programming into Configurator. This will populate all Input and Output fields.

   This function does not populate Source, Zone or Speaker Names as that information is not contained in the S1616A.

   This function does not retrieve C2 Communication Controller data.

   Note: You MUST select the proper system Type (Single or Dual Chassis) when adding the system to Configurator and set the **Number of Units** field correctly *before* importing data into Configurator!

2. **Write Configuration to S1616A:** Use this function to transfer chassis programming to the S1616A.

   Note: If Source Audio Inputs are changed from Analog to Optical Digital or the reverse it is required to physically power cycle the S1616A after writing the Configuration for the change to be enabled.

3. **Print Configuration:** Use this function to create a printout of Source and Zone audio connections to assist in wiring.

Note: Transferring chassis data to and from S1616As is done over the VIA!Net connection between the S1616As and the HCxx Controller. All chassis should be connected to the VIA!Net bus when importing or writing data.

COMMON MISTAKES

1. **Multiple Chassis configuration:** When using multiple S1616A chassis, it is important to set the VIA!Net Unit ID on each chassis to reflect the correct chassis number. Refer to the ELAN documentation to set these Unit IDs properly.
2. **Incompatible Firmware:** Confirm the firmware running on the S1616A is the same on all chassis in the system and is one of the compatible versions. See the header of this document for compatible versions.
3. **Incorrect System Type:** When adding the system in Configurator it is important to select the correct system Type, (Single Chassis Mode / Dual Chassis Mode) when the system is first added.
4. **SubZone / Slave Zone Conflict:** Do not assign a Zone as a Slave Zone to one Zone and as a SubZone to a different Zone. Unexpected/undesired operation may occur.
5. **No System Audio:** After the initial configuration transfer, if audio is not present in an otherwise functioning system, perform a factory default of the S1616A(s) and reload the configuration.
6. **Failure to Factory Default after a firmware update:** For the S1616As to operate properly they **MUST** be factory defaulted *prior* to downloading their configuration.
7. **Failure to reset Unit IDs on chassis after firmware update procedure:** Firmware update and factory default will reset the Unit ID to 1. See Common Mistake #1 above.
8. **No audio from an Optical Source:** After adding and assigning an optical audio source on the S1616, the S1616 must be power cycled to initialize the optical input.