

# Crestron Interface Specification

for the

## Bosch PLENA PLM-8M8 DSP Matrix Mixer

V1.00



## Introduction

These Crestron SIMPL+ modules provide a control and monitoring interface between a Crestron controller and a Bosch Plena PLM-8M8 DSP Matrix Mixer.

The main module “PLENA PLM-8M8” handles the communications between the Crestron controller and the mixer; as well as providing the global symbol inputs and outputs for controlling and monitoring the main functions such as power, global mutes and preset activation.

The sub-module “PLENA PLM-8M8 Zone” communicates to the main module and provides the symbol inputs and outputs for controlling an individual zone. Up to 8 of these sub-modules can be connected to each main module.

The sub-module “PLENA Amplifier Level to dB” converts an analogue level to a string dB value.

## A Few Notes of Caution

The Bosch application “PLM-8M8”, which is used to configure the matrix mixer, utilises the signal monitoring features of the protocol to display a real time level of each of the inputs and outputs. These monitoring packets are transmitted via UDP broadcasts and, as such, will be received and decoded by the main module. If multiple instances of the application are running on the LAN and connected to different mixers, the amount of broadcasted traffic may swamp the module and cause the Crestron system to become slow and unresponsive.

## Module PLENA PLM-8M8

<i><b>Signal name and type</b></i>	<i><b>Description</b></i>
Digital input: <Enable>	Enables / disables the communications to the mixer..  High/1 = Enabled; Low/0 = Disabled
Digital input: <Clock>	Connect to a 100ms oscillator.
Digital input: <Refresh>	Refreshes the data from the mixer.  High/1 (rising edge) = Issue Refresh; Low/0 = No Effect
Digital input: <PowerOn> Digital input: <PowerOff> Digital input: <PowerToggle>	Sets / Resets / Toggles the power state of the mixer.  High/1 (rising edge) = Set power state; Low/0 = No Effect
Digital input: <GlobalMuteOn> Digital input <GlobalMuteOff> Digital input <GlobalMuteToggle>	Sets / Resets / Toggles the global (all zones) mute state.  High/1 (rising edge) = Set mute state; Low/0 = No Effect;
Digital input: <PresetX>	Trigger Preset 'X'.  High/1 (rising edge) = Trigger Preset; Low/0 = No Effect;
String input: <IPAddr>	Specifies the IP address of the mixer. This signal should be fed from a "Serial Send" or similar symbol.
String input: <TxSubModules>	String inputs from zone sub-modules. The use of sub-modules allow the control of individual zone controls such as input mix levels.
Digital output: <Online>	Indicates that the module is communicating with the mixer.

Digital output: <PowerFB>	Indicates that the mixer is currently in operational mode.
Digital output: <GlobalMuteFB>	Indicates that the Global mute is in effect.
Digital output: <PresetXValid>	Indicates that Preset X has been stored and is valid.
String output: <MixerName>	Indicates the Name of the mixer.
Analog output: <AppStatusFB>	Indicates the mixer's operational status. Valid values are :- 0 – Normal Mode 1 – Standby Mode 2 - Playing Global Alert Tones 3 – Playing Global Evac Tones 4 – Override Mode
String output: <RxSubModules>	The string output to the various sub modules.
String output: <MicLineXName>	Indicates the name of mic/line input 'X'.
String output: <BGMXName>	Indicates the name of background music input 'X'.
String output: <ZoneXName>	Indicates the name of zone output 'X'.
String output: <PresetXName>	Indicates the name of Preset 'X'.
Integer parameter: <PollTime>	The number of clock "ticks" between polling the status of the mixer. This number should be kept as small as possible without overloading the controller, A value of 0 will disable the polling in which case the 'Refresh' input must be pulsed to poll the mixer.

## Sub-Module PLENA PLM-8M8 Zone

<i><b>Signal name and type</b></i>	<i><b>Description</b></i>
Digital input: <MicLineXMuteOn> Digital input: <MicLineXMuteOff> Digital input: <MicLineXMuteToggle>	Sets / Resets / Toggles the mic/line input 'X' mix mute state for the zone.  High/1 (rising edge) = Set mute state; Low/0 = No Effect;
Digital input: <BGMMuteOn> Digital input: <BGMMuteOff> Digital input: <BGMMuteToggle>	Sets / Resets / Toggles the background music input mix mute state for the zone.  High/1 (rising edge) = Set mute state; Low/0 = No Effect;
Digital input: <PagingMuteOn> Digital input: <PagingMuteOff> Digital input: <PagingMuteToggle>	Sets / Resets / Toggles paging input mix mute state for the zone.  High/1 (rising edge) = Set mute state; Low/0 = No Effect;
Digital input: <MasterMuteOn> Digital input: <MasterMuteOff> Digital input: <MasterMuteToggle>	Sets / Resets / Toggles the master zone output mute state.  High/1 (rising edge) = Set mute state; Low/0 = No Effect;
String input: <RxMixer>	Input string to receive feedback strings from the main mixer module.
Analog input: <MicLineXLevel>	Sets the tapered mic/line 'X' input mix level for the zone.  0 (-100dB) to 65535 (+10dB)
Analog input: <BGMLLevel>	Sets the tapered background music input mix level.  0 (-100dB) to 65535 (+10dB)
Analog input: <PagingLevel>	Sets the tapered paging input mix level for the zone.  0 (-100dB) to 65535 (+10dB)
Analog input: <MasterLevel>	Sets the tapered master zone output level.

	0 (-100dB) to 65535 (+10dB)
Analog input: <BGMSelectI>	Selects the background music input for the zone.  0 – No music, 1 to 3 - BGM Input 1 - 3
Digital output: <MicLineXMuteFB>	Indicates the mix mute status for mic/line input 'X'.
Digital output: <BGMMuteFB>	Indicates the mix mute status for the background music input.
Digital output: <PagingXMuteFB>	Indicates the mix mute status for the paging input.
Digital output: <MasterMuteFB>	Indicates the master output mute status.
String output : <TxMixer>	Output string to pass commands to the main mixer module.
Analog output: <MicLineXLevelFB>	Indicates the tapered mic/line input 'X' mix level for the zone.  0 (-100dB) to 65535 (+10dB).
Analog output: <BGMLevelFB>	Indicates the tapered background music input mix level for the zone.  0 (-100dB) to 65535 (+10dB).
Analog output: <PagingLevelFB>	Indicates the tapered paging input mix level for the zone.  0 (-100dB) to 65535 (+10dB).
Analog output: <MasterLevelFB>	Indicates the tapered master mix output level.  0 (-100dB) to 65535 (+10dB).
Analog output: <BGMSelectFB>	Indicates current background music input selected for the zone. Refer to BGM Select for valid values.

Integer parameter: <Zone>	Defines the zone output number for the sub-module.
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### Sub-Module PLENA Amplifier Level to dB

<i>Signal name and type</i>	<i>Description</i>
Analog input: <Level>	Tapered fader level 0 (-100dB) to 65535 (+10dB)
String output: <dB>	dB output string for Level