



Manufacturer: Linn Products Limited  
 Model: DS  
 Device Type: Media Streamer

**CONTACT SUPPORT:**

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**GENERAL INFORMATION**

<b>SIMPLWINDOWS NAME:</b>	Linn_DS_Demo_MC3
<b>CATEGORY:</b>	Miscellaneous
<b>VERSION:</b>	4.1.67
<b>SUMMARY:</b>	<p>This driver has been designed to provide two-way control of Linn DS, DSM and pre-amplifier products, via TCP/IP. At the time of writing, the following models are supported: Klimax DS, Klimax DSM, KlimaxKontrol, Akurate DS, Akurate DSM, AkurateKontrol, Majik DS, Majik DS, Majik DS-I, MajikKontrol, Majik-I, Sneaky Music DS, Sneaky Music DSM, Sekrit DSM, Sekrit DS-I, Kinos, Kisto, RoomAmp2, Unidisk SC, Classik Movie, Classik Music.</p> <p>The package includes a demonstration file in smw format to aid with integration into a Crestron project. Additionally, touch panel designs have been created to mimic the Linn Kazoo application; these can be used for demonstration purposes, or directly integrated into your project.</p>
<b>GENERAL NOTES:</b>	
<b>CRESTRON HARDWARE REQUIRED:</b>	Crestron Processor (Minimum Series 3)
<b>SETUP OF CRESTRON HARDWARE:</b>	Crestron Processor on the network and to connect to the Linn Equipment
<b>VENDOR FIRMWARE:</b>	4.74



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<b>VENDOR SETUP:</b>	The Linn system should be installed and configured by a suitably qualified engineer, according to Linn documentation, prior to integration with this driver. Any subsequent changes to the configuration of the Linn system may require additional re-configuration of the Crestron modules. Note also that all authentication information required by online music services should be configured in the Linn system and tested to confirm their accuracy.
<b>CABLE DIAGRAM:</b>	<pre> graph LR     LP1[Linn Ds Product] --- Network((Network))     LP2[Linn Ds Product] --- Network     LP3[Linn Ds Product] --- Network     Network --- CP[Creston Processor]           </pre>

**Linn DS ControlBridge.umc**

The Control Bridge module handles the initial discovery of the Linn players and manages which player is controlled by which Control Point module. Only one instance of the Control Bridge module is required in your program and once the signals are connected, no further configuration is required. Note that the Control bridge module can handle a maximum of 50 Control Point modules, and discovery begins 30 seconds after the program has loaded.

<b>CONTROL:</b>		
TX	S	Signal FROM ControlPoint module
<b>FEEDBACK:</b>		
RX	S	Signal TO ControlPoint module



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**Linn\_DS ControlPoint.umc**

The Control point module handles all communication to and from the Linn players. One instance of the Control Point module is required for each Linn player in the system. As per the below example, each Control Point module must be linked with the Control Bridge module by connecting the ControlPoint\_TX inputs in the Bridge module with the ControlPoint\_TX output in each Control Point module. Additionally, the ControlPoint\_RX outputs in the Bridge module must be linked to the ControlPoint\_RX input in the Control Point modules.

<b>CONTROL:</b>		
<b><u>Signal Group: Comms</u></b>		
This group handles gateway communications.		
<b>ControlPoint_Rx</b>	S	Signal FROM Control Bridge module
<b><u>Signal Group: Select Linn</u></b>		
This group handles gateway selection		
<b>RoomSelect</b>	S	Selects a room to control by name. If the Room text is incorrect, or the module hasn't discovered the requested player, 'Notification_Subpage' will be pulsed with a notification message  If the selection fails, the module will remain on the previously selected Linn player
<b><u>Signal Group: Power</u></b>		
This group controls Linn standby features.		
<b>RoomOff</b>	D	Turns the current Linn device to Standby
<b>RoomOn</b>	D	Turns the current Linn device On
<b>HouseOff</b>	D	Turns all Linn devices to Standby
<b><u>Signal Group: Select Sources</u></b>		
This group is for control of the sources available for the currently selected Linn device. <b>Note:</b> It is important that sources that require login information are correctly configured. Failure to do so may lead to them being unavailable in to Crestron.		
<b>SourceSelect</b>	S	Selects a source. If the source text is incorrect or the Linn device hasn't discovered the source, 'Notification_Subpage' will be pulsed with a notification message  If the selection fails, the module will remain on the previous source



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SelectTidal	D	Selects Tidal to browse
SelectQuobus	D	Selects Quobus to browse
SelectTuneln	D	Selects Tuneln to browse
SelectUpnp	D	Selects Upnp to browse
SelectUpnpFavourite	D	Selects Upnp favourite to browse
SelectPlaylist	D	Selects a playlist to browse
SelectRadio	D	Selects Radio to browse

**Signal Group: Create Upnp Favourite**

This group allows a particular UPnP source to be designated as the favourite source.

Select_UPnP_1_As_Favourite to Select_UPnP_50_As_Favourite	D	Save A UPnP item as a favorite index by 'UPnP_1_Name to UPnP_50_Name'
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**Signal Group: Transports**

This group contains controls for the currently playing item.

PlayPause	D	Toggle between play and (pause/stop), depending on the source
Play	D	Begin playback
Pause	D	Pause playback
Stop	D	Stop playback
FastForward	D	Scan forwards
Rewind	D	Scan backwards
SkipForward	D	Skip forward to the next track
SkipBackward	D	Skip backward to the previous track
Favourite	D	Set current track to favourite (if the source allows this)
Shuffle	D	Randomise playback
Repeat	D	Repeat playback

**Signal Group: GroupVolume**

This group is responsible for management of group volume.



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<b>GroupVolumeUp</b>	D	Increases the group volume
<b>GroupVolumeDown</b>	D	Decreases the group volume
<b>GroupMuteOn</b>	D	Enables mute for the group
<b>GroupMuteOff</b>	D	Disables mute for the group
<b>GroupMuteToggle</b>	D	Enables or disables mute for the group

**Signal Group: DeviceVolume**

This group is responsible for management of the currently selected device volume.

<b>DeviceVolumeUp</b>	D	Increases the device volume
<b>DeviceVolumeDown</b>	D	Decreases the device volume
<b>DeviceMuteOn</b>	D	Enables device volume mute
<b>DeviceMuteOff</b>	D	Disables device volume mute
<b>DeviceMuteToggle</b>	D	Enables or disables device volume mute

**Signal Group: Multiroom Commands**

This signal group controls the addition and removal of devices to/from a group.

<b>AddToGroup</b>	D	Adds the 'Select_AvailableList_Item_[]' high signals to the current group
<b>RemoveFromGroup</b>	D	Removes the GroupList_[]_Selected high signals from the current group

**Signal Group: GroupList Select**

These signals are for management of devices in a group

<b>Select_GroupList_Item_1 to Select_GroupList_Item_50</b>	D	Selects devices for removal from the group (pulse to toggle between selected and deselected)
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**Signal Group: GroupList Volume**

This group is responsible for the independent volume management of grouped devices.

<b>GroupList_1_MuteToggle to GroupList_50_MuteToggle</b>	D	Enables or disables mute for a grouped device (pulse to select and deselect)
<b>GroupList_1_VolumeUp to GroupList_50_VolumeUp</b>	D	Increases the volume of a grouped device
<b>GroupList_1_VolumeDown to GroupList_50_VolumeDown</b>	D	Decreases the volume of a grouped device

**Signal Group: AvailableRoom Select**



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These signals are for management of devices not currently grouped.

Select_AvailableList_Item_1 to Select_AvailableList_Item_50	D	Select devices for addition to a group (pulse to toggle between selected and deselected)
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**Signal Group: Browse**  
 This group is concerned with browsing sources.

Browse_Back	D	Request data for the previous browse level in the hierarchy
Browse_ToRoot	D	Request data for the top browse level in the hierarchy
Browse_Main_Actions	D	'Action_ShowSubpage' will be set to high and 'Select_Action_Item_[x]' will be populated with available actions for the current browse list
Select_Browse_Item_1 to Select_Browse_Item_50	D	Selects an item in the browse list and performs its default action. Default action is usually Browse next level down or Play now
Get_Action_For_Browse_Item_1 to Get_Action_For_Browse_Item_50	D	'Action_ShowSubpage' will be set to high and 'Select_Action_Item_[x]' will be populated with available actions for the selected browse item

**Signal Group: Browse Pagination**  
 This group handles the pagination of browse lists containing more than 50 items.

Select_Browse_Pagination_Item_1 to Select_Browse_Pagination_Item_100	D	Request Browse items for that page.
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**Signal Group: PlayQueue**  
 This group is for management of the play queue

PlayQueue_Main_Actions	D	'Action_ShowSubpage' will be set to high and 'Select_Action_Item_[x]' will be populated with the available actions for PlayQueue list
Select_PlayQueue_Item_1 to Select_PlayQueue_Item_50	D	Selects an item in the PlayQueue list and performs its default action. Default action is usually Play now
Get_Action_For_PlayQueue_Item_1 to Get_Action_For_PlayQueue_Item_50	D	'Action_ShowSubpage' will be set to high and 'Select_Action_Item_[x]' will be populated with available action for PlayQueue item

**Signal Group: PlayQueue Pagination**  
 This group handles the pagination of the PlayQueue.

Select_PlayQueue_Pagination_Item_1 to Select_PlayQueue_Pagination_Item_20	D	Request browse items for that page.
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**Signal Group: Actions**  
 This group handles the available actions for the currently selected item (see *Actions* section below).

ActionCancel	D	Sets Action_ShowSubpage signal low
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Select_Action_Item_1 to Select_Action_Item_50	D	Perform action
<b>Signal Group: Text Entry</b>		
This group handles text inputs for actions into the module.		
TextEntry_String	S	Input String (MAX ENTRY of 255)
TextEntry_Ok	D	Performs action
TextEntry_Cancel	D	Sets signal 'TextEntry_Subpage' to low
<b>Signal Group: Notification</b>		
Handles information about the current state and user direction for the module.		
Notification_Ok	D	Closes notification subpage

<b>FEEDBACK:</b>		
<b>Signal Group: Comms</b>		
This group handles gateway communications.		
ControlPoint_Tx	S	Signal TO Control Bridge module
<b>Signal Group: Select Linn</b>		
This group handles gateway selection.		
LinnDevices_IsAvailable	D	Value is 0 if no Linn devices are discovered
Current_Linn_Device	S	Name of currently selected Linn player
DeviceList_NumberOfItems	A	The number of Linn devices that have been discovered
DEVICE_NAME_1 to DEVICE_NAME_50	S	String Array[50] list of discovered names (Note that only names that fall into the range of 'DeviceList_NumberOfItems' are valid)
<b>Signal Group: Power</b>		
This group controls Linn standby features.		
RoomsOn	D	Indicates if a Linn device is currently on
<b>Signal Group: Select Sources</b>		
This group is for control of the sources available for the currently selected Linn device.		



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SourceList_NumberOfItems	A	The number of Linn sources found for the current Linn device
Sources_IsAvailable	D	Value is 0 if no sources are discovered
CurrentSource	S	Name of the currently selected source
SelectTidalIsAvailable	D	Enable/disable the availability of Tidal
SelectQuobusIsAvailable	D	Enable/disable the availability of Quobus
SelectTuneInIsAvailable	D	Enable/disable the availability of TuneIn
SelectUpnPIsAvailable	D	Enable/disable the availability of UPnP
SelectUpnPavouriteIsAvailable	D	Enable/disable the availability of UPnP Favourite
SelectPlaylistIsAvailable	D	Enable/disable the availability of Playlist
SelectRadioIsAvailable	D	Enable/disable the availability of Radio

**Signal Group: Sources List**

This group details the available sources for the currently selected device.

SourceName1 to SourceName50	S	String Array[50] list of available sources for the current Linn device (note that only names that fall into the range of 'SourceList_NumberOfItems' are valid)
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**Signal Group: Create UPnP Favourite**

This group allows a particular UPnP source to be designated as the favourite source.

Current_Favourite_UPnP	S	Currently selected UPnP favourite
UPnPList_IsAvailable	D	Value is 0 if no UPnP devices are discovered
UPnP_NumberOfItems	A	The number of My Music sources for currently selected device
UPnP_1_Name to UPnP_50_Name	S	String Array[50] list of available My Music Sources for currently selected device. Note that only Names that fall into the range of 'UPnP_NumberOfItems' are valid.

**Signal Group: Transports**

This group contains controls for the currently playing item.

PlayPause_state	A	Feedback indicating which button should be displayed in screen footer (0=play, 1=pause, 2=stop)
Buffering	D	Indicates if playback is buffering





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Waiting	D	Indicates if playback is busy
Playing	D	Indicates if something is playing
Paused	D	Indicates if playback is paused
Stopped	D	Indicates if playback is stopped
FavouriteSelected	D	Indicates currently playing item is a favourite
Shuffled	D	Indicates if playback is shuffled
Repeating	D	Indicates if playback is set to repeat

**Signal Group: Transports Available Controls**

This group controls output signals used to indicate the availability of transport controls for the currently selected source.

PlayPauselsAvailable	D	Indicates the availability of Play/Pause for the selected source
PlaysAvailable	D	Indicates the availability of Play for the selected source
PauselsAvailable	D	Indicates the availability of Pause for the selected source
StopsAvailable	D	Indicates the availability of Stop for the selected source
SkipForwardIsAvailable	D	Indicates the availability of Skip Forward for the selected source
SkipBackwardIsAvailable	D	Indicates the availability of Skip Backward for the selected source
SkipTrackForwardIsAvailable	D	Indicates the availability of Skip Track Forward for the selected source
SkipTrackBackwardIsAvailable	D	Indicates the availability of Skip Track Backward for the selected source
ShuffleIsAvailable	D	Indicates the availability of Shuffle for the selected source
RepeatIsAvailable	D	Indicates the availability of Repeat for the selected source

**Signal Group: GroupVolume**

This group is responsible for management of group volume.

GroupCurrentVolume	A	Reports the current group volume level (0-100)
GroupMuteIsOn	D	Indicates if the group volume mute is on



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**Signal Group: DeviceVolume**

This group is responsible for management of the currently selected device volume.

<b>DeviceCurrentVolume</b>	A	Reports the current device volume level (0-100)
<b>DeviceMutelsOn</b>	D	Indicates if the device volume mute is on

**Signal Group: Now Playing**

This group handles Now Playing metadata.

<b>NowPlaying_IsFavouriteAvailable</b>	D	Indicates the availability of the Add to Favourites button
<b>NowPlaying_CoverArtIsAvailable</b>	D	Indicates the availability of cover art for the currently playing item
<b>NowPlaying_GoTo</b>	D	Suggested Page (go to now playing)
<b>NowPlaying_CoverArt</b>	S	Art Work for currently playing item
<b>NowPlaying_MetaData1 to NowPlaying_MetaData6</b>	S	The metadata fields for the currently playing item
<b>NowPlaying_MetaText1 to NowPlaying_MetaText6</b>	S	N/A
<b>NowPlaying_CurrentProgress</b>	A	Progress of the currently playing track (0-100)
<b>NowPlaying_Time</b>	A	Currently playing track total time
<b>NowPlaying_Duration</b>	A	Currently playing track current time

**Signal Group: Multiroom Commands**

This signal group controls the addition and removal of devices to/from a group.

<b>AddToGroupsAvailable</b>	D	Signal is high if any Select_AvailableList_Item_[] signals are currently high
<b>RemoveFromGroupsAvailable</b>	D	Signal is high if any GroupList_[]_Selected signals are currently high
<b>GroupingsIsEditable</b>	D	Signal is high if any Select_AvailableList_Item_[] signals or any GroupList_[]_Selected signals are currently high
<b>GroupingsIsLoading</b>	D	Signal is high while grouping is taking effect on the Linn unit

**Signal Group: GroupList\_Select**

These signals are for management of devices in a group

<b>GroupList_1_Selected to GroupList_50_Selected</b>	D	Feedback indicating devices to remove
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GroupList_NumberOfItems	A	The number of devices in the group
GroupList_1_Name to GroupList_50_Name	S	A string array, containing the names of the devices in the group (note that only names that fall into the range of 'GroupList_NumberOfItems' are valid)

**Signal Group: GroupList Volume**

This group is responsible for the independent volume management of grouped devices.

GroupList_1_CurrentVolume to GroupList_50_CurrentVolume	A	The current volume level of a grouped device
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**Signal Group: AvailableRoom Select**

These signals are for management of devices not currently grouped.

AvailableList_1_Selected to AvailableList_50_Selected	D	Feedback indicating devices to add
AvailableRoomList_IsAvailable	D	Value is 0 if no rooms are available
AvailableList_NumberOfItems	A	The number of devices not currently grouped
AvailableList_1_Name to AvailableList_50_Name	S	A string array, containing the names of the devices available for grouping (note that only names that fall into the range of 'GroupList_NumberOfItems' are valid)

**Signal Group: Browse**

This group is concerned with browsing sources.

Browse_Back_IsAvailable	D	Signal is high when the current browse list is not the top level in the hierarchy
Browse_ToRoot_IsAvailable	D	Signal is high when the current browse list is one set from the top level in the hierarchy
Browse_Main_Actions_IsAvailable	D	Signal is high when there are actions available for the current browse list
Browse_GoToIndex	A	Controls list position
Source_Has_Browse	D	Signal is high when the currently selected source can be browsed
MediaList_Title	S	Text header of current browse level
Browse_NumberOfItems	A	The number of items in the current browse list
Browse_Item_1Title to Browse_Item_200Title	S	Main text for browse entries*



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Browse_Item_1Subtitle to Browse_Item_50Subtitle	S	Main subtext for browse entries*
Browse_Item_1CoverArt to Browse_Item_50CoverArt	S	Art work for browse entries*
Browse_Item_1MoreActionIsAvailable to Browse_Item_50MoreActionIsAvailable	D	Signal is high when there are actions available for the current browse item
Browse_Item_1CoverArtsAvailable to Browse_Item_50CoverArtsAvailable	D	Signal is high when there is a cover art URL available for the current browse item

**Signal Group: Browse Pagination**

This group handles the pagination of browse lists containing more than 50 items.

Browse_Pagination_IsAvailable	D	Signal is high when there are more than 50 entries for the current browse list
Browse_Pagination_NumberOfItems	A	The number of pages
Browse_Pagination_Item_Selected	A	The number of the selected page
Browse_Pagination_Item_1_Text to Browse_Pagination_Item_1000_Text	S	The page names

**Signal Group: PlayQueue**

This group is for management of the play queue

PlayQueue_GoToIndex	A	Controls list position
PlayQueue_NumberOfItems	A	Number of PlayQueue items on the current Page
Show_PlayQueue	D	Signal is high when there are one or more items in the PlayQueue
Queue_Main_Actions_IsAvailable	D	Signal is high when there are actions available for the PlayQueue
PlayQueue_Item_1_MetaText1 to PlayQueue_Item_50_MetaText1	S	Main Text for PlayQueue items*
PlayQueue_Item_1_MetaText2 to PlayQueue_Item_50_MetaText2	S	Main Subtext for PlayQueue items*
PlayQueue_Item_1_MetaText3 to PlayQueue_Item_50_MetaText3	S	Main Subtext for PlayQueue items*
PlayQueue_Item_1_CoverArt to PlayQueue_Item_50_CoverArt	S	Art Work for PlayQueue items
PlayQueue_Item_1_CoverArtsAvailable to PlayQueue_Item_50_CoverArtsAvailable	D	Signal is high when there is a cover art URL available for the current PlayQueue item
PlayQueue_Item_1_Selected to PlayQueue_Item_50_Selected	A	Signal is high when a PlayQueue item is playing or waiting to be played



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PlayQueue_Item_1_MoreActionsIsAvailable to PlayQueue_Item_50_MoreActionsIsAvailable	D	Signal is high when there are actions for the current PlayQueue item
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**Signal Group: PlayQueue Pagination**

This group handles the pagination of the PlayQueue.

Queue_Pagination_IsAvailable	D	Signal is high when there are more than 50 entries for the current PlayQueue
PlayQueue_Pagination_NumberOfItems	A	The number of pages
PlayQueue_Pagination_Item_Selected	A	The number of the selected page
PlayQueue_Pagination_Item_1_Text to PlayQueue_Pagination_Item_20_Text	S	The page names

**Signal Group: Actions**

This group handles the available actions for the currently selected item (see *Actions* section below).

Action_ShowSubpage	D	High subpage appears, low subpage disappears
Actions_NumberOfItems	A	Number of available actions
Select_Action_Item_1 to Select_Action_Item_50	S	Action names

**Signal Group: Text Entry**

This group handles text inputs for actions into the module.

TextEntry_Title	S	Selected action name
TextEntry_Text	S	"n/a"
TextEntry_Button	S	Text of action (Search, Save or Ok)
TextEntry_Subpage	D	High subpage appears, low subpage disappears

**Signal Group: Notification**

Handles information about the current state and user direction for the module.

Notification_Title	S	Title of notification
Notification_Text	S	Text of notification
Notification_Subpage	D	High subpage appears, low subpage disappears

**Signal Group: Loading**

Handles loading information.

Loading_ShowSubpage	D	Signal is high when driver is loading entries
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**PARAMETERS: (anything needed to be assigned inside program)**

GATEWAY IP	S	The IP address of the device
GATEWAY PORT	S	The port number used to communicate with the device
LINN DEVICE	S	The name of the device
LOCALE	S	The preferred language for the device

**TESTING:**

OPS USED FOR TESTING:	Windows OS: Windows 10 Home (6.3)
SIMPL WINDOWS USED FOR TESTING:	SIMPL Windows: 4.11.05 SIMPL+ 4.04.01
DEVICE DB USED FOR TESTING:	Device Database: 101.05.001.00
CRES DB USED FOR TESTING:	Crestron Database(86)\Crestron\Cresdb\cnctrlldb22000.mdb) : 73.02.001.00
SYMBOL LIBRARY USED FOR TESTING:	Symlib2.Tio 1081
SAMPLE PROGRAM:	Linn_DS_Demo_MC3
REVISION HISTORY:	4.1.67 added Code to Control Linn Kustom Models