Partner: Lectrosonics, Inc.
Model: ASPEN SPN1624
Device Type: Audio Matrix Mixer

GENERAL INFORMATION

SIMPLWINDOWS NAME:	ASPEN SPN1624 Output Control v1.0
CATEGORY:	Mixer
VERSION:	1.0
SUMMARY:	This module controls all Output based serial communication for the ASPEN SPN1624
GENERAL NOTES:	This module allows control of Rear-Panel Output-Gain (Attenuation) and muting. Set the gain structure for the room utilizing the Input Gain, Crosspoint Gain (Matrix) and Output Gain. Set input gains so the meter shows about 0db when someone is talking (or performing) at normal level. Cross point gain is usually at 0 db – it may be lower if the system is set up for "mix-minus". Output gain is usually set at 0db. Tweak the gain of the room (at the amplifier, not at the mixer!) to the highest required level (no feedback or ringing please)– this would be the level you would need when the room is most crowded. Now, In the Rear Panel Gain Control tab, set the Rear Panel Output Gain Controls of each output to a comfortable listening level, perhaps, -6dB or -9dB. Once this is accomplished, give control of the Rear Panel Output Gain, in this module, to the end- user. This will ensure that the system cannot be driven into feedback; the gain structure is completely isolated from the end-user, yet, they still have full control of the audio level. This module controls the Rear Panel Output Gain of 24 channels in steps of -6dB to +6dB with respect to the current level of the Rp output gain. The channels can be controlled independently, all simultaneously, or in any selected group. Furthermore, as an example, a channel could be set to 2dB steps and another channel could be set to -2dB steps which essentially set a cross fade when the volume is incremented or decremented. Setting a Rear Panel Output Gain step to 0 will leave the channel's current gain level unaffected. All Rear Panel Output Gain steps (rpoutgn-step-value) are Crestron analog inputs and can be changed dynamically on-the-fly during runtime. Available control includes Volume Up/Dn, Mute On/Off/Momentary/Toggle, Mute Button Feedback, individual Output Mute Feedback, individual analog Output Step values from -6dB to +6dB, analog feedback for each output in percent and dB formats and OK/ERROR Feedback status. The module is completely event-driven which eliminates the need for polling. Verbose commands control the ASPEN device and elicit feedback simultaneously. A complimentary module called SPN1624 Output Selector is available to further simplify direct channel selection from a touch panel with feedback and field based RpGain entry. This module is contained in the Aspen series control v1.0 sample program. PROCESS: 1. INITIALIZE THE RPGAIN ANALOG LINES WITH A VALUE FOR THE DESIRED STEP IN dB BETWEEN -6 TO 6. (A VALUE OF 0 WILL LEAVE THE CHANNEL UNAFFECTED). 2. A PULSE OF Vol_Up OR Vol_Dn WILL UPDATE FEEDBACK. No Polling. 3. ONLY CHANNELS WITH RPGAIN VALUES OTHER THAN 0 WILL BE AFFECTED BY Vol_Up, Vol_Dn and Mutes. Vol_Up and Vol_Dn will clear muted states.

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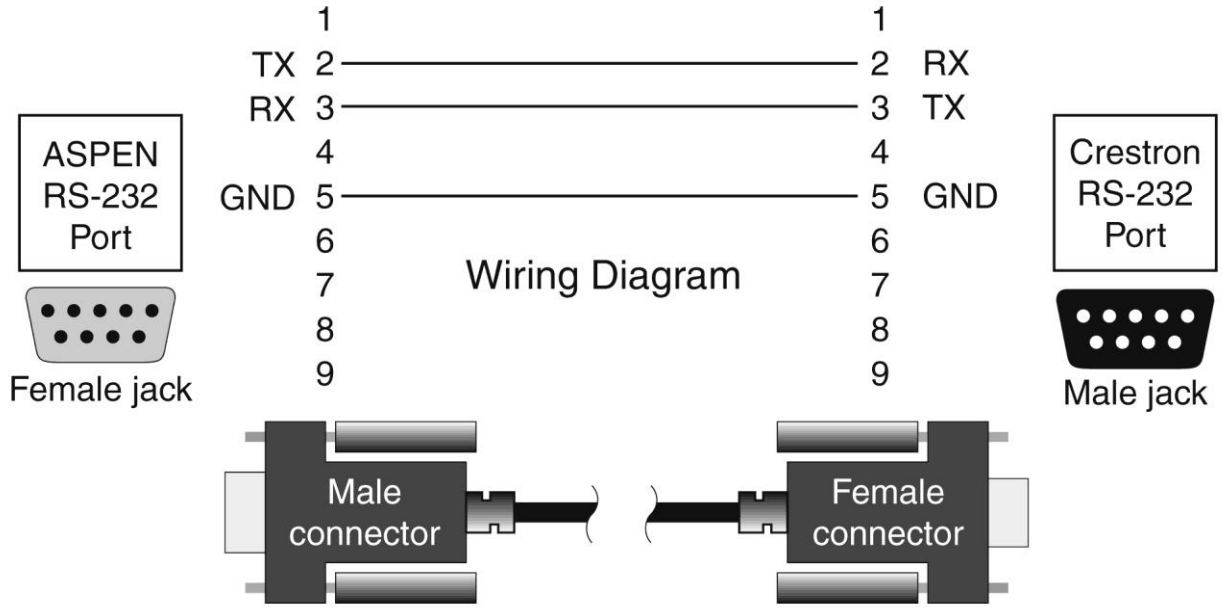
CRESTRON HARDWARE REQUIRED:	ST-COM, C2-COM
SETUP OF CRESTRON HARDWARE:	RS232 Baud: 57600, Parity: N, Data Bits: 8, Stop Bits: 1
VENDOR FIRMWARE:	Version 1.1.5
VENDOR SETUP:	RS232 Baud: 57600, Parity: N, Data Bits: 8, Stop Bits: 1 (DEFAULT Settings)
CABLE DIAGRAM:	ASPEN device to Crestron control system



CONTROL:

Vol_Up	D	Pulse will increment each output by the specified value in rpoutgn-step-value. A value of 0 in rpoutgn-step-value will leave that output unaffected. If held high, Vol_Up will auto-increment after a timeout of 2 seconds.
Vol _Dn	D	Pulse will decrement each output by the specified value in rpoutgn-step-value. A value of 0 in rpoutgn-step-value will leave that output unaffected. If held high, Vol_Dn will auto-decrement after a timeout of 2 seconds.
Mute_Toggle	D	Pulse will toggle the current mute-state of all outputs with rpoutgn-step-values greater or less than 0.
Mute_On	D	Pulse will set the current mute-state of all outputs with rpoutgn-step-values greater or less than 0.

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Mute_Off	D	Pulse will clear the current mute-state of all outputs with rpoutgn-step-values greater or less than 0.
Mute_Momentary	D	High to set the current mute-state of all outputs with rpingn-step-values greater or less than 0.
rpoutgn-step-value 1-24	A	Analog signal for each of the 24 output channels sets the step in dB (-6d to 6d). Each press of the Vol_Up/Dn will change the current Rear Panel Gain output by the specified step amount. A value of 0 will leave the output unaffected.
from_aspen$	S	Serial signal to be routed from an RS232 2-way COM port.

FEEDBACK:

Mute_Button_FB	D	High to indicate an enabled mute of any output.
Vol_Lvl_percent_1-24	A	Analog value (0 to 100) for each output.
Vol_Lvl_dB_1-24	A	Analog value (-61 to 0) for each output.
Mute_FB_1-24	D	High to indicate an enabled mute of each output.
Rcvd_OK	D	Pulse to indicate successful communication with ASPEN device.
Rcvd_ERROR	D	Pulse to indicate Unsuccessful communication with ASPEN device.
To_aspen$	S	Serial signal to be routed to an RS232 2-way COM port.
Device	S	REQUIRED – Master unit will be Device ID 1. Each successive device in the chain will increment by 1.

TESTING:

OPS USED FOR TESTING:	4.001.1012
SIMPL WINDOWS USED FOR TESTING:	2.12.30
CRES DB USED FOR TESTING:	22.00.012.00
DEVICE DATABASE:	28.05.004.00
SYMBOL LIBRARY USED FOR TESTING:	669
SAMPLE PROGRAM:	ASPEN series control v1.0

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REVISION HISTORY:	Version 1.0

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