Integration Note

Manufacturer:	Yamaha
Model Number(s):	**CX-A5100** **RX-A800/1000/2000/3000** **RX-A710/810/1010/2010/3010** **RX-A3020/2020/1020/820/720** **RX-A3030/2030/1030/830/730** **RX-A740/840/1040/2040/3040** **RX-A550/750/1050/2050/3050** **RX-V679/779** **RX-A660/760/860/1060/2060/3060** **RX-V681/781**
Minimum Core Module Version:	**ELAN5.2 (800/1000/2000/3000)** **ELAN5.4 (710/810/1010/2010/3010)** **ELAN6.3 (A3020/2020/1020/820/720)** **ELAN6.5 (3030/2030/1030/830/730)** **ELAN7.1 (740/840/1040/2040/3040)** **ELAN7.2(RX-A550/750/1050/2050/3050; CX-A5100; RX-V679/779)** **Elan Control 8.0 (RX-A660/760/860/1060/2060/3060; RX-V681/781)**
Comments	**Tested:** RX-A1000 **FW** 1.11 **Tested:** RX-A810, 3010 **Tested:** RX-A820 **FW** 1.64, **3020** FW 1.4 **Tested:** RX-A2030 **Tested:** RX-A1050
Document Revision Date:	12/13/16

OVERVIEW AND SUPPORTED FEATURES

Yamaha Aventage receivers include an Ethernet or RS-232 connection which is used to connect to the **ELAN** system and provide full two-way communications, enabling reliable control as well as providing feedback to the **ELAN** system when changes (such as the current source or volume levels) occur at the receiver.

Please note that the following models cannot be integrated via RS-232 and can only be integrated via Ethernet Communications: RX-A550/660, RX-A750/760, RX-V Models

YAMAHA RECEIVERS SUPPORT THE FOLLOWING FEATURES:

Basic Source and Volume Control: Select any available source and control volume with two-way feedback. Changes made at the receiver (turning the volume control, changing source) are reflected in the **ELAN** interface.

Listening/Surround Mode Control: Change of the tone controls or listening mode from the **ELAN** Settings interface is supported.

Onboard HD Tuner: Some Yamaha receivers offer a built-in HD AM/FM tuner, which can play music in the main zone or in the secondary zones. The tuner can be controlled from the standard HD AM/FM tuner interface in the **ELAN** system.

Streaming Sources: Some Yamaha receivers offer a built-in interface for controlling streaming sources. For example, Pandora, Net Radio, etc.

(RX-AXX10 Models) Onboard AM/FM Tuner: Some Yamaha receivers offer a built-in AM/FM tuner, which can play music in the main zone or in the secondary zones. The tuner can be controlled from the standard AM/FM tuner interface in the **ELAN** system.

(RX-AXX30/AXX40/AXX50; CX; RX-V Models) Yamaha Streaming Media Player (NET/USB Sources): Some Yamaha receivers support Network and USB Sources via the Yamaha Media Player. This is currently available on the RX-AXX30/40/50 series of Yamaha Receivers. When a compatible receiver is added to the ELAN system, the Yamaha Media Player is automatically added as a 2-way source, and the NET/USB sources' source devices are populated with Yamaha Media Player.

Satellite Radio Inputs: Yamaha receivers have inputs for Sirius Satellite Radio. These inputs are supported and use the standard **ELAN** Satellite Tuner interfaces. (Note: external Sirius tuner box required by Yamaha)

RDS: The RDS, or Radio Data System, is supported in the ELAN interface where available.

Multiple zones: Yamaha receivers have additional zones, which can be controlled as independent zones from the **ELAN** interface. Note the following particulars of integrating Yamaha additional zones:

- Additional Zones always show Volume control: Some models may include pre-out only zones, or may be configured to use a fixed output instead of variable or speaker outs. These zones are typically hidden from the ELAN interface and controlled on the destination amplifier zone via Output From Zone. There is thus no ability to hide the volume control if they are used directly in the Viewer. See online help for assistance with Output from Zone if needed.
- Additional Zones may not support all sources: Dealers must manually edit Zone options in Configurator to hide unsupported Sources from the Source selection page.

(RX-AXX10 Models) Limited Support of iPod Dock + NET/USB Music: Control for iPod, digital music over IP/USB, and internet radio features are available through event mapper commands with a custom interface and navigation of the Yamaha on screen display **ONLY**. No pre-made interfaces are available and feedback may be limited or non-existent.

(**RX-Axx50; CX-A5100; RX-Vxxx Models) Main Zone Sync:** Main Zone Sync allows the integrator to set the AVR's Zone 2 or 3 to Input: Main Zone Synch to allow zone 1 source changes to be reflected in zone 2 or 3. Dealers will need to hide Main Zone Sync on the Main Zone under Zone Config.

YAMAHA RECEIVERS DO NOT SUPPORT THE FOLLOWING FEATURES:

(RX-AXX00 Models) Integration of iPod Dock and NET/USB Sources: Digital audio source control is limited to source selection and volume control in ELAN for RX-AXX00 models. Note: XX10/xx20 Models have added commands to do basic one-way cursor control on the Yamaha OSD through a custom interface. Also note that the RX-AXX30 Models fully support NET/USB Sources.

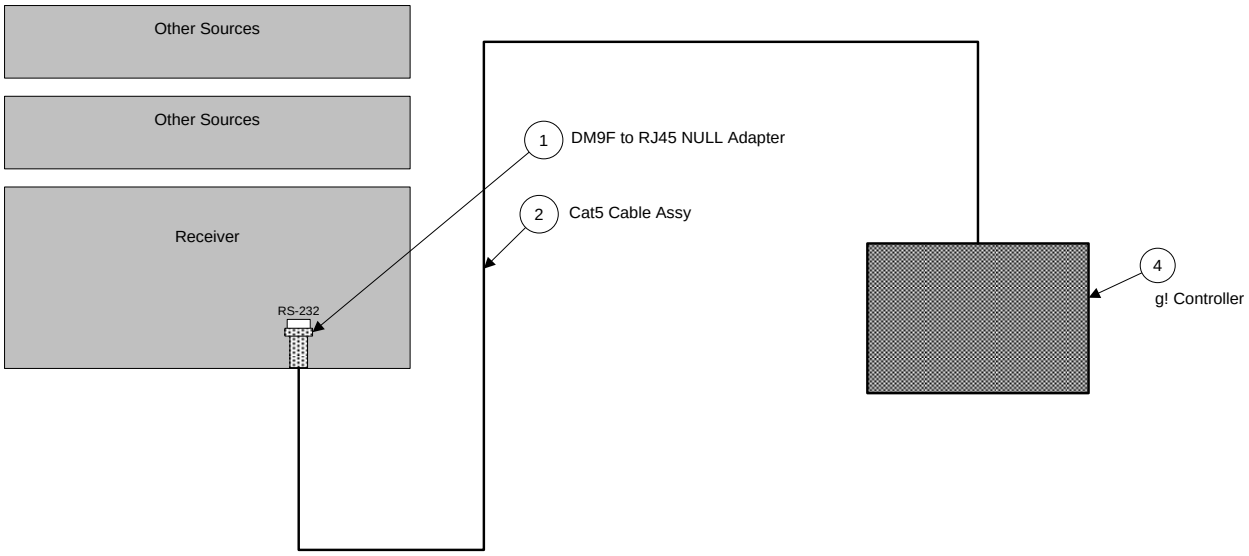
Additional Features: Many units include additional features such as trigger outs, IR and so forth. Unless specifically listed above, ELAN does not integrate with these features.

Any feature not specifically noted as "supported" is not supported.

INSTALLATION OVERVIEW

1. During the rough-in phase install the necessary speaker and video cabling for the theater installation.
2. Also during the rough-in phase, run a Cat5 wire from the location of the receiver back to the **ELAN** controller location to provide the Ethernet or serial connection needed to control the receiver.
3. Install the speakers, display and other theater components.
4. Program the receiver according to the manufacturer's documentation.
5. Test the receiver to ensure that the sources play correctly and that the audio and video operate as expected.
6. Connect the **ELAN** system to the receiver electrically. See the connection diagram and bill of materials for more information.
7. Configure the **ELAN** system for the receiver and confirm communication between the receiver and the ELAN Controller.
8. Test the system by changing sources and volume to confirm the correct source plays.

CONNECTION DIAGRAMS – SERIAL



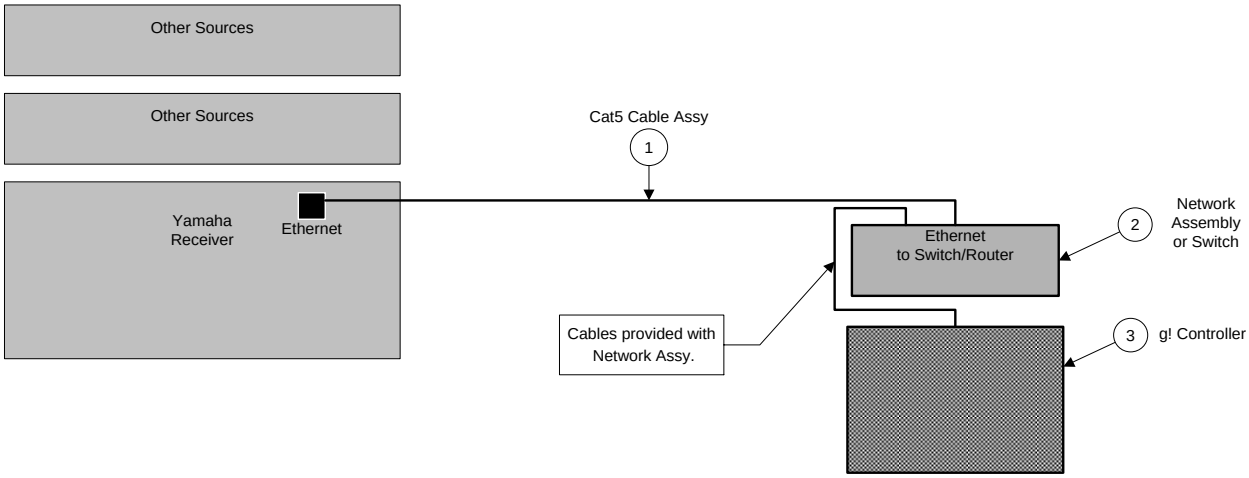
BILL OF MATERIALS

#	Device	Manufacturer	Part Number	Protocol	Connector Type	Notes
1	Cat5 Cable Assy.	Installer	N/A	RS-232	RJ-45 Male X RJ-45 Male	Must terminate all 8 conductors
2	DB9F to RJ45 NULL Adapter	ELAN	HA-CB-328	RS-232	DB-9 Female X RJ-45 Female	
3	g! System Controller	ELAN	Various (e.g. HC12)	RS-232	RJ45 Female	

YAMAHA CONFIGURATION:

No additional configuration is required for Serial Control.

CONNECTION DIAGRAMS – ETHERNET



BILL OF MATERIALS

#	Device	Manufacturer	Part Number	Protocol	Connector Type	Notes
1	Cat5 Cable Assy.	Installer	N/A	RS-232	RJ-45 Male X RJ-45 Male	Must terminate all 8 conductors
2	Network Assembly	ELAN	NWA18	RS-232	RJ-45 Female	or Router/Switch
3	g! System Controller	ELAN	Various (e.g. HC12)	RS-232	RJ45 Female	

YAMAHA ETHERNET CONFIGURATION:

It is recommended to set the Yamaha up with a Static IP address for reliable control. If left at DHCP, the unit may get a new IP at some point and control will be lost. In addition, if using Ethernet, you must enable Network Standby to allow ELAN to control the unit when it is in a power standby state.

Press “On Screen” button on face of unit. Some Yamaha receivers do not have the “On Screen button” on the face of the unit so you will have to use the units remote to access this button instead.	*Enters On Screen Menu*
Use arrows and the enter button to navigate to and select “Setup”	*Enters the Setup sub menu*
Use arrows and the enter button to navigate to and select “Network”	*Enters the Network Setup sub menu*
Use arrows and the enter button to navigate to and select “IP Address”	*Enters the IP Setup sub menu*
Use arrows and the enter button to set DHCP to “No”, and then press “return” to go back a level.	*Disables Dynamic address and allows entry of Static IP*
Use arrows and the enter button to enter Manual Setup, and edit IP Information as follows: **IP Address**: *It is recommended to configure the first unit with an address of **192.168.0.50**, the second to 192.168.0.51, and so on.* **Subnet Mask**: Typically set to 255.255.255.0 **DNS1 and Gateway**: Typically set to Routers LAN IP (ex. 192.168.0.1)	*Configures Static IP address for reliable network control*
Use “Return” button to get back to the Network Setup Screen.	*Returns to base Network options screen depicting IP Address, Network Standby, and MAC Filter sub menus*
Use arrows and the enter button to set Network Standby to “ON”.	*Enables Network Standby. Note: If this setting is disabled, the unit will not wake out of standby mode based on Ethernet commands*
Press “On Screen” button on face of unit	*Exits the On Screen Menu*

ELAN CONFIGURATION DETAILS

The following table provides settings used in the **ELAN** Configurator. Please refer to the *ELAN Configurator Reference Guide* for more details.

- "<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.

		RS232	Ethernet
Communication Devices	**Name**	<User Defined> (Default: **New Device**)	<User Defined> (Default: **New Device**)
	Type	**Serial Port**	**Ethernet**
	Communication Type	<Select>	<Select>
	Location	<User Defined> (Not Required)	<User Defined> (Not Required)
	COM Port/IP Address	<Select>	<User Defined>
Devices	**Variable Name**	**Setting**	**Comments**
Audio Tuners (Optional)	**Name**	<User Defined> (Default: **Yamaha YNCA *XXX BAND* Tuner**)	Optional: Only needed if the tuner will be a visible source in the Viewer interface
	Device Type	<Select>	Select the appropriate BAND of Yamaha YNCA tuner
	Location	<User Defined> (Not Required)	
	COM Device	<Select> (Default: New Device)	
<Other RS-232 Sources>	Add any other RS-232 controlled sources. Refer to the Integration Note for each specific source device.		
<Other IR Controlled Sources>	Add IR devices on the Input/Output tab for other IR controlled sources. Refer to the **Generic IR Source** Integration note.		
<Video Display>	Add the Video Display for the receiver. Refer to the Integration Note for the specific display, or the **Generic Video Display** Integration Note for an IR controlled display		
Other Audio Devices / Interfaces	**Name**	<User Defined>	Add one Interface for each source that should appear in the Viewer
	Template	<Select>	
	Default Device	<Select>	Select the RS-232 or IR controlled source for this interface
Audio Zone Controllers	**Name**	<User Defined>	Defaults to the make and model of your receiver, after selecting Device Type
	Device Type	<Select>	Select your model of receiver
	Location	<User Defined> (Not Required)	
	COM Device	<Select> (Default: New Device)	
Sources	**Name**	<User Defined>	
	Source Device	<Select>	Sources must be previously configured in order to allow selection.
	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
Zones	**Edit Zone setting such as Name, Show/Hide sources, Universal Receiver, Displays, Slaves and so on as desired. See g! Reference Guide for full details on zone configuration.**		
<Interface Tab>			Click on the Interface tab in order to hide or show zone tabs on indivdual touchscreens
	<Touchscreen Options>		Select the touchscreen to modify from the list
	Tab Layouts	<Select>	Move any unused zone tabs into **Available Zones** to remove from the viewer

Notes:

1. Select Yamaha YNCA (Ethernet) or Yamaha YNCA (RS-232) as appropriate.

COMMON MISTAKES

1. Using the incorrect Communication Device type. You must use the Yamaha YNCA, as the Aventage (YNCA) models use a different protocol than earlier Yamaha units.
2. Using the incorrect Communication Device type. You must choose YNCA RS-232 for serial connections and YNCA Ethernet for network connections.
3. Using the incorrect tuner type. You must use the Yamaha YNCA tuners, as the Aventage (YNCA) models use a different protocol than earlier Yamaha units. In addition, ensure to use the HD or non-HD tuner as appropriate.
4. Failure to Enable Network Standby. Network Standby must be properly configured or the unit will not wake up out of standby mode from Ethernet messages as the Ethernet adapter in the AVR is turned off to save power.
5. Attempting to control RX-A550, RX-A750, or RX-Vxxx Models with RS-232. These models only support ethernet communication.