SMALL AV RACK GUIDE

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ISCT - AVDE

Table of Contents

Equipment List

Crestron DMPS: DMPS3-4K-350-C

Crestron DSP: DSP-860

Crestron AMP: AMP-2100

Crestron AirMedia: AM-200

Crestron Touch Panel: TSW-760

Crestron Scaler: DM-RMC-4K-SCALER-C

Crestron 5 Port PoE Swtch: CEN-SW-POE-5

Shure Mic Receivers: ULXD4 (H50), BLX4R (H9)

BIC Speakers: DV62si

Sony Blu Ray Player: BDPS3700

Connections

*NOTE: If AirMedia is connected to PoE do not use power supply

DMPS

Digital Media

DM Output 3 → Scaler DM IN

LAN

LAN → 5 Port PoE

HDMI

HDMI 1 ← User

HDMI 2 ← Blu Ray Player

HDMI 3 ← Air Media

Aux

Aux Out 1 → **DSP** Mic/Line Input 1+2

Aud In 1 ← User

Mic 1 ← ULXD4 Mic Receiver

Mic 2 ← BLX4R Mic Receiver

IR

IR 1 → TV

DSP

Line Outputs

1+2 → **AMP** Audio In 1+2

AMP

Speaker Out

Left -> Right Speaker

Right -> Left Speaker

Switch

Touch Panel

AirMedia LAN PoE

DMPS LAN

DSP LAN

Service Cable for maintenance

IP Settings

192.168.0.5 – Touch Panel

192.168.0.10 – DSP

192.168.0.20 – DMPS

192.168.0.25 – Air Media

DHCP – Scaler

VTPro Signals

Welcome

1. Press to start your class

Home

1. Program volume gauge

3. Pause class

4. Program volume mute

5. Lower program volume

6. Raise program volume

16. HDMI

17. Blu-Ray

18. AirMedia

19. Source audio

20. Audio cable

21. TV power

Blu-Ray

1. Direction pad

2. Keypad

29. Power

30. Eject

31. Rewind

32. Stop

33. Play

34. Fast Forward

35. Back

36. Skip back

37. Pause

38. Skip Forward

Microphone

2. Master microphone volume gauge

3. Microphone 1 volume gauge

4. Microphone 4 volume gauge

7. Master microphone mute

8. Lower master microphone volume

9. Raise master microphone volume

10. Microphone 1 mute

11. Lower microphone 1 volume

12. Raise microphone 1 volume

13. Microphone 2 mute

14. Lower microphone 2 volume

15. Raise microphone 2 volume

Password

1. Password display

4. Password keypad

DSP

22. Page visibility join

DSP 2

No Signals

Exit Confirmation

2. End Class

SIMPL Signals

Central Control Modules

Slot-02 IR Outputs

Port-01: IR Device

1 -> **[enable]**

tv_pwr -> **Power**

IP-ID-03: TSW-760

Found in Central Control Modules → Slot-07

(Signal Number). (Signal)

Touch Panel Inputs

Digital

2. tp_class_end_fb
3. src_paused
4. src_muted
7. src_mic_muted
10. src_mic1_muted
13. src_mic2_muted
16. src_hdmi
17. src_bluray
18. src_dcam
19. src_program
20. src_aux
22. pass_correct
23. timeout_true
28. src_bluray
29. bluray_on_fb

Analog

1. src_scaled
2. src_mic_scaled
3. src_mic1_scaled

4. src_mic2_scaled

Serial

1. tp_pass_text

Touch Panel Outputs

Digital

1. tp_class_start
2. tp_class_end
3. tp_class_pause
4. tp_src_mute
5. tp_src-
6. tp_src+
7. tp_mic_mute
8. tp_mic-
9. tp_mic+
10. tp_mic1_mute
11. tp_mic1-
12. tp_mic1+
13. tp_mic2_mute
14. tp_mic2-
15. tp_mic2+
16. tp_hdmi
17. tp_bluray
18. tp_dcam
19. tp_program
20. tp_aux
21. tp_tv_pwr
29. tp_bluray_pwr
30. tp_bluray_eject
31. tp_bluray_rew
32. tp_bluray_stop
33. tp_bluray_play
34. tp_bluray_ffw
35. tp_bluray_exit
36. tp_bluray_skipback
37. tp_bluray_pause
38. tp_bluray_skipfwd
39. tp_bluray_media_top

40. tp_menu_contents
41. tp_menu_root
42. tp_menu_setup

Touch Panel Objects

Slot-01: TSW-760 Buttons

Currently has no signals, allows you to use side buttons

IP-ID-03.2 DPad

Up – tp_bluray_up

Down – tp_bluray_down

Left – tp_bluray_left

Right – tp_bluray_right

Center – tp_bluray_select

IP-ID-03.3 Simple Keypad

1 – tp_bluray_1

2 – tp_bluray_2

3 – tp_bluray_3

4 – tp_bluray_4

5 – tp_bluray_5

6 – tp_bluray_6

7 – tp_bluray_7

8 – tp_bluray_8

9 – tp_bluray_9

0 – tp_bluray_0

Misc_1 – tp_bluray_numpad_clear

Misc_2 – tp_bluray_numpad_enter

IP-ID-03.4 860

DSP signals automatically handled by Crestron

IP-ID-0.35 Simple Keypad

1 – tp_pass_1

2 – tp_pass_2

3 – tp_pass_3

4 – tp_pass_4

5 – tp_pass_5

6 – tp_pass_6

7 – tp_pass_7

8 – tp_pass_8

9 – tp_pass_9

0 – tp_pass_0

Misc_1 – tp_pass_clear

Misc_2 – tp_pass_enter

IP-ID-04: DSP-860

DSP signals automatically handled by Crestron

Slot-02: AV Control

Found in Central Control Modules → Slot-11: DMPS3 Control

src_audio → Audio_Source_Aux1

src_video → Video_Source_DM3

src_dm_audio → Audio_Source_DM3

Logic

Passing variable value to symbol field

Symbol → Field

Setting variable value from symbol output

Symbol ← Field

S-1: Constants

S-1.1 Analog Initialize

src_dm_audio = 2d

S-2: Source Selection

S-2.1 Audio Selection

S-2.1.1 Source

S-2.1.1.1: Toggle

src_program_reset → **[reset]**

tp_program → **clock**

src_program ← **out**

S-2.1.1.2: OR

tp_aux → **i1**

tp_class_start → **i2**

tp_class_end → **i3**

timeout_true → **i4**

src_program_reset ← **out**

S-2.1.2 Aux

S-2.1.2.1: Toggle

src_aux_reset → **[reset]**

tp_aux → **clock**

src_aux ← **out**

S-2.1.2.2: OR

tp_program → **i1**

tp_class_start → **i2**

tp_class_end → **i3**

timeout_true → **i4**

src_aux_reset ← **out**

S-2.2 Video Selection

S-2.2.1 HDMI

S-2.2.1.1: Toggle

src_hdmi_reset → **[reset]**

tp_hdmi → **clock**

src_hdmi ← **out**

S-2.2.1.2: OR

tp_bluray → **i1**

tp_dcam → **i2**

tp_class_start → **i3**

tp_class_end → **i4**

timeout_true → **i5**

src_hdmi_reset ← **out**

S-2.2.2 Blu-Ray

S-2.2.2.1: Toggle

src_bluray_reset → **[reset]**

tp_bluray → **clock**

src_bluray ← **out**

S-2.2.2.2: OR

tp_hdmi → **i1**

tp_dcam → **i2**

tp_class_start → **i3**

tp_class_end → **i4**

timeout_true → **i5**

src_bluray_reset ← **out**

S-2.2.3 Doc Cam

S-2.2.3.1: Toggle

src_dcam_reset → **[reset]**

tp_dcam → **clock**

src_dcam← **out**

S-2.2.3.2: OR

tp_hdmi → **i1**

tp_bluray → **i2**

tp_class_start → **i3**

tp_class_end → **i4**

timeout_true → **i5**

src_dcam_reset ← **out**

S-2.3 Source Calculation

src_change → **src_change**

src_hdmi → **hdmi**

src_bluray → **bluray**

src_dcam → **dcam**

src_aux → **aux**

src_program → **program**

src_video ← **video**

src_audio ← **audio**

S-2.4: OR

tp_aux → **i1**

tp_program → **i2**

tp_hdmi → **i3**

tp_bluray → **i4**

tp_dcam → **i5**

tp_class_start → **i6**

tp_class_end → **i7**

timeout_true → **i8**

src_change ← **out**

S-3: Blank Screen

S-3.1: Toggle

src_pause_set → **[set]**

src_pause_reset → **[reset]**

tp_pause → **clock**

src_paused → **out**

S-3.2: NOT

src_paused → **i1**

src_unpaused → **out**

S-3.3: OR

tp_class_start → **i1**

src_paise_reset → **out**

S-3.4: OR

tp_class_end → **i1**

src_pause_set → **out**

S-4: Program Volume

S-4.1 Mute

S-4.1.1: Toggle

src_mute_set → **[set]**

src_mute_reset → **[reset]**

tp_src_mute → **clock**

src_mute ← **out**

S-4.1.2: NOT

src_muted → **i1**

src_unmuted ← **out**

S-4.1.3: AND

tp_pause → **i1**

src_unpaused → **i2**

src_pause_mute_reset ← **out**

S-4.1.4: AND

tp_pause → **i1**

src_paused → **i2**

src_pause_mute_set ← **out**

S-4.1.5: OR

tp_src- → **i1**

tp_src+ → **i2**

src_pause_mute_reset → **i3**

tp_class_start → **i4**

src_mute_reset ← **out**

S-4.1.6: OR

tp_class_end → **i1**

timeout_true → **i2**

src_pause_mute_set → **i3**

src_mute_set ← **out**

S-4.2 Level

S-4.2.1 Analog Ramp

tp_src+ → **up**

tp_src- → **down**

src_muted → **[mute]**

src_ramp ← **aout**

ramp_time: 2.0s

S-4.2.2 Analog Scaler with I/O Limits

src_ramp → **ain1**

src_scaled ← **aout**

InputLowerLimit: 0d

InputUpperLimit: 65535d

OutputLowerLimit: 0d

OutputUpperLimit: 100d

Format: 0d

S-4.2.3 Analog Scaler with I/O Limits

src_scaled → **ain1**

src_level ← **aout**

InputLowerLimit: 0d

InputUpperLimit: 100d

InputLowerLimit: -800d

InputUpperLimit: 100d

Format: 0d

S-5: Microphones

S-5.1 Master

S-5.1.1 Mute

S-5.1.1.1: Toggle

src_mic_mute_set → **[set]**

src_mic_mute_reset → [**reset]**

tp_mic_mute → **clock**

src_mic_muted ← **out**

S-5.1.1.2: OR

tp_mic+ → **i1**

tp_mic- → **i2**

tp_class_start → **i3**

src_mic_mute_reset ← **out**

S-5.1.1.3: OR

tp_class_end → **i1**

timeout_true → **i2**

src_mic_mute_set ← **out**

S-5.1.1.4: NOT

src_mic_muted → **i1**

src_mic_unmuted ← **out**

S-5.1.2 Level

S-5.1.2.1: Analog Ramp

tp_mic+ → **up**

tp_mic- → **down**

src_mic_muted → **[mute]**

src_mic_ramp ← **aout**

ramp_time: 2.0s

S-5.1.2.2: Analog Scaler with I/O Limits

src_mic_ramp → **ain1**

src_mic_scaled ← **aout1**

InputLowerLimit: 0d

InputUpperLimit: 65535d

OutputLowerLimit: 0d

OutputUpperLimit: 100d

Format: 0d

S-5.1.2.3: Analog Scaler with I/O Limits

src_mic_scaled → **ain1**

src_mic_level → **aout1**

InputLowerLimit: 0d

InputUpperLimit 100d

OutputLowerLimit: -800d

OutputUpperLimit: 100d

Format: 0d

S-5.2 Mic 1

S-5.2.1 Mute

S-5.2.1.1: Toggle

src_mic1_mute_set → **[set]**

src_mic1_mute_reset → [**reset]**

tp_mic1_mute → **clock**

src_mic1_muted ← **out**

S-5.2.1.2: OR

tp_mic1+ → **i1**

tp_mic1- → **i2**

tp_class_start → **i3**

src_mic1_mute_reset ← **out**

S-5.2.1.3: OR

tp_class_end → **i1**

timeout_true → **i2**

src_mic1_mute_set ← **out**

S-5.2.1.4: NOT

src_mic1_muted → **i1**

src_mic1_unmuted ← **out**

S-5.2.2 Level

S-5.2.2.1: Analog Ramp

tp_mic1+ → **up**

tp_mic1- → **down**

src_mic1_muted → **[mute]**

src_mic1_ramp ← **aout**

ramp_time: 2.0s

S-5.2.2.2: Analog Scaler with I/O Limits

src_mic1_ramp → **ain1**

src_mic1_scaled ← **aout1**

InputLowerLimit: 0d

InputUpperLimit: 65535d

OutputLowerLimit: 0d

OutputUpperLimit: 100d

Format: 0d

S-5.2.2.3: Analog Scaler with I/O Limits

src_mic1_scaled → **ain1**

src_mic1_level → **aout1**

InputLowerLimit: 0d

InputUpperLimit 100d

OutputLowerLimit: -800d

OutputUpperLimit: 100d

Format: 0d

S-5.3 Mic 2

S-5.3.1 Mute

S-5.3.1.1: Toggle

src_mic2_mute_set → **[set]**

src_mic2_mute_reset → [**reset]**

tp_mic2_mute → **clock**

src_mic2_muted ← **out**

S-5.3.1.2: OR

tp_mic2+ → **i1**

tp_mic2- → **i2**

tp_class_start → **i3**

src_mic2_mute_reset ← **out**

S-5.3.1.3: OR

tp_class_end → **i1**

timeout_true → **i2**

src_mic2_mute_set ← **out**

S-5.3.1.4: NOT

src_mic2_muted → **i1**

src_mic2_unmuted ← **out**

S-5.3.2 Level

S-5.3.2.1: Analog Ramp

tp_mic2+ → **up**

tp_mic2- → **down**

src_mic2_muted → **[mute]**

src_mic2_ramp ← **aout**

ramp_time: 2.0s

S-5.3.2.2: Analog Scaler with I/O Limits

src_mic2_ramp → **ain1**

src_mic2_scaled ← **aout1**

InputLowerLimit: 0d

InputUpperLimit: 65535d

OutputLowerLimit: 0d

OutputUpperLimit: 100d

Format: 0d

S-5.3.2.3: Analog Scaler with I/O Limits

src_mic2_scaled → **ain1**

src_mic2_level → **aout1**

InputLowerLimit: 0d

InputUpperLimit 100d

OutputLowerLimit: -800d

OutputUpperLimit: 100d

Format: 0d

S-6: Startup Volume

S-6.1 Program Volume

S-6.1.1: Analog Initialize

startup_src → **35000d** → src_ramp

S-6.1.2: AND

tp_class_start → **i1**

src_unmuted → **i2**

startup_src ← **out**

S-6.2 Microphones

S-6.2.1 Master

S-6.2.1.1: Analog Initialize

startup_mic → **60000d** → src_mic_ramp

S-6.2.1.2: AND

tp_class_start → **i1**

src_mic_unmuted → **i2**

startup_mic ← **out**

S-6.2.2 Mic 1

S-6.2.2.1: Analog Initialize

startup_mic1 → **50000d** → src_mic1_ramp

S-6.2.2.2: AND

tp_class_start → **i1**

src_mic1_unmuted → **i2**

startup_mic1 ← **out**

S-6.2.3 Mic 2

S-6.2.3.1: Analog Initialize

startup_mic2 → **50000d** → src_mic2_ramp

S-6.2.3.2: AND

tp_class_start → **i1**

src_mic2_unmuted → **i2**

startup_mic2 ← **out**

S-7: Device Control

S-7.1 Blu-Ray

S-7.1.1: Generic CEC Source

src_bluray → **Power_On_RCP**

bluray_off → **Power_Off_RCP**

tp_bluray_pwr → **Power_Toggle**

tp_menu_root → **Root_Menu**

tp_menu_setup → **Setup_Menu**

tp_menu_contents → **Contents_Menu**

tp_menu_media_top → **Media_Top_Menu**

tp_bluray_up → **Up**

tp_bluray_down → **Down**

tp_bluray_left → **Left**

tp_bluray_right → **Right**

tp_bluray_select → **Select**

tp_bluray_exit → **Exit**

tp_bluray_play → **Play**

tp_bluray_stop → **Stop**

tp_bluray_pause → **Pause**

tp_bluray_rew → **Rewind**

tp_bluray_ffw → **Forward**

tp_bluray_skipfwd → **Chapter/Track_Fwd**

tp_bluray_skipback → **Chapter/Track_Rev**

tp_bluray_1 → **Number_1**

tp_bluray_2 → **Number_2**

tp_bluray_3 → **Number_3**

tp_bluray_4 → **Number_4**

tp_bluray_5 → **Number_5**

tp_bluray_6 → **Number_6**

tp_bluray_7 → **Number_7**

tp_bluray_8 → **Number_8**

tp_bluray_9 → **Number_9**

tp_bluray_0 → **Number_0_or_Number_10**

tp_bluray_numpad_enter → **Enter**

tp_bluray_numpad_clear → **Clear**

tp_bluray_eject →**Eject**

cecfb → **From_Device**

cec_transmit ← **To_Device**

bluray_on_fb ← **bluray_on_fb**

Address: 4 – Playback Device 1

S-7.1.2: OR

tp_class_end → **i1**

timeout_true → **i2**

bluray_off → **out**

S-7.2 TV

S-7.2.1: OR

tp_tv_pwr → **i1**

tp_class_start → **i2**

tp_class_end → **i3**

timeout_true → **i4**

tv_pwr ← **out**

S-8: Password

S-8.1: Password v1.1

tp_pass_enter → **Enter**

tp_pass_clear → **Clear**

0 → **Enable_Backdoor_Pass**

tp_pass_0 → **Digit_0**

tp_pass_1 → **Digit_1**

tp_pass_2 → **Digit_2**

tp_pass_3 → **Digit_3**

tp_pass_4 → **Digit_4**

tp_pass_5 → **Digit_5**

tp_pass_6 → **Digit_6**

tp_pass_7 → **Digit_7**

tp_pass_8 → **Digit_8**

tp_pass_9 → **Digit_9**

pass_correct ← **Password_Correct**

tp_pass_text ← **Password**

Default Password: 1299

Backdoor Password: 1299

Max Password Length: 7d

S-9: End Class Flicker

S-9.1: Simple Timer

timer_not_waiting → **start**

tp_class_end_fb ← **timer_active**

timer_not_holding ← **timer_expired**

time: 1s

S-9.2: Simple Timer

timer_wait → **start**

timer_not_waiting ← **timer_expired**

time: 1.1s

S-9.3: OR

tp_class_start → **i1**

timer_not_holding → **i2**

timer_wait ← **out**

S-10: Class Timeout

S-10.1: class timeout

tp_class_start → **class_start**

timeout_activity → **activity**

tp_class_end → **class_end**

timeout_true ← **timeout**

S-10.2: OR

List of signals that reset the timeout timer

timeout_activity ← **out**

S-11: Smart Graphics Modules

S-11.1 Crestron DSP Routing Module

DSP signals automatically handled by Crestron

Code Explanation

Central Control Modules

Slot-02 IR Outputs

Port-01: IR Device

To configure the IR device, you will need access to a USB IR Learner or IR codes for your device and Toolbox. After you successfully train an IR model you will need to use the configure view and add the new model to an IR output on the DMPS.

Slot-7 Ethernet Devices

To connect the touch panel to your system you will need to configure the IP settings, to do this in SIMPL go to the configuration view, add your touch panel as an ethernet device and note the IP ID in the IP Net Address menu. To configure the IP address in the touch panel repeatedly press the top 4 buttons on the touch panel to open the settings menu. Make sure the CID is set to the same ID as the configuration view IP ID and make sure the host IP matches the DMPS IP address, you should also be able to configure the IP in Toolbox. If you see a green dot next to the IP address, then you connected successfully. Next you will want to repeat these steps with the DSP to connect it to your system. You will not have an interface to work with so you will need to connect to it through Toolbox this time.

IP-ID-03: TSW-760

This module interacts directly with the VTPro interface on the touch panel. The join numbers on VTPro correspond with the join numbers on this module. You can also send signals back to the touch panel through this module. A few examples of this are using digital signals to let the interface know when a button should be highlighted (such as a selected source) or an analog signal for displaying something such as sound levels.

Touch Panel Objects

Slot-01: TSW-760 Buttons

Currently has no signals, allows you to use side buttons.

IP-ID-03.2 DPad

Direction pad found on Bluray settings page, sends digital signals corresponding to whichever button is pressed.

IP-ID-03.3 Simple Keypad

Numpad found on Bluray settings page, sends digital signals corresponding to whichever button is pressed.

IP-ID-03.4 860

DSP signals automatically handled by Crestron, see the Avia DSP tool for more info.

IP-ID-0.35 Simple Keypad

Numpad found on DSP password page, sends digital signals corresponding to whichever button is pressed

IP-ID-04: DSP-860

DSP signals automatically handled by Crestron, see the Avia DSP tool for more info.

Slot-02: AV Control

Found in Central Control Modules → Slot-11: DMPS3 Control

This module is crucial to directing traffic between inputs and outputs

Logic

S-1: Constants

S-1.1 Analog Initialize

Sets a signal to 2d, this hardcodes the digital media output audio to digital mixer 2, which is muted. This is intended to prevent the scaler from sending audio.

S-2: Source Selection

**Note: for cleaner code use the interlock symbol*

S-2.1 Audio Selection

2 toggles are used to determine what the active source is for audio and sets the corresponding value to active.

S-2.2 Video Selection

Multiple toggles are used to determine what the active source is for video and sets the corresponding value to active.

S-2.3 Source Calculation

Sends the correct analog variables to the AV control to set sources based on the active digital variables. **Custom SIMPL+ Module**

S-2.4: OR

Sets a digital variable to high whenever a source is changed, triggers the source calculation.

S-3: Blank Screen

Uses a toggle to determine when the scaler should blank the screen

S-4: Program Volume

S-4.1 Mute

Uses a toggle to determine when the program audio should be muted.

S-4.2 Level

Uses a ramp and a series of scalers to adjust the program volume based on the user's input.

S-5: Microphones

S-5.1 Master

S-5.1.1 Mute

Uses a toggle to determine when all the microphones should be muted.

S-5.1.2 Level

Uses a ramp and a series of scalers to adjust the master microphone volume based on the user's input.

S-5.2 Mic 1

S-5.2.1 Mute

Uses a toggle to determine when microphone 1 should be muted.

S-5.2.2 Level

Uses a ramp and a series of scalers to adjust the microphone 1 volume based on the user's input.

S-5.3 Mic 2

S-5.3.1 Mute

Uses a toggle to determine when microphone 2 should be muted.

S-5.3.2 Level

Uses a ramp and a series of scalers to adjust the microphone 2 volume based on the user's input.

S-6: Startup Volume

S-6.1 Program Volume

On startup set the program volume using analog initialization.

S-6.2 Microphones

S-6.2.1 Master

On startup set the master microphone volume using analog initialization.

S-6.2.2 Mic 1

On startup set the microphone 1 volume using analog initialization.

S-6.2.3 Mic 2

On startup set the microphone 2 volume using analog initialization.

S-7: Device Control

S-7.1 Blu-Ray

S-7.1.1: Generic CEC Source

Uses a Crestron Module (found in Symbol Library) to send commands to the Blu Ray player.

S-7.2 TV

S-7.2.1: OR

Uses a series of conditions to determine when to send a power signal.

S-8: Password

S-8.1: Password v1.1

Uses a Crestron Module (found in Symbol Library) for password protecting the DSP settings page on the touch panel.

S-9: End Class Flicker

Uses two timers that alternate to cause the end class button to blink.

S-10: Class Timeout

S-10.1: class timeout

Turns the system off after a set time without activity. **Custom SIMPL+ Module**

S-10.2: OR

List of signals that reset the timeout timer

S-11: Smart Graphics Modules

S-11.1 Crestron DSP Routing Module

DSP signals automatically handled by Crestron