



# Deploying Cisco Professional LCD Displays



# Cisco Professional LCD Overview

- The Cisco LCD are a 40" and 52" large format professional displays, suited for Digital Signage and Enterprise TV applications.
- Part of the overall DMS suite of products providing a complete end-to-end solution for DS and ETV.
- Certified to work with the Cisco Digital Media Player RS232 control centrally from the DMM platform

# Cisco Professional LCD Overview

- Features:
  - Full-HD 1080p (1920x1080) native resolution
  - High-brightness and high built-in contrast ratio
  - Landscape and Portrait mode support
  - HDMI inputs for real Full-HD content rendering
  - Built-in speakers
  - Central management through DMM including volume/power control etc

# Product Specifications

- Cisco LCD 100 PRO 40N

Diagonal Size	40 inches
Native Resolution	1080p (1920x1080)
Resolution Supported	1080p, 1080i, 720p
Brightness (typ.)	470 cd/m2
Contrast Ratio (typ.)	3000:1
Viewing Angle (H/V)	178/178
Response Time (G-to-G)	8 ms
Pixel Pitch	0.461 x 0.461
Horizontal Frequency	50 – 85 Hz (Aprox.)

# Product Specifications

- Cisco LCD 100 PRO 40N

Vertical Frequency	50 – 85 Hz (Aprox.)
PC Inputs	VGA/DVI
Video Inputs	HDMI, Composite
Speakers	2 x 10W
Power Consumption (Max)	230 Watts (Aprox.)
Power Consumption Standby	2 Watts
Power Supply	AC 100 – 240 V, 50/60Hz
Weight	19.0/22.5 Kg
Dimension (W,H,D)	971 x 582 x 118.5 (mm) 38.2 x 22.91 x 4.6 (inch)

# Product Specifications

- Cisco LCD 100 PRO 40N

Bezel Width	28 mm (1.1 inch)
Operating Temperature	10° – 40°C, 32° – 104° F
Humidity	10 – 80%
MTBF	40,000 Hours
Special Features	<ul style="list-style-type: none"><li>-Lamp Error Detection</li><li>-Temperature Sensor</li><li>- Built in Fan</li><li>- Video Wall</li><li>- RS232C</li></ul>

# Product Specifications

- Cisco LCD 110 PRO 52s

Diagonal Size	52 inches
Native Resolution	1080p (1920x1080)
Resolution Supported	1080p, 1080i, 720p
Brightness (typ.)	700 cd/m2
Contrast Ratio (typ.)	2000:1
Viewing Angle (H/V)	178/178
Response Time (G-to-G)	8 ms
Pixel Pitch	0.6 x 0.6
Horizontal Frequency	50 – 85 Hz (Aprox.)

# Product Specifications

- Cisco LCD 110 PRO 52s

Vertical Frequency	50 – 85 Hz (Aprox.)
PC Inputs	VGA/DVI/BNC
Video Inputs	HDMI, Composite, CVBS, Component
Speakers	2 x 10W
Power Consumption (Max)	370 Watts (Aprox.)
Power Consumption Standby	2 Watts
Power Supply	AC 100 – 240 V, 50/60Hz
Weight	36.8/47 Kg
Dimension (W,H,D)	1211 x 713 x 137.1 (mm) 47.6 x 28 x 5.4 (inch)



# Product Specifications

- Cisco LCD 110 PRO 52s

Bezel Width	18 mm (0.7 inch)
Operating Temperature	10° – 40°C, 32° – 104° F
Humidity	10 – 80%
MTBF	50,000 Hours
Special Features	-Lamp Error Detection -Temperature Sensor - Built in Fan - Video Wall - RS232C

# LCD Placement

- There is no golden rule for LCD placement. Most of the time a site survey is recommended as the best way to understand where the screens should be located
- Some tips..
  - Don't place the LCD where the sun will hit directly the screen to avoid uncomfortable reflections
  - Don't close the view angle with walls, columns, etc.  
Remember you have 178° to use
  - If you are going to place the LCD inside a cabinet, be careful with the temperature, the operating range of the LCD goes between 0° and 40° C (32° – 104° F)

# Mounting Screens

- The screens can be mount using VESA Mounting Interfaces Standard (MIS), also known as Flat Display Mounting Interface (FDMI).
- A VESA mount is a family of standards defined by the Video Electronics Standards Association for mounting flat panel monitors, TVs, and other displays to stands or wall mounts
- The mounts are **NOT** included with the Screens, but they are easily available from different vendors in the market.

# Mounting Screens

- For the LCD 110 PRO 52s (52") use a 800x400 mm VESA Mount
- For the LCD 100 PRO 40n (40") use a 600x400 mm VESA Mount

Note: For securing the bracket on a wall, use only machine screws of 6 mm diameter and 8 to 12 mm length.  
Is not recommended to install these screens in any other place than cement walls.

# Connecting DMP to LCD

- Using the DMP HDMI connector
  - 1.-HDMI with Audio over HDMI
  - 2.-HDMI to DVI Cable with RCA Audio (4305) or Ø3.5mm jack (4400G)
- Using the composite cable (Yellow Video cable)
- Serial cable connection (RS232)

# Connecting DMP to LCD

- Using the DMP HDMI connector
  - 1.-HDMI with audio over HDMIConnect a HDMI cable\* from the DMP to the LCD (A → 5)

Cisco DMP 4400G



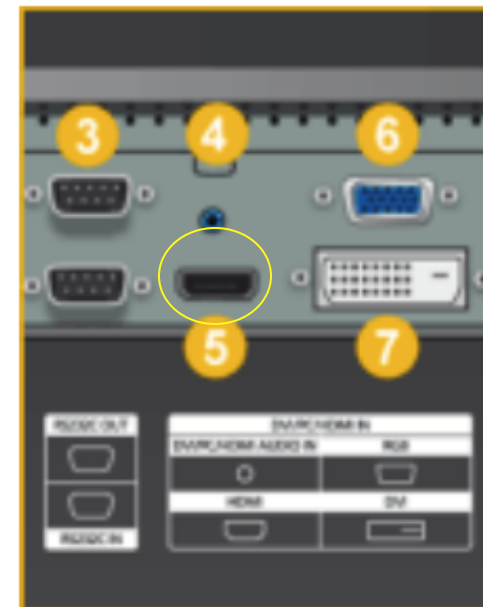
Cisco DMP 4305G



Note: Be sure **not** to be using any VESA Resolution, when VESA Resolutions are used, the HDMI Audio is disabled.

\*(provided with the DMP)

Cisco Professional LCD Back Panel



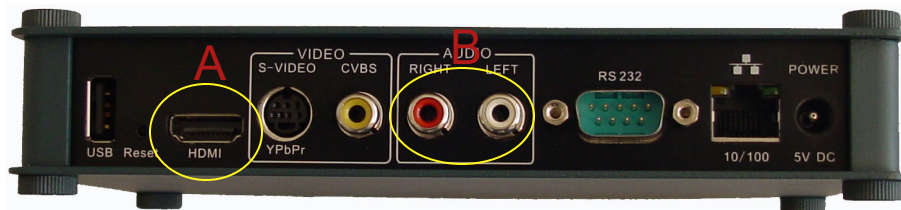
# Connecting DMP to LCD

- 2.-HDMI to DVI + RCA Audio (4305) or Ø3.5mm jack Audio (4400G)
  - Connect a HDMI to DVI cable\*\* from the DMP (A) to the LCD → (7)
  - Connect the RCA cable\* (B) to the jack Input in the LCD (4) (using a RCS to Jack convertor cable) or the Ø3.5mm jack (C) to the LCD jack input (4)

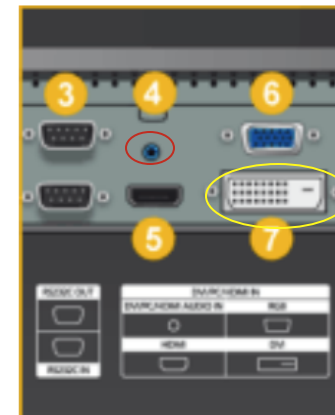
Cisco DMP 4400G



Cisco DMP 4305G



Cisco Professional LCD  
Back Panel



\*(provided with the DMP)

\*\* (NOT provided with the DMP)

# Using the Composite Cable

- Connect a Composite cable\* from the DMP (A) to the LCD → (9)
- Connect the RCA cable\* (B) to the Ø3.5mm jack Input in the LCD (4) or the Ø3.5mm jack (C) to the LCD jack input (4)

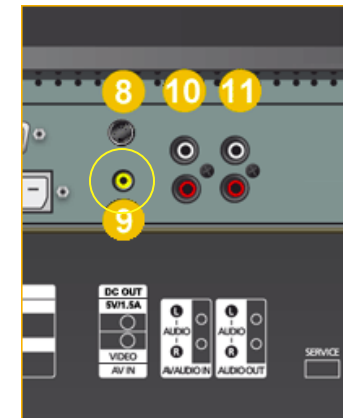
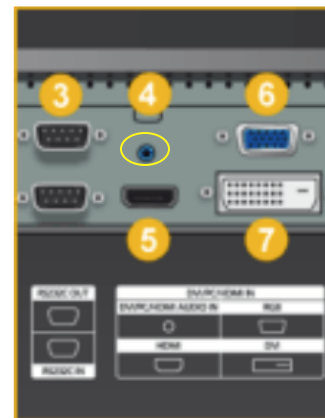
Cisco DMP 4400G



Cisco DMP 4305G



Cisco Professional LCD Back Panel



Note: You can also use a jack to RCA convertor or RCA to jack in order to interconnect the screen and the DMP

\*(provided with the DMP)



# Serial cable Connection (RS232)

-Connect a RS232 cable\* from the DMP (A) to the LCD → (1)

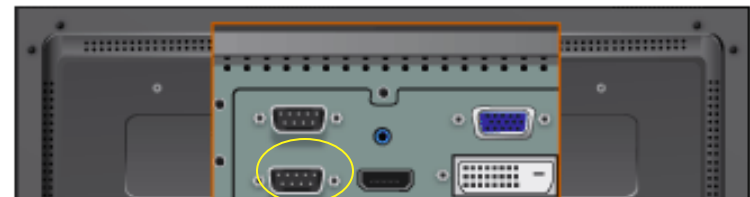
Cisco DMP 4400G



Cisco DMP 4305G



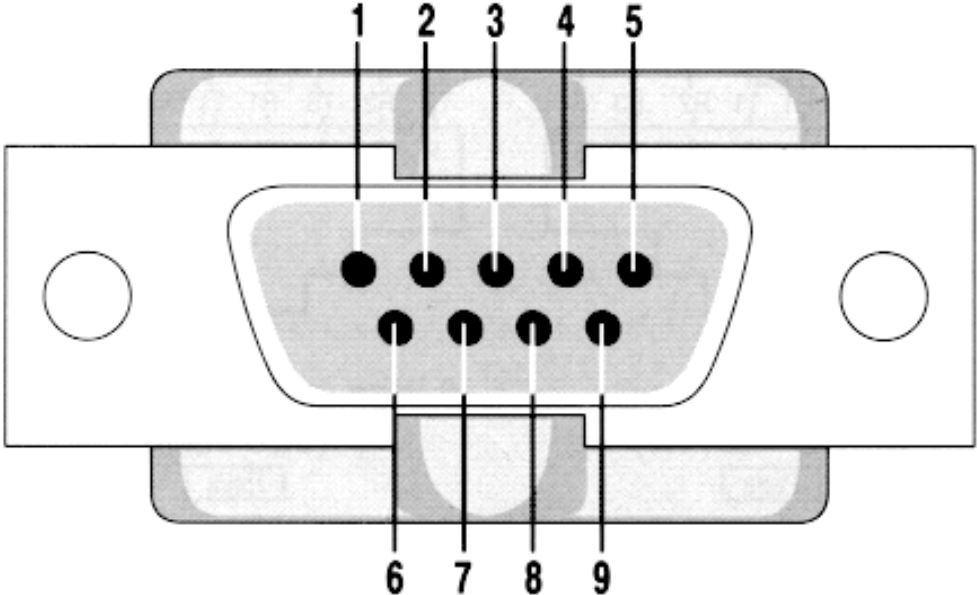
Cisco Professional LCD  
Back Panel



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\*(provided with the Cisco Professional LCD)

# RS-232 Pinout on Display



Pin	Signal	Pin	Signal
1	Data Carrier Detect	6	Data Set Ready
2	Received Data	7	Request to Send
3	Transmitted Data	8	Clear to Send
4	Data Terminal Ready	9	Ring Indicator
5	Signal Ground		

# RS-232 Crossover Cable Pinout

DCE Device			DB9	Connections	DCE Device	DB9		
Pin#	DB9	RS-232 Signal Names		Signal Direction		Pin#	DB9	RS-232 Signal Names
#1	Carrier Detector (DCD)	CD				#1	Carrier Detector (DCD)	CD
#2	Receive Data (Rx)	RD				#2	Receive Data (Rx)	RD
#3	Transmit Data (Tx)	TD				#3	Transmit Data (Tx)	TD
#4	Data Terminal Ready	DTR				#4	Data Terminal Ready	DTR
#5	Signal Ground/Common (SG)	GND				#5	Signal Ground/Common (SG)	GND
#6	Data Set Ready	DSR				#6	Data Set Ready	DSR
#7	Request to Send	RTS				#7	Request to Send	RTS
#8	Clear to Send	CTS				#8	Clear to Send	CTS
#9	Ring Indicator	RI				#9	Ring Indicator	RI
Soldered to DB9 Metal - Shield		FGND				Soldered to DB9 Metal - Shield		FGND

# Video Walls on the Cisco Professional LCD

- The Cisco LCD counts with an inbuilt Video Wall feature which allows to use up to 5x5 screens as Video Wall
- The Video Wall must be fed by the same source in order to use this feature
- A Video Wall should be used with HDMI as input, and in order to use a matrix of screens with this feature, an external HDMI splitter is needed

# Video Walls on the Cisco Professional LCD

To use the Screens in a Video Wall you need to:

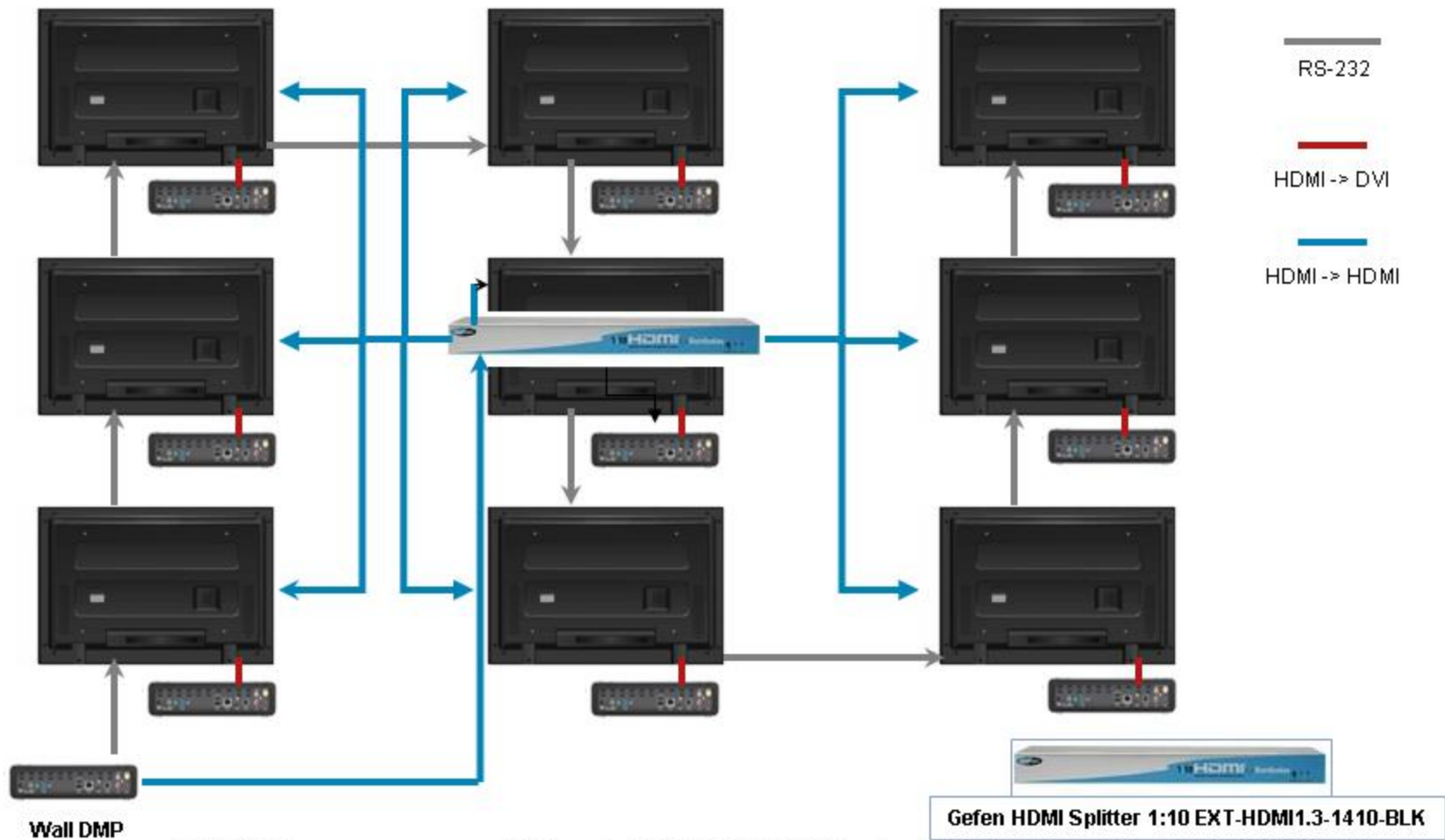
- Set each screen as a part of the Video Wall by turning on this feature through the menu
- Select the position of each screen on the Video Wall from the menu

Notes:

The position selected determines which part of the input HDMI signal will the unit display

Since the HDMI signal going into all the Video Wall units needs to be the same, only one DMP, together with a HDMI splitter, needs to be used to drive this Video Wall

# Video Wall Logical Diagram with Cisco LCDs (40"/52") using an HDMI Splitter



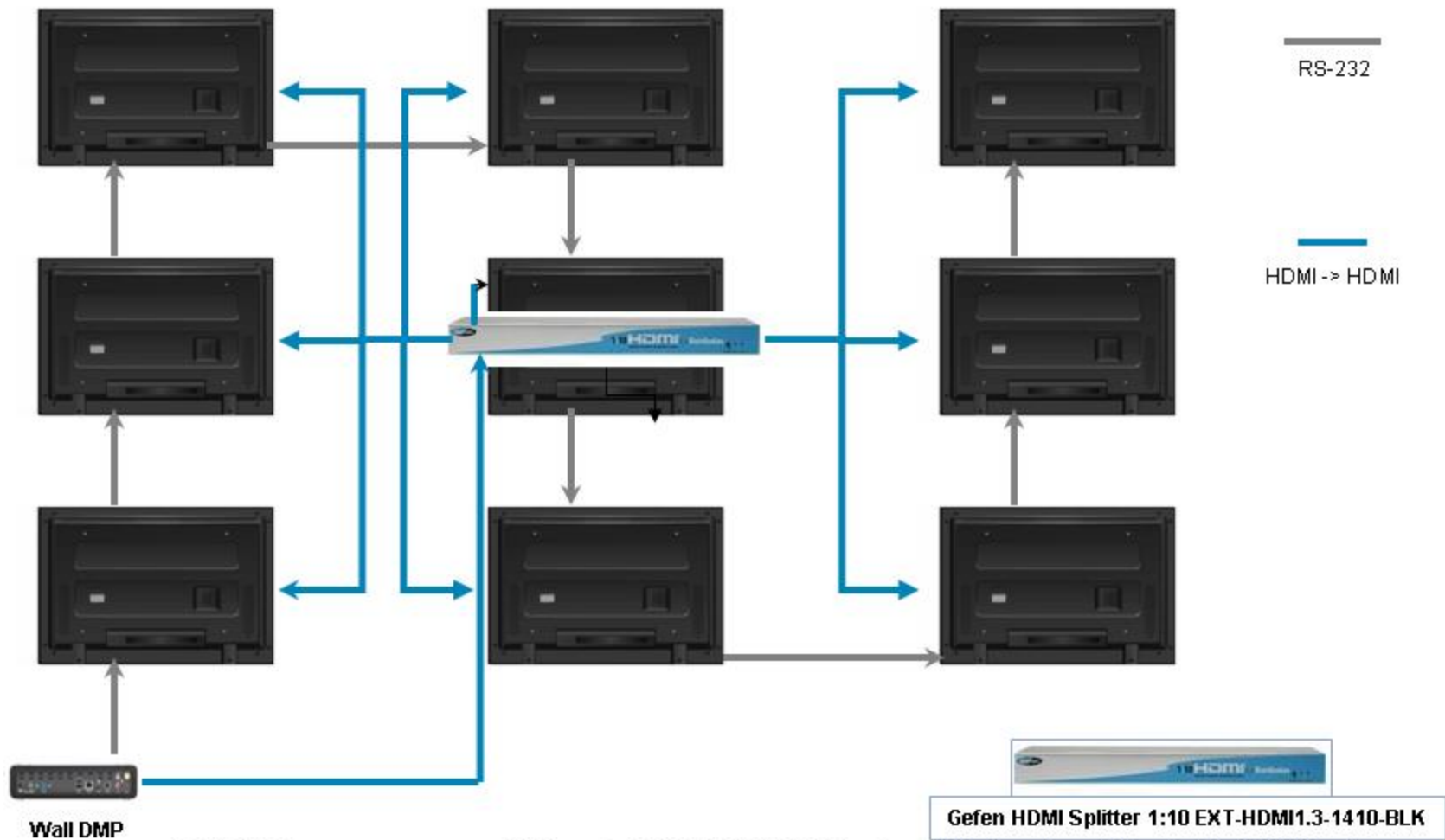
Wall DMP

Big Wall Picture:

Independent n pictures:

DMM sends to "Wall DMP" RS-232 cmd: switch all monitors in the chain to HDMI input  
 LCDs are configured for showing each 1/n of the HDMI input signal  
 DMM sends to "Wall DMP" RS-232 cmd: switch all monitors in the chain to DVI input

# Video Wall Logical Diagram with Cisco LCDs (40"/52") using an HDMI Splitter (Big Wall Picture)



Big Wall Picture:

DMM sends to "Wall DMP" RS-232 cmd: switch all monitors in the chain to HDMI input  
 LCDs are configured for showing each 1/n of the HDMI input signal

## Configuring Video Wall Options and Settings

[http://www.cisco.com/en/US/docs/video/digital\\_media\\_systems/displays/lcd/user/guide/4menu.html#wp2417637](http://www.cisco.com/en/US/docs/video/digital_media_systems/displays/lcd/user/guide/4menu.html#wp2417637)

The Cisco LCD displays have the ability to do a video wall built in. Most commercial grade displays (NEC, Samsung, LG, etc..) can do the same thing, no special displays required.

Using only our DMPs here is how it is done-

In our example we will use a 2x2 wall

- One DMP is attached to an 4 way HDMI splitter, the outputs of the splitter connected to each display.
- A single 1080p signal is sent to all 4 displays over the HDMI port.
- Each display is configured through the menu to be part of a video wall and is assigned their portion of the wall (upper right, lower left, etc..)
- The displays then take the original 1080p signal and cut out the portion of the signal that is appropriate for their position and display it fullscreen

Pros - Cheap and Easy

Cons - A single 1080 signal gets stretched across 4 screens, up close it may be less than optimal quality. You can only display the items a single DMP can support, like only one video.

Optionally you can add 4 more DMP, one to each display on the DVI port, and connected to the display serial port for control. This give you the ability to send commands over the serial connection to change the inputs from "Video Wall" HDMI to "Single DMP" DVI interface. You can now display 4 different pieces of content (and 4 videos).

Pros - Cheap easy and fairly flexible, full 1080p to each display in "single dmp" mode

Cons - Not as fancy as an advanced video wall controller, but those cant be touched for less than \$80k.

Equipment needed for a sample Demo Center - 4 displays, 1 DMP (or 5), an HDMI splitter (\$100) and cables. For the optional 5 DMP solution, you may need to create a small web page to control the DMPs (using the DMP API).