Renkus Heinz

Dante Enabled Loudspeakers

Symetrix Plugin

Control Concepts, Inc.

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Revision: 1.1

Overview

The purpose of this document is to describe the design, features, and scope of work for development of the Renkus Heinz Dante Enabled Loudspeakers plugin for Symetrix DSPs.

The Renkus Heinz Dante Enabled Loudspeaker is a steerable speaker array that is primarily designed for large venues.

Plugin Design Overview

The Symetrix plugin offers control of power, input selection, volume, audio delays, and presets while providing feedback for system information.

Plugin Internals

DSP Compatibility

The included module is compatible with Composer 8.5 or later.

Supported Firmware Version

The included module will support device firmware used for development.

Pairing

No pairing between the plugin and the device is required.

Authentication

The device UDP communication does not require authentication.

Communication

The module will communicate over via UDP communication.

Heartbeat

The plugin communicates to the device every 30 seconds to ensure consistent communication. The module will use the 'Get Mac Address' command as the heartbeat request & response because it has low overhead. If the heartbeat request does not receive a response for three consecutive attempts, the module will consider the communication state to be offline and will initiate a reconnect sequence.

Initialization

The plugin queries the device for state upon successful connection with the device. It is initialized once all feedback for the device is received and updated in the plugin.

Polling

The module will perform a poll of Get Device Status every 3 seconds to retrieve updated data from the device.

Logging

The plugin will include logging to inform the programmer of communication and initialization state, as well as error and debug messages.

Supported Protocol Functions

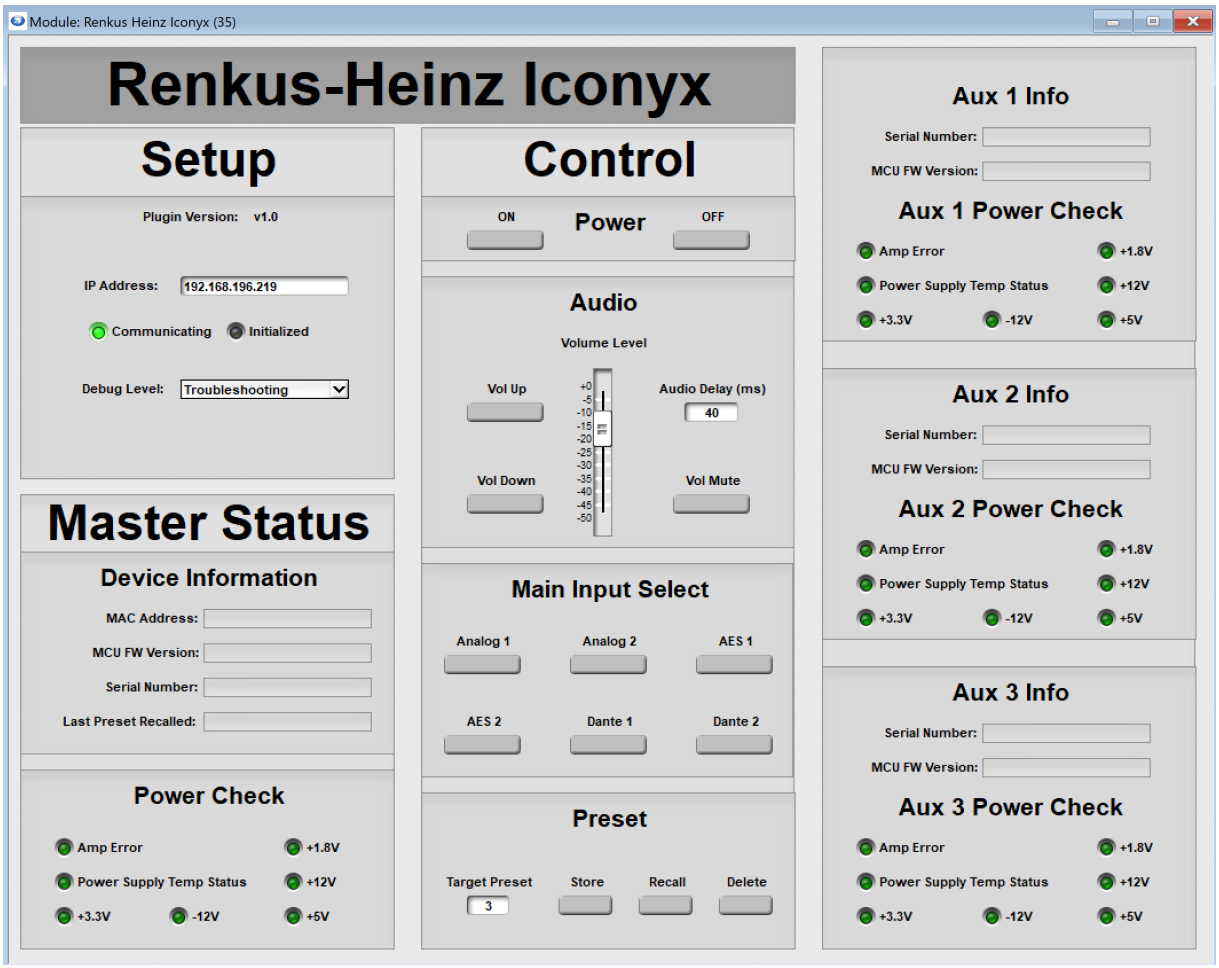
The protocol functions listed in the table below will be implemented to support the functionality of the plugin. All commands and responses are sent over the UDP connection.

Identifier	Command	Description
Get Device Status	0x52 0x48 <addr> <cmd length> 0x03 <cCRC16>	Returns device status data. This includes: Audio Delay, Volume, Mute On, Preset, Coil Status, Power Check, Amp Temp, and power supply temp.
Get MCU FW Version	0x52 0x48 <addr> <cmd length> 0x30 <cCRC16>	Returns MCU FW Version This Includes: MCU FW and Assembly Version and serial number .
Power On	0x52 0x48 <addr> <cmd length> 0x13 <CRC16>	Used to Power On master and Aux units
Power Off	0x52 0x48 <addr> <cmd length> 0x12 <CRC16>	Used to Power Off master and Aux units
Set Volume	0x52 0x48 <addr> <cmd length> 0x0C <volume> <polarity> <CRC16>	Used to set the volume for an amp(-100-0)
Set Input Selection	0x52 0x48 <addr> <cmd length> 0x0B <input selection> <CRC16>	Used to set the audio input for an amp
Set Delay	0x52 0x48 <addr> <cmd length> 0x0A <delay> <CRC16>	Used to set the delay
Mute On	0x52 0x48 <addr> <cmd length> 0x07 <CRC16>	Used to set Mute On
Mute Off	0x52 0x48 <addr> <cmd length> 0x0**6** <CRC16>	Used to set Mute Off
Preset Delete	0x52 0x48 <addr> <cmd length> 0x14 <p1> <p2> <CRC16>	Used to Delete Preset(s)
Preset Load	0x52 0x48 <addr> <cmd length> 0x16 <preset#> <CRC16>	Used to Load Preset
Preset Save	0x52 0x48 <addr> <cmd length> 0x17 <preset#> <CRC16>	Used Save Preset
Get MAC Address	0x52 0x48 <addr> <cmd length> 0x20 <cCRC16>	Used to Get MAC address

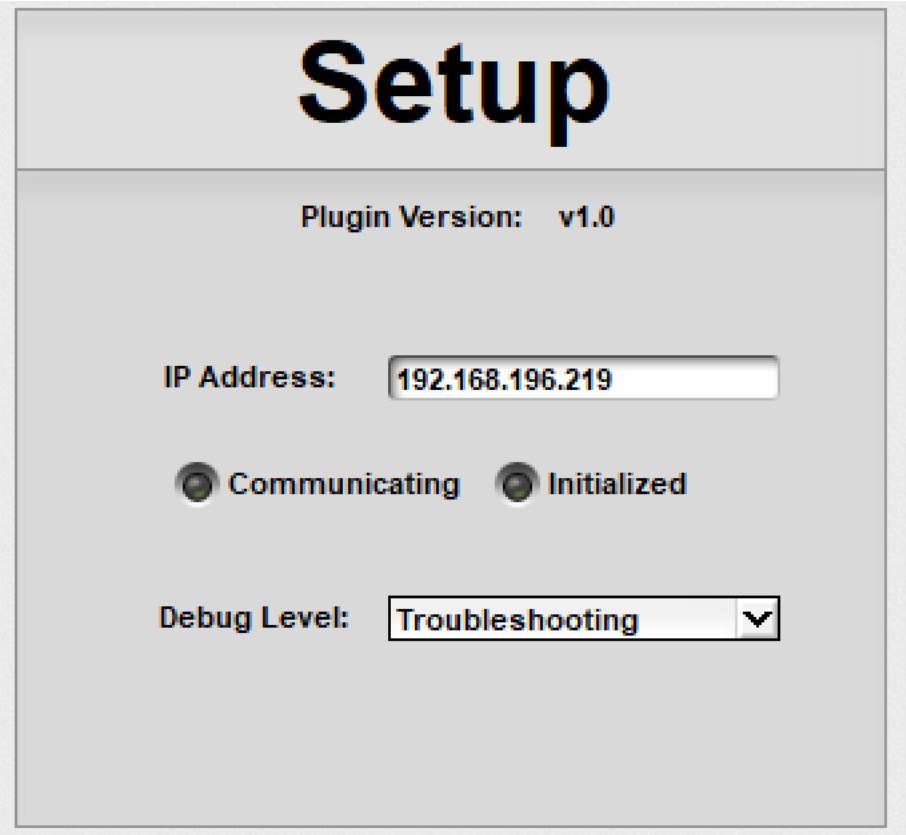
Plugin User Interface

Below are conceptual screenshots of the plugin user interface and explanation of the functionality.

Full Intelligent Module User Interface



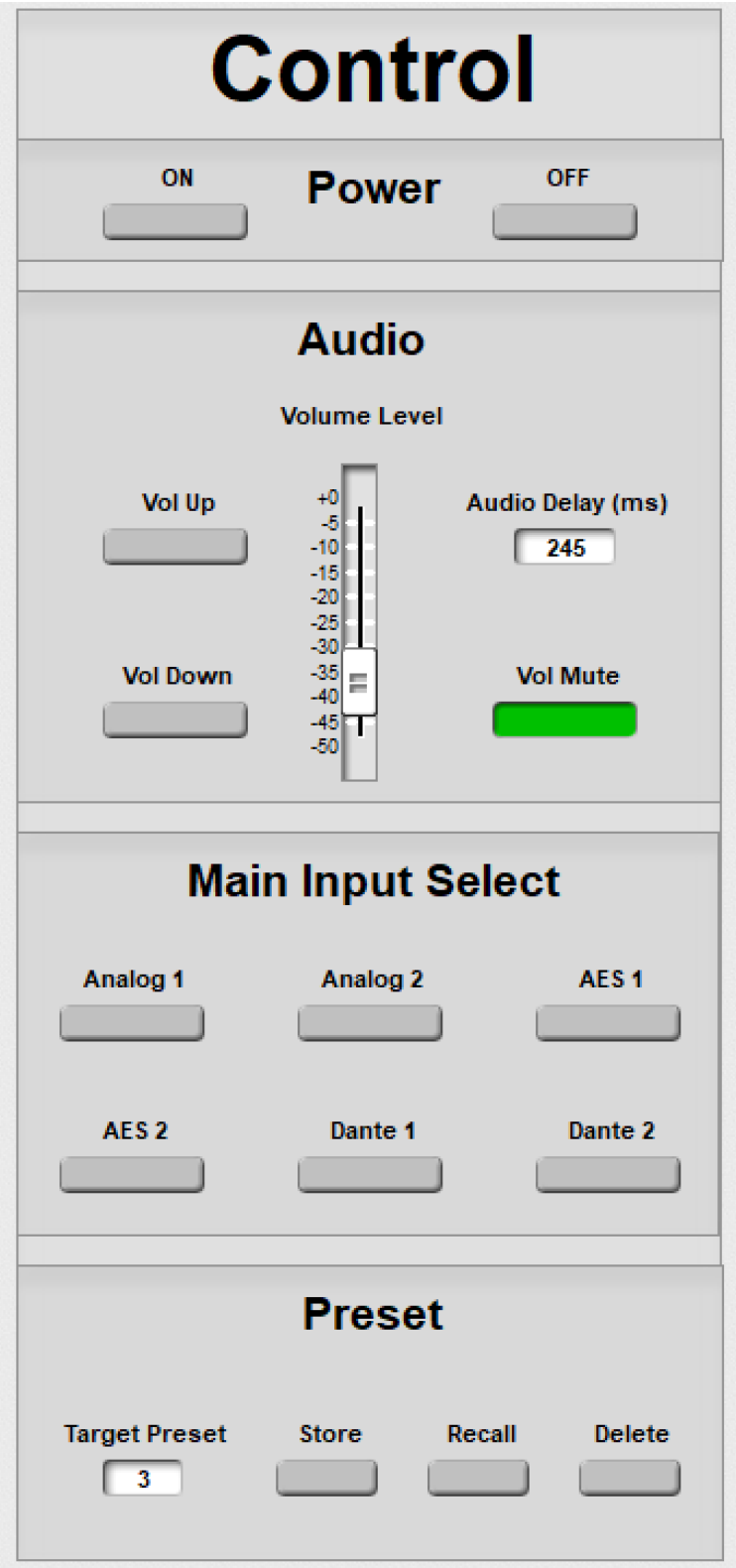
Setup Page



UI Elements

Signal Name	Signal Type	Pin Type	Description
IP Address	Text Input	N/A	IP address of the loudspeaker.
Communicating	Boolean	Output	Green indicates that the plugin is communicating with the loudspeaker.
Initialized	Boolean	Output	Green indicates that the plugin has successfully queried for the current state.
Debug Level	Text Dropdown	N/A	Selection to choose the debugging level of the debug file output. “Off”, “Device Communication”, and “Troubleshooting”.

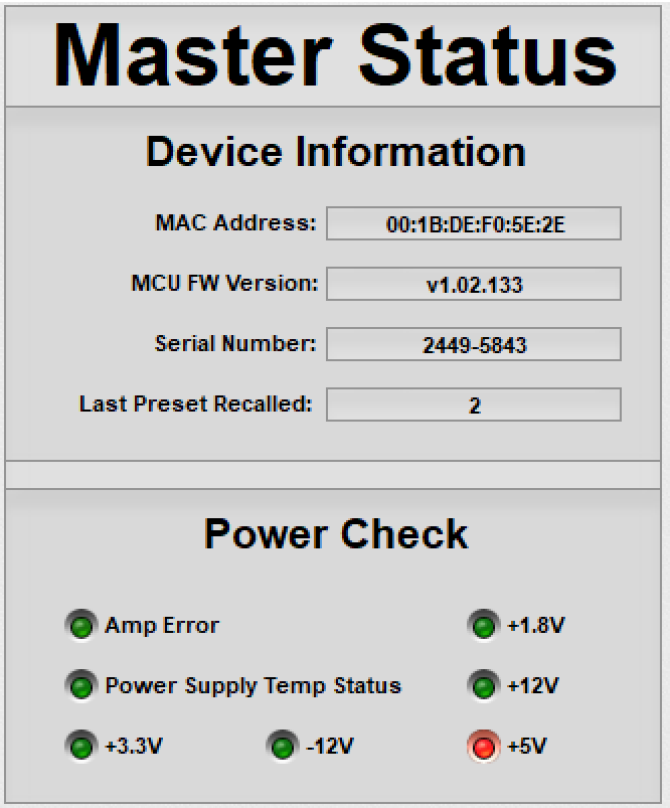
Controls Page



UI Elements

Signal Name	Signal Type	Pin Type	Description
Power On	Boolean	Input	Triggers device to power On.
Power Off	Boolean	Input	Triggers device to power Off.
Vol Level	Value	Both	Sets and reports the volume level. -50 – 0 dB. Represented on pin as a value between 0 and 1.
Vol Up	Boolean	Input	Triggers the volume level to go up by 1 dB.
Vol Down	Boolean	Input	Triggers the volume level to go down by 1 dB.
Vol Mute Toggle	Boolean	Both	Sets and reports the mute state.
Audio Delay	Value	Input	Sets and reports the audio delay value. Represented on pin as a value between 0 and 1.
Input Select	Boolean(s)	Input	Sets the current input.
Target Preset	Value	N/A	Sets the preset to be acted on by Store, Recall, and Delete.
Store	Boolean	Input	Trigger to store the current system state as a preset via 'Target Preset' input.
Recall	Boolean	Input	Trigger to recall the current preset via 'Target Preset' input.
Delete	Boolean	Input	Trigger to delete the current preset via 'Target Preset' input.

Master Status Page

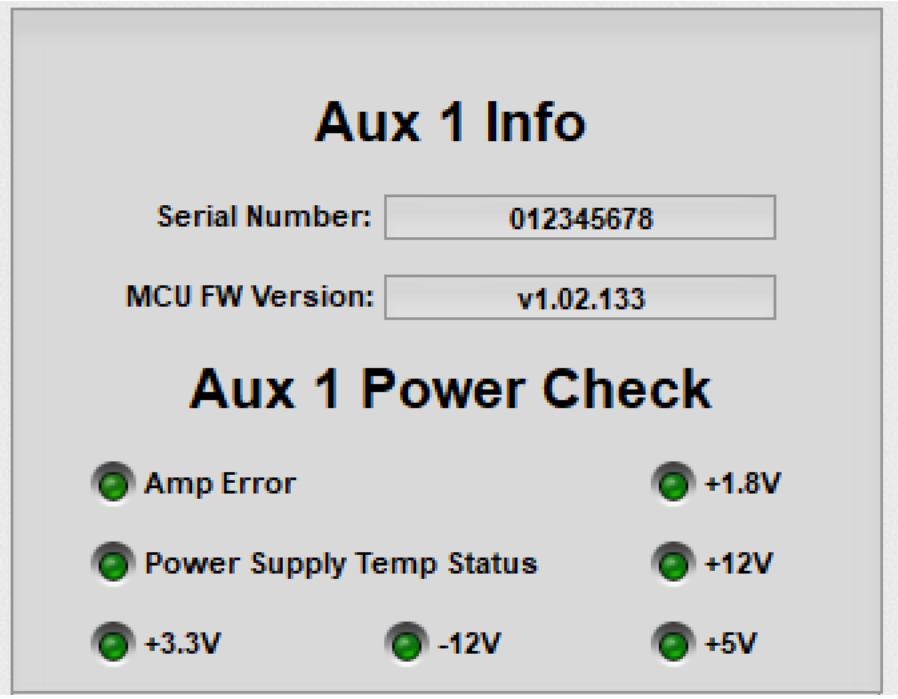


Pins

Signal Name	Signal Type	Pin Type	Description
MAC Address	Text	N/A	Indicates the devices MAC address.
MCU FW Version	Text	N/A	Indicates the devices MCU FW Version.
Serial Number	Text	N/A	Indicates the devices Serial Number.
Last Preset Recalled	Text	N/A	Indicates the last preset recalled
Amp Error	Boolean	Output	Indicates the device D2 Audio Error warning.
Power Supply Temp High	Boolean	Output	Indicates the device Power Supply Temp High warning
+3V	Boolean	Output	Indicates the device +3V warning.
-12V	Boolean	Output	Indicates the device -12V warning.
+1.8V	Boolean	Output	Indicates the device +1.8V warning.
+12V	Boolean	Output	Indicates the device +12V warning.
+5V	Boolean	Output	Indicates the device +5V warning.

Aux 1,2,3 Status Page

Each Aux status page contains information and warnings pertaining to that device. Below image shows Aux 1 page - each additional Aux page is identical.



Pins

Signal Name	Signal Type	Pin Type	Description
MAC Address	Text	N/A	Indicates the aux # devices MAC address.
MCU FW Version	Text	N/A	Indicates the aux # devices MCU FW Version.
Serial Number	Text	N/A	Indicates the aux # devices Serial Number.
Amp Error	Boolean	Output	Indicates the aux # device Amp Error warning.
Power Supply Temp High	Boolean	Output	Indicates the aux # device Power Supply Temp High warning
+3V	Boolean	Output	Indicates the aux # device +3V warning.
-12V	Boolean	Output	Indicates the aux # device -12V warning.
+1.8V	Boolean	Output	Indicates the aux # device +1.8V warning.
+12V	Boolean	Output	Indicates the aux # device +12V warning.
+5V	Boolean	Output	Indicates the aux # device +5V warning.

Document Revision History

Document Version	Revision Date	Revision Summary
1.2	December 10, 2025	Fixed grammatical issue in plugin header
1.1	October 23, 2025	Updates to UI text and control elements
1.0	October 9, 2025	Initial Draft