BluOS™ Crestron Module

Revision History			
Version Number	Date	Author	Description
1.0.0	11/03/2016	John G.	First draft
1.0.1	19/05/2016	John G.	Added Grouping and Searching
1.0.2	27/05/2016	John G.	Added browse page for Playlists

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Introduction

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Player Requirements

Each component to be used in the module most be running BluOS 2.0.0 or greater. Each unit needs to be wired to the same network as the Crestron controller. The *Lenbrook_BluOS* module can handle up to 30 BluOS controlled components. The module uses a discovery protocol that operates of port 11430. There is no need to add any other TCP/IP modules for this system; all networking is handled within the provided module.

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Module Sections

Discover

Any BluOS component will be discovered when the network is scanned using the module. The discovered players will be added to an array that can be used via the outputs of the module. The order of the players is important since that is the order they are store in within the module. To select a player, the value sent back to the module should represent the position in the array of where that player originated from.

The module can only control a single player or group at a time. To control multiple group or individual players simultaneously an instance of the module is required for each other control device.

Once a player has been selected all actions and requested information will be derived from that device.

Inputs		
Signal	Type	Description
Scan_Players	Digital	Scans the network and populates the "Player[]" array with the names of the discovered players
Selected_Player	Analog	The value returned will select the player that is at the position in the "Player[]"
Select_Player[]	Digital	Indicates if a players has been selected
Clear_Group	Digital	Breaks group apart
Add_To_Group	Analog	Add player at specified point to the currently selected players group
Outputs		
Signal	Type	Description
Current_Player	Analog	The value returned is position in the "Player[]" array.
Player_Count	Analog	Number players discovered on the network
Group_Toggle_Mode	Analog	When on the selected players will be added to the group (May not be needed)
Current_Player_Name	String	The name of the selected player
Player[]	String	Player names

Playback

The current player can be control by activating signals into the module. The requested inputs will tell the player to preform said action. The outputs are then based on the current status of the player. This allows for third party controls to be done while still reporting the proper state of the player.

Inputs		
Signal	Type	Description
Press_Skip	Digital	Moves to next track in playlist or station if available.
Press_Back	Digital	Moves to previous track in playlist or station if available.
Press_Play_Pause	Digital	Toggles Play / Pause for the current input.
Press_Shuffle	Digital	Shuffles the current playlist.
Press_Repeat	Digital	Cycles through repeat options when selected
Press_Last	Digital	"Last" is the Insertion mode for creating playlist where any track or album that is added, will be inserted at the bottom of the current playlist.
Press_Next	Digital	"Next" is the Insertion mode for creating playlist where any track or album that is added, will be inserted at the following the current track.
Press_Now	Digital	"Now" is the Insertion mode for creating playlist where any track or album that is added, will be inserted following the current track and then selected to be played now.
Change_Seek_Position	Analog	This value is used to change the current position in a track
Change_Volume	Analog	This value will change the volume.
Outputs		
Signal	Type	Description
Play_Pause_Toggle	Digital	This value relays the current play state of the player.

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Artwork

The artwork of what is currently being played can be displayed using URL provided in the output signal. This signal will be update anytime the players state changes.

Outputs		
Signal	Type	Description
Now_Playing_Show_Artwork	Digital	Indicates if there is artwork to be shown
Now_Playing_Artwork_URL	String	The URL for the art of the current Album, Station or Input.

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Presets

Presets can be selected by providing the positon in the array back to the module. These presets can only be loaded. There is currently no way to edit, delete or create presets.

Inputs		
Signal	Type	Description
Selected_Preset	Analog	Based on the results of "Preset[]" array, this value will indicate which preset was selected.
Update_Presets	Digital	Updates the preset list
Outputs		
Signal	Type	Description
Preset[]	String	Provides an array of values indicate the available presets.

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Current Playlist

The current playlist is show in paged section since there is no set limit on a playlist size. To view the entire playlist the results are paged. By moving between pages the displayed list of songs is rewritten. When you wish to select a song, you simply provide the position of that track in the current array. There is no need to keep track of the page you are currently on.

Inputs		
Signal	Type	Description
Selected_Song	Analog	Based on the results of "Song []" array, this value will indicate which song was selected.
Playlist_Next_Page	Digital	This will refresh results to be a page forward.
Playlist_Previous_Page	Digital	This will refresh results to be a page back.
Clear_Playlist	Digital	Empties the current playlist
Outputs		
Signal	Type	Description
Playlist_Page_Number	String	The Current page number and pages available. Its written in the following style "page 1 of 1"
Song_Selected[]	Digital	Indicates when a song has been selected
Song[]	String	An array of the current songs on this page

Browse Playlists

This section allows you to browse all Bluesound created playlists. These are playlists that could be a mix of songs from different services.

Inputs		
Signal	Type	Description
Selected_Playlist	Analog	Based on the results of "Playlist_Name[]" array, this value will indicate which playlist was selected.
Next_PB_Page	Digital	This will refresh results to be a page forward.
Prev_PB_Page	Digital	This will refresh results to be a page back.
Update_Browse_Playlists	Digital	Refreshes the results of the list.
Outputs		
Signal	Type	Description
Page_PB_Number	String	The current page number for browsing
Playlist_Name[]	String	Array of the playlist names.

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Services

The services section is how a user will access content on a BluOS power system. The content ranges from music services, local libraries and inputs. The results from this section are split into three arrays.

Array 1, will list the services and inputs available.

Array 2, is the menu options of the selected service. This also includes the favorites of that service, which can be access by toggle the corresponding signal. If the favorites view is select it will write over the normal menu options.

Array 3, this will be the items that you will add to the playlist or the stations you stream. With some services that have large submenus these items can also be links to sub menu options. If a submenu is selected it will write over the last array of results to let you continue browsing.

Inputs		
Signal	Type	Description
Service_Next_Page_A	Digital	This will refresh results to be a page forward for the first column of results.
Service_Previous_Page_A	Digital	This will refresh results to be a page back for the first column of results.
Service_Next_Page_B	Digital	This will refresh results to be a page forward for the second column of results.
Service_Previous_Page_B	Digital	This will refresh results to be a page back for the second column of results.
Favorite_Toggle	Digital	When on the menu items in the first column results will be the favorites for that source.
Search_Button	Digital	When selected it will send a search request using the "Searhc_String" value
Selected_Service	Analog	Based on the results of "Service[]" array, this value will indicate which service was selected.
Selected_Menu	Analog	Based on the results of "Service_Menu_Col_1[]" array, this value will indicate which menu item in the first column was selected.
Selected_Item	Analog	Based on the results of "Service_Menu_Col_2[]" array, this value will indicate which item in the second column was selected.
Long_Press_Item	Analog	Based on the results of "Service_Menu_Col_2[]" array, this value will indicate which item in the second column was long pressed, and will active the "Show_Context" signal.

Selected_Context	Analog	Based on the results of "Context_Menu_Items[]" array, this value will indicate which item in within the context options was selected.
Search_String	string	The string to be used when searching.
Outputs		
Signal	Type	Description
Show_Service_Icon	Digital	Indicates if there is a service icon to be shown
Show_Context	Digital	When "Long_Press_Item" signal changes this value will be high.
Services_Page_Number_A	String	The Current page number for the first column. Its written in the following style "page 1"
Services_Page_Number_B	String	The Current page number for the second column. Its written in the following style "page 1"
Context_Item_Name	String	When the context view is shown this will be the name of the item that was selected.
Service_Icon	String	This is the URL for the service or sources icon
Service[]	String	Array of the available services
Service_Menu_Col_1[]	String	Array of the menu options for the services
Service_Menu_Col_2[]	String	Array of items to be show based on menu that was selected
Context_Menu_Items[]	String	Array of options for the context menu

Status

The results from the status section are updated every second to provide an accurate representation of the player's current state.

Outputs		
Signal	Type	Description
Can_Seek	String	Returns a value to indicate if the current stream allows for track position scrubbing
Image	String	The URL for the image of the current stream.
Title_1	String	The name of the song
Title_2	String	The name of the Album
Title_3	String	The Artist
Current_Time	String	Current time of the track in the following format "1:23"
End_Time	String	The total length of the track in the following format "1:23"
Analog_Track_Percent	Analog	A value between 0-100 to indicate the current position of the track
Analog_Volume	Analog	A value between 0-100 to indicate the current volume
Analog_Mode	Analog	A value between 1-3 to indicate the insert mode for adding tracks to the playlist.

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