



# LED Video wall

## Freedom Series

- True Cube Redundancy
- Smallest Foot Print
- Auto Color Calibration
- Novel Cooling Mechanism
- Diagnostics & Control

[www.deltadisplays.com](http://www.deltadisplays.com)



# Experience The Future Of Control Room Displays With The Latest Innovation From Delta's Dedicated Team Of Engineers.



● Super slim form factor (< 450mm depth)

● Full HD / WUXGA native resolution

● Razor sharp text and images

● Fully IP addressable

● High MTBF

● Multiple input & control options

● Lightweight design

● 24/7 operation



With the spiraling cost of real estate, control room video walls are beginning to be edged out as a display of choice owing to their large form factors as they tend to occupy large amounts of space in the control room. With modern control rooms getting smaller and smarter in size, the need for slim displays is echoed by an increasing number of professionals across a variety of applications, be it utilities, telecommunications, security, traffic or broadcast.

This launch of Freedom Series by Delta helps to realize the dream of many a control room designers who always wished to have a thin form factor display to complement their state-of-the-art control room center design. These cubes have been designed to overcome the many shortcomings of traditional video wall cubes .

Combining these cubes into display walls of large sizes provide a high resolution surface to display, monitor and control images from various applications simultaneously. Multiple windows from sources like computers, workstations, cameras, video players, DTH systems, satellite systems, etc. can be displayed and viewed together in required sizes and desired display positions. With a quick setup large walls can be set up in a very little time with very little manpower deployment. These cubes normally designed to install on floor mounts can also be mounted on walls with special custom designed mounts. The light weight of these cubes make them suited to this kind of installation, thus saving real estate. Since this technology is free from burn in, it finds deployment in control centers designed for 24 x 7 use.

Boasting of a high end design utilizing top grade components the system is highly reliable and with long lifetimes for its major components. These cubes have been designed from the start keeping in mind 24 x 7 usage , highest uptime and minimal preventive maintenance. The over pressure design keeps out dust from the system reducing preventive maintenance cycles. All these factors help to make these displays suited to control rooms in traditional applications as well as the new breed of smart, savvy and the more modern control rooms. Some application examples can be listed as below

Traditional Applications	Expanded Applications
» Power & Utilities	» Mini Data Centers
» Telecom	» Collaboration Rooms
» Traffic & Transportation	» Mobile Operation Rooms
» Security & Surveillance	» Supervisor Monitoring & Control Stations
» Broadcast	» Single Operator Stations
» Data Centers	» Video Conferencing Suites
	» Boardrooms



# New Generation Displays For Control Rooms

With decades of in-depth and rich experience in developing micro-display technologies, Delta is proud to introduce the WUXGA and Full HD based Freedom Series. A path breaking innovation, these cubes are Freedom and thus can be used in space starved control rooms as well. At the heart of the system, lies the latest and revolutionary design aspheric lens which helps to overcome geometric distortions.

With the use of this technology, a depth of less than 450 mm has been achieved, which was an impossibility in the past. Combined with front access maintainability, you have a solution which is highly reliable, fault tolerant and does not take away your precious floor space.

Transportation

Power

Broadcast



Telecom

Defence

Traffic

Surveillance



# True Cube Redundancy

## Redundant Power Supply

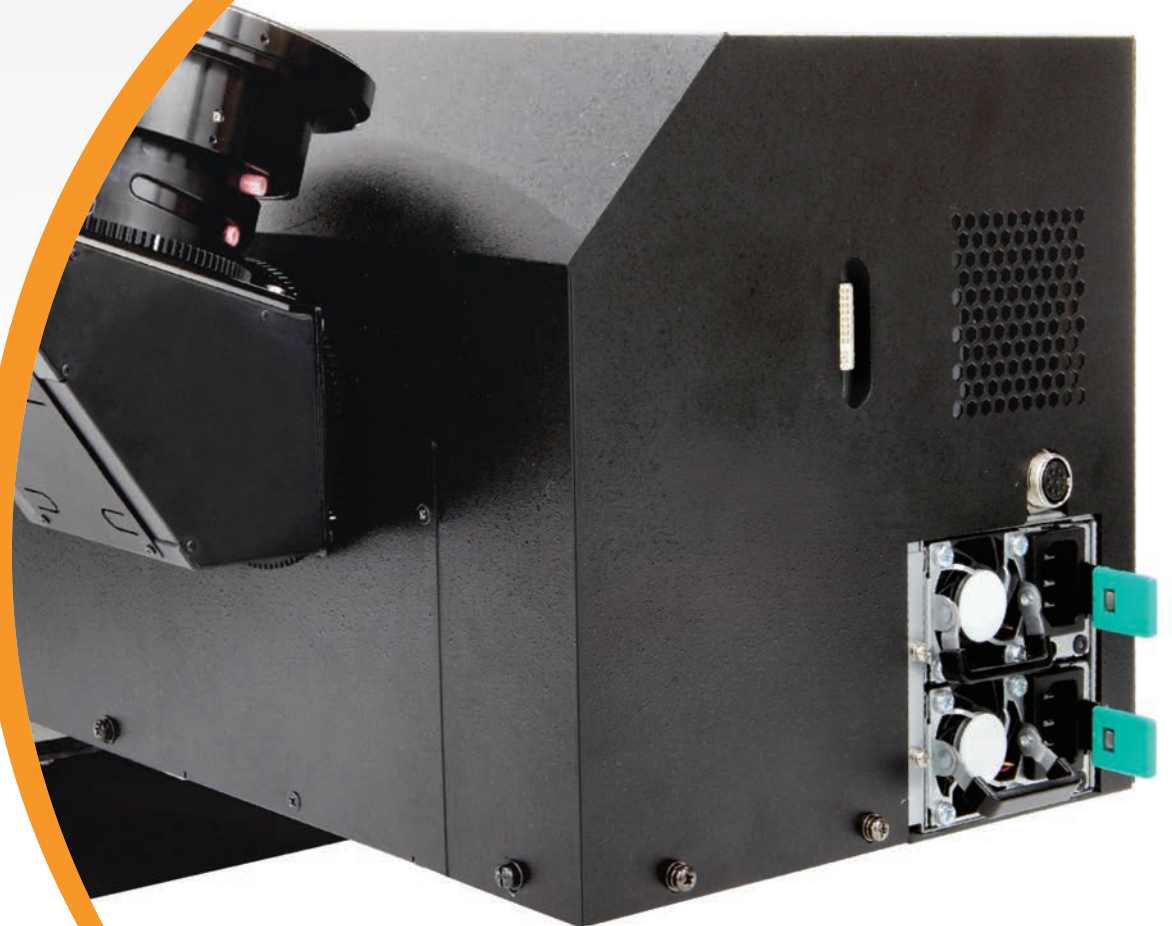
Freedom Series have in-built automatic hot swappable power supplies which ensure high transfer efficiency and reduces power consumption by more than 10% as compared to the standard cubes. Modular design of power supply aids in quick & easy maintenance. Redundant power system also have two independent power input nets, incase one power net fails another continues to provide power to the entire system.

## Display Redundancy

Freedom Series offers display redundancy feature through the illumination unit. If any LED fails due to any reason, the display does not lose the image or any color in that image.

## Redundant Inputs

Freedom Series input box provides 2x redundant inputs ensure that inputs sources are always connected to display wall to offer an intervention-free system.



# Cutting Edge Optics...

## Lens Design Technology

The distinctive aspheric lens provides you the crispest picture, high quality with sharp focus and image stability. A perfectly uniform image is displayed across the entire display with a wide angle perspective. The use of aspheric lens helps to overcome the big challenge of dealing with mono-chromatic and spherical aberrations. These aberrations normally effect the geometry and the focus of the image. However with the use of this newly developed aspheric lens, Delta has successfully overcome these barriers to offer to its customer vivid images with incredible sharpness.

Combining this with the Extra Low Dispersion (ED) lens further adds to the picture sharpness as it helps to focus all the colors at the same convergence point thus reducing color dispersion. The combination of lenses ensure that the control rooms' operators can view perfect, uniform and sharp life-like images cube to cube across the entire display.

## Novel Cooling Mechanism

Delta's extremely reliable cooling mechanism is based on the Heat Pipe technology. This technology uses liquid vaporization phase change cycle architecture, in which the sealed liquid (pure water) circulates to keep heat away from the LEDs without any chance of leakage. As there is no electro-mechanical device for liquid circulation the mechanism is maintenance free. Innovative cooling system ensures the longer life and better performance.

## Integrated Optical Engine Design

Designing the projection engine right is critical for maintaining a good display over time. Delta's integrated engine module design provides excellent heat conduction to ensure brilliant optical performance. It's integrated electronic and optical components provide compact outlook and excellent EMI performance. The integrated design helps to reduce the MTTR offering you the least cost of ownership and maintenance in the industry. Boasting of an extremely high MTBF of greater than 100,000 hours these high brightness cube are a major leap in video wall technology.



# Driving Technology To New Levels



## LED-Illumination

Delta's Freedom Series comes with environment friendly, LED solid-state light source using the latest generation high brightness and high performance LEDs delivering you enhancements-both in image quality and cost of ownership compared to traditional LEDs. You can achieve the best color gamut resulting in a much richer visual experience. Undoubtedly, Delta's Freedom Series are the brightest display solution available in the market. With their extremely long lifetime, these LEDs do not require regular replacement, thus no consumables for many years – even with 24/7 operation.



## Pixel-Perfect Alignment

The projection engine is mounted inside the cube on a six-axis adjustment base. This base provides the ability to make precise geometric adjustments in six directions to obtain pixel-perfect alignment between individual cubes. Electronic adjustments can also be made afterwards for fine-tuning at a pixel level. This enables physical seams between screens of neighbouring cubes to be adjusted to less than 0.2mm, delivering a near-seamless picture. For rear access cubes, the six-axis base is provided with a manual adjustment. In front access cubes, the adjustment is motorized.

## Unique Color Sensor Design

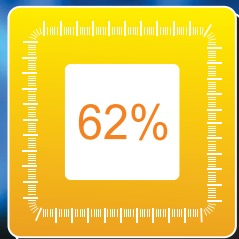
For cube to cube color and brightness matching, Delta has incorporated an auto-color system based on a unique color sensor design. With sensors positioned on the light beam of the optical lens, the color calibration system encompasses the tolerances of all the optics in the system – including the lens and glass components. The system automatically adjusts the color temperature and brightness, ensuring control room operators view a perfectly uniform image across the entire screen at all times.



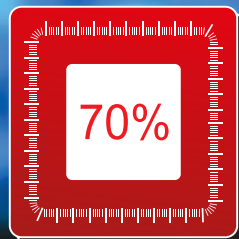
# Monitoring, Diagnostics & Control



Thermometer



Hygrometer



Dust Level



Power Consumption





Delta's Freedom Series are accessible over the IP through browser / server architecture based software tool for monitoring, controlling and diagnostic purpose. This software provides the operator with direct feedback on the status of the system with multiple levels of alarms. Whether it's the number of hours of a LED or their temperature, the operator will be automatically notified via the predefined alarms.

### Monitoring

- ▶ Start/Stop Monitoring cubes
- ▶ LED status monitoring
- ▶ Alarms
  - ▶ Serious
  - ▶ Warning
  - ▶ Information

### Diagnostics

- ▶ Message window
- ▶ Log file
- ▶ Error / Alarm feedback
  - ▶ Serious
  - ▶ Warning
  - ▶ Information

### Control

- ▶ Switch on/off
- ▶ Virtual Remote Control (VRC)
- ▶ Get/Set cube data
- ▶ Save/Load options
- ▶ Scheduling options
  - ▶ Daily
  - ▶ Periodically
  - ▶ Sequentially

The screenshot displays the DVSWeb interface with the following sections:

- Header:** DELTA logo and DVSWeb title.
- Device List:** Two devices labeled VW8340 with IP addresses 192.168.1.1 and 192.168.1.2.
- Navigation Tabs:** Common, Video, DLP, Analog RGB, Tiling.
- Video Settings:**
  - Brightness: 128
  - Contrast: 128
  - Position H: [Slider]
  - Position V: [Slider]
  - Capture: [Slider]
  - Aspect Ratio: 16\_BY\_9
  - Main Input: DVI1
  - Language: ENGLISH
  - Menu H Position: [Slider]
  - Menu V: [Slider]
  - Frame Lock: [Dropdown]
  - DVI EQ Setting: [Dropdown]
  - Fan Control: [Dropdown]
  - OSD Enable: [Dropdown]
  - PIP Input: [Dropdown]
  - PIP Mode: [Dropdown]
- Scheduler Section:**
  - Frequency: Daily
  - Run daily mode will execute the schedule every day at a fixed time.
  - Schedule Name: [Text Field]
  - 0 Hour(s) 0 Minute(s)
  - [Add List Button]
- Schedule List Table:**

Periodically	ScheduleName	Frequency	Duration	Actions
Periodically	ScheduleName2	every 3 Second(s)	00:00:02	[Pause] [Detail]
- Right Panel (Details):**
  - Language : English
  - Function Type : LEGACY
  - Lamp Timeout Change
  - Color Temp : 9300K
  - Image Orientation : INVERTED

# Product Specifications

## Freedom Series

### Freedom Series: LED Video wall

<b>Native Resolution</b>	Full HD (1920 x 1080) / WUXGA (1920 x 1200)
<b>Description</b>	LED Light Source Video wall Cube
<b>Display Technology</b>	DLP® Single Chip
<b>Brightness</b>	Typ. 1,100 Lumens
<b>Uniformity</b>	Up to 96%
<b>Aspect Ratio</b>	16:9/16:10
<b>Contrast Ratio Typ.</b>	1800:1
<b>Screen Gap</b>	Rear Access: Adjustable up to 0.2mm Front Access: Adjustable up to 0.75mm
<b>Lamp Type</b>	LED Cluster
<b>Estimated Lamp Life</b>	Eco Mode : 100,000 hours Normal Mode : 80,000 hours Bright Mode : 60,000 hours
<b>Control</b>	1 x RS-232 Dsub9 1 x RS 422 R J45 1 x IP Ethernet RJ45 1 x IR Receiver
<b>Input Voltage</b>	AC 90 - 240V @50/60Hz
<b>Operating Temperature</b>	10°C - 40°C (50°F - 104°F)
<b>Non-operating Temperature</b>	-20 °C - 60 °C ( -4°F - 140°F)
<b>Operating Humidity</b>	10%- 90%, non-condensing

### Freedom Series: Xtra Slim LED Video wall

Description	Model No.	Dimensions
<b>50" Full HD Rear/ Front access cube</b>	DVS-508R/FSL	1107 x 623 x 450 mm
<b>60" Full HD Rear/ Front access cube</b>	DVS-608R/FSL	1328 x 744 x 490 mm
<b>70" Full HD Rear/ Front access cube</b>	DVS-708R/FSL	1550 x 872 x 560 mm
<b>52" WUXGA Rear access cube</b>	DVS-529RL DS	1107 x 692 x 574 mm
<b>72" WUXGA Rear access cube</b>	DVS-529RL DS	1550 x 969 x 795 mm

### Freedom Series: Slim LED Video wall

Description	Model No.	Dimensions
<b>70" Full HD Rear access cube</b>	DVS-708RL CS	1550 x 872 x 744 mm



# References



DELTA  
DISPLAY  
SOLUTIONS



1. Worlds' largest DLP® Video wall @ Network operations centre
2. DLP® Video walls @ National Transmission Asset Management Centre
3. DLP® Video walls @ Safe City Surat
4. DLP® Video walls @ Lucknow Metro
5. DLP® Video walls @ Surat Smart City Centre
6. DLP® Video walls @ Bangalore Metro
7. DLP® Video walls @ Bangalore Traffic Management Centre
8. DLP® Video walls @ Mumbai Metro
9. DLP® Video walls @ Smart City Jaipur
10. DLP® Video walls @ CFE Mexico
11. DLP® Video walls @ Railway Control room
12. DLP® Video walls @ ZHCC Central Control Room

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