



Integration Note

Manufacturer:	Denon
Model Number(s):	AVR-2805, 3805, 1613, 1713, 1912CI, 1913, 2112CI, 2113CI, 2310CI, 2311CI, 2312CI, 2313CI, 2808CI, 3310CI, 3311CI, 3312CI, 3313CI, 3806, 3808CI, 4308CI, 4310CI, 4311CI, 4520CI, 4806, 4810CI, 5308CI, 5805; AVR-X1300W, 2300W, 3300W, 4300H, 6300H AVP-A1HDCI X1000, 2000, 3000, 4000 (US & Int'l) S700, S710, S900, S910, X1100, X1200, X2200, X3100, X3200, X4100, X4200, X5200, X6200 S720W, S920W, X1300W, X2300W, X3300W, X4300H, X6300H
Minimum Core Module Version:	3808 & XX10 CI—version 4.0.1595 2311—version 5.0.686/5.1.278 3311/4311—version 5.2 1912/2112/2312/3312—version 5.4 1613/1713/1913/2113/2313/3313—version 5.8 4520CI – Version 6.3 X1000/X2000/X3000/X4000 – Version 6.5 S700/S900/X1100/X3100/X4100/X5200 – Version 7.1 S710/S910/X1200/X2200/X3200/X4200/X6200 – Version 7.2.600 S720W/S920W/X1300W/X2300W/X3300W/X4300H/X6300H – Version 8.0
Document Revision Date:	12/13/2016

OVERVIEW AND SUPPORTED FEATURES

Denon receivers connected to the **ELAN Control** system 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: **S710, S910, X1200, X2200**

DENON 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 immediately reflected in the **ELAN** interface.

Multiple zones: Supported Denon receivers often have a second (or third, ...) zone, which can be controlled as its own zone from the **ELAN** interface.

Onboard AM/FM, AM/FM HD, or FM Tuner: Supported Denon receivers often include a built-in AM/FM, AM/FM HD, or FM-Only tuner, which can play music in the main or auxiliary zone. The tuner can be controlled from the standard AM/FM tuner interface in the **ELAN** system.

Satellite Tuners: Some Denon models support XM/Sirius satellite radio. These tuners may require external tuner boxes for full function. These tuners can be controlled through built-in interfaces.

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

Ethernet Port: ELAN supports Ethernet control for the Denon **XX10CI and newer** model year lineups.

Tone/Listening Mode Control: Most Denon models provide control for bass/treble and listening modes through a custom settings page. Note that 2-way feedback of listening modes/tone may not be available or consistent on all models.

DENON RECEIVERS DO NOT SUPPORT THE FOLLOWING FEATURES:

Ethernet Port: ELAN does not support Ethernet control on models prior to the XX10CI series.

Integration of iPod Dock and NET/USB Sources: Digital audio source control is limited to source selection and volume control in ELAN.

Note: some models have commands to do basic one-way cursor control on the Denon OSD through a custom interface.

RS-232 on S710, S910, X1200, X2200: These models only support Ethernet communications.

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.

IMPORTANT! On some models the iPod may appear as a separate source input, when in actuality iPod dock audio is routed to one of the standard source inputs. On these receivers, do not use the iPod source input. Use the correct audio input instead. (Ex. The 3808ci typically routes the iPod audio to the VCR input. Use the VCR input for any control interface in Configurator, and leave the iPod source blank. If used, the iPod source will flash to the VCR input.)

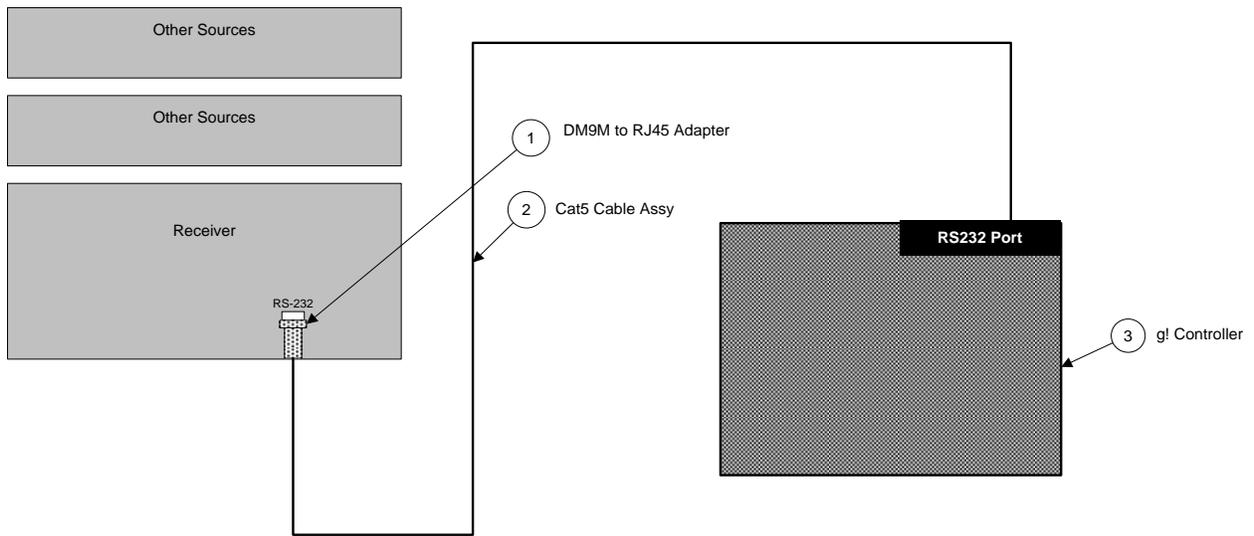
Any feature not specifically noted as "supported" is not supported.

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 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. Refer to the *RS-232 Connection Options Integration Note* for other serial connection options.
7. Configure the **ELAN** system for the receiver and confirm communication between the receiver and the **Controller**.
8. Test the system by changing sources and volume to confirm the correct source plays.

CONNECTION DIAGRAMS

RS-232



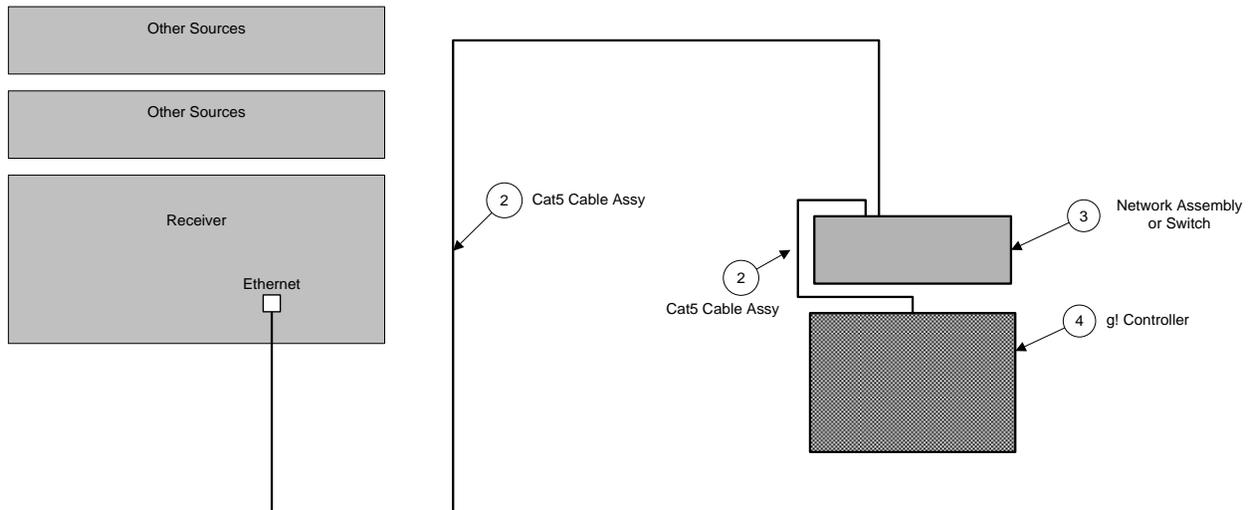
BILL OF MATERIALS

#	Device	Manufacturer	Part Number	Protocol	Connector Type	Notes
1	DB9M to RJ45 Adapter	ELAN	HA-CB-307	RS-232	DB-9 Male X RJ-45 Female	
2	Cat5 Cable Assy.	Installer	N/A	RS-232	RJ-45 Male X RJ-45 Male	
3	g! Controller	ELAN	Various (e.g. HC12)	RS-232	RJ-45 Female	

Note: Some Denon models support 2-way remotes or external control through the RS-232c port. If the unit is going to be controlled via ELAN, the 232C port must be set to External Control. This is typically located in Manual Setup> Options of the Denon setup menu.

In addition, Standby Power Mode should not be sent to Energy Save, as this will shut off the RS232 port when in Standby mode and prevent you from powering the unit back on in ELAN.

ETHERNET



BILL OF MATERIALS

#	Device	Manufacturer	Part Number	Protocol	Connector Type	Notes
1	Cat5 Cable Assy.	Installer	N/A	Ethernet	RJ-45 Male X RJ-45 Male	
2	Network Assembly	ELAN	NWA 18	Ethernet	RJ-45 Female	
3	g! Controller	ELAN	Various (e.g. HC 12)	Ethernet	RJ-45 Female	

DENON ETHERNET CONFIGURATION

For reliable control and feedback, the Denon must be set to a static IP. To configure the Network Settings, enter the OSD and use the arrow and enter keys to configure a static IP:

1. Enter Manual Setup
2. Enter Network Setup
3. Enter Other and Set Network Standby to **ON**. (some models) **Note:** ON xx13/4520CI models, the name has been changed to IP Control and should be set to 'Always On'.
4. Return back to Network Setup.
5. **Disable DHCP and enter network settings as follows:** (on some models you must enter the Network Connection sub-menu)

IP Address: (default) 192.168.0.50	We recommended setting the 1 st Ethernet controlled Zone Controller to 192.168.0.50, the second to 192.168.0.51, and so on.
Subnet Mask: 255.255.255.0	(Typical Setting)
Gateway and DNS: (default) 192.168.0.1	Set to Router LAN IP Address

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>	See Note 1
	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: AM/FM Tuner)	Optional: Only needed if the tuner will be a visible source in the Viewer interface	
	Device Type	<Select>	Select the tuner that matches your receiver	
	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 configur			
<Interface Tab>			Click on the Interface tab in order to hide or show zone tabs on individual 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 the appropriate RS-232 or Ethernet Communication Type for your Receiver Model. If your Receiver is not listed, use Standard Connection.			

ELAN CONFIGURATION: TUNER DETAIL

AM/FM Tuners	
X1000/2000/3000/4000	User Euro or NA Tuner Driver as marked for your device Use appropriate Tuner Source (two sources appear on x2000/3000/4000—HD is NA, TUNER is Euro) X1000 use appropriate AVR driver
XX13 FM-Only Tuner Models	Use Denon AVR Internal FM Only Tuner
XX08 (and above) CI AM/FM Tuners	Use Denon AVR-XXXXCI Internal AM/FM Tuner
XX10 (and above) CI HD AM/FM Tuners	Use Denon AVR Internal HD Tuner
XX05, XX06 AM/FM Tuners	Use Denon AVR Internal AM/FM Tuner
Satellite Tuners	
XM	All applicable models use Denon AVR Internal XM Tuner
Sirius	All applicable models use Denon AVR Internal Sirius Tuner

Notes:

1) Denon Tuner control has changed slightly with the XX12 models for HD tuning. On previous models, SEEK would always go to a new frequency station. On XX12 models, if the current station is a HD station, SEEK will proceed to the next HD Subchannel instead of a new frequency. This behavior is hardcoded in the Denon.

2) On FM Only models the “Band” button has no effect and will not send a command if pressed in the ELAN Viewer.

COMMON MISTAKES

1. Attempting to use the iPod input instead of the input it redirects to. (ex. iPod dock uses VCR audio input. Set Source to VCR input in Configurator...not iPod)
2. Incorrect Network Standby mode. Network Standby must be set to allow the network port to remain active even when the unit is turned off for reliable control. If this is set incorrectly, you will not be able to turn the unit on from standby (all other control will function).
3. Incorrect Energy Save mode. Some models allow Energy Save mode for Standby which disables the RS-232 port in standby. This function must be disabled, as the RS-232 port must always be ON for reliable control. If this is set incorrectly, you will not be able to turn the unit on from standby (all other control will function).
4. Incorrect Serial Settings. Some units allow the selection of RS-232 or 2-Way Remote Modes for the DB9 jack. The setting must be set to RS-232C mode for control.
5. If multiple Denon models (3+) in one network are being used with Ethernet control and you are experiencing control reliability issues, ensure you are on latest Denon firmware. XX12 models appear to have had issues on earlier firmware versions.