RPMX & CX Series

Rear Screen XGA Projection Products

Christie Control Room Display Systems

Uses

Large screen tiled wall displays

Command and control rooms

24/7 mission critical environments

Network operations centers

Video walls

Utility operation centers

Christie, an innovator and world leader in professional projection system display solutions, provides the broadest range of 24/7, high-performance Control Room display solutions in the industry. For almost 25 years, Christie has been a leading provider of "purpose-built" display solutions, designed and manufactured to address the true needs of our customers. Several thousand Christie display solutions have been used in a variety of control and operation centers worldwide. Whether a very small Operations Center with a few displays or a huge Command and Control Center with hundreds of displays, Christie provides the right solution for your application.

RPMX & CX Series

Christie Control Room Display Systems

Christie is North American based with two large development facilities and manufacturing operations. Our corporate headquarters and US factory are located in Cypress, California. Our digital display solutions are primarily developed and manufactured in our ISO 9001:2000 registered factory in Canada. Major sales and support offices are located in all major centers worldwide. Christie's extensive experience and background in providing professional and industrial grade solutions is something that you can trust. We are the developer, the manufacturer and the solutions provider – we have the expertise and knowledge to understand your application and to support you!

Industry Leaders in Control Rooms

Christie was the first to offer monochrome CRT based data projection systems back in 1980. Our products quickly evolved to color projection systems utilized in many industries worldwide. Over the next two decades, Christie defined and refined numerous new features and innovations in CRT based projection systems. In 1996, Christie was the first to offer a professional grade 3-chip DLP™ projection system – leading the way for innovation and technology advancement. In 1998, we were the first to offer a purpose-built LCOS (reflective LCD) based projector specifically for Control Room applications. Demonstrating our commitment to multi-display rear screen solutions, Christie was the first to provide automatic brightness control (now called LiteLOC™) which automatically controls the brightness of individual projectors in a larger display wall to maintain uniform brightness. Shortly following, our product lines expanded to include "self-contained" projection display cubes. In 1999, Christie was the first to introduce "Rear Projection Modules", complete "self-contained" projection display engines that may be integrated into a variety of customized display wall designs. Advancements in DLP technology led to more DLP-based designs used for our Control Room products.

Now, while other manufacturers are trying to catch up and follow, Christie leads with a broad line of high-performance DLP-based Control Room solutions which are backed by years of expertise and proven design, reliability and support.

Projection Solutions for Control Rooms

Christie offers the broadest range of high resolution 24/7 solutions for Control Rooms. This includes an entire suite of Rear Projection Module products (RPMX Series) and Projection Display Cubes (CX Series). All solutions described here are based on our single chip DLP™ platform.

Control Room Solutions Criteria

- High-performance, 24/7 reliable solutions
- "Purpose-built" for control rooms
- Versatile and easy to maintain
- Low cost of operation and maintenance
- Superior long life performance

Christie manufactures its own screen solutions for its cube products in our ISO 9001:2000 registered facility.

All RPMX and CX Series models include:

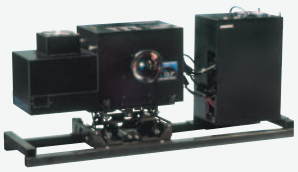
- XGA native resolution; SXGA compatible
- UHP illumination system
- DLP™ 1-chip black DMD 12˚ DDR technology
- Worry-free 24/7 design
- Video decoder
- Multi-frequency operation
- 100W/120W UHP™ lamp operation
- Scaling (picture integration)
- Unique, integrated 6-axis geometric adjustment and stability system
- Low depth platforms
- Modular design for fast and easy serviceability
- Extensive, user friendly menu and control system via remote keypad
- Diagnostic monitoring and projection control via serial network
- Full compatibility with Christie's FRC Series Display Wall Controllers

RPMX and CX Series Models and Solutions

Combining years of development and a proven, mature understanding of rear screen projection systems and designs, Christie offers several products to cover a wide variation of solution requirements as illustrated below.

RPMX Rear Projection Module

Complete rear screen projection engines



- RPMX-100U for customized rear screen display walls
- 40" to 70" diagonal screen size
- Allows most flexibility for integration
- 0.8:1 Wide angle lens

CX Series Cube

50", 60" and 67" stackable display cube

- CX50-100U 50" diagonal display cubes
- CX60-100U 60" diagonal display cubes
- CX67-100U 67" diagonal display cubes

Note: Consult with your Christie representative for screen options available.

Christie Control Room Display Systems

Features	Benefits
>100,000 Hours Useful Life	HIGH RELIABILITY **& Long Life**
Simple Design Architecture	
Used and proven in Christie designed products since 1996	
Reflective Micromirror design	**Superior, Stable** COLOR UNIFORMITY **Superior, Stable** BRIGHTNESS UNIFORMITY LOW MAINTENANCE (no polarizers, filters or panels to replace)

1-chip XGA DLP™ digital light processing technology provides greater than 100,000 hours useful life for high reliability and long life.

DLP™ Technology

All of our Control Room projection display solutions are based on Texas Instrument's 1-chip DLP digital light processing technology to ensure long term high-performance and reliability. DLP panel technology is far superior over other display technologies such as LCD when utilized in 24/7 environments. Why? Because DLP offers the following key features and attributes:

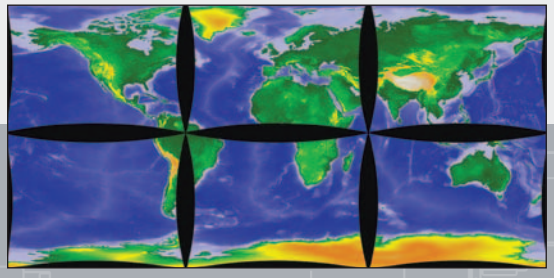
Reliable by Design

With DLP technology and Christie's proven projection design, the display system offers high-performance initially, and for many years following. Our proven designs and implementations offer high reliability, low failures, and minimal down time. Careful components design and selection are not simply "concepts", but aspects of development that our projection design engineers implement and take very seriously for many, many years. The RPMX and CX Series designs include a modular electronics platform which boast >30,000 MTBF (Mean Time Between Failures) of most major electronic modules.

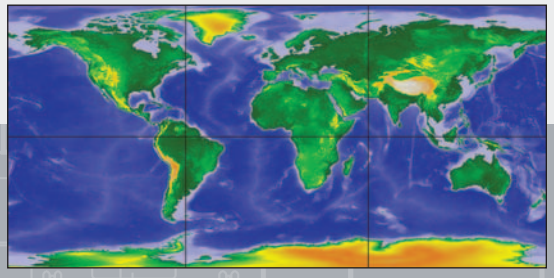
Low Geometric Distortion

Display systems with poor geometric distortion characteristics may appear acceptable in single screen applications but are unacceptable in tiling applications. This requirement has become even more critical in recent years with the advent of higher quality "seamless" screen systems. Minor distortions such as bow

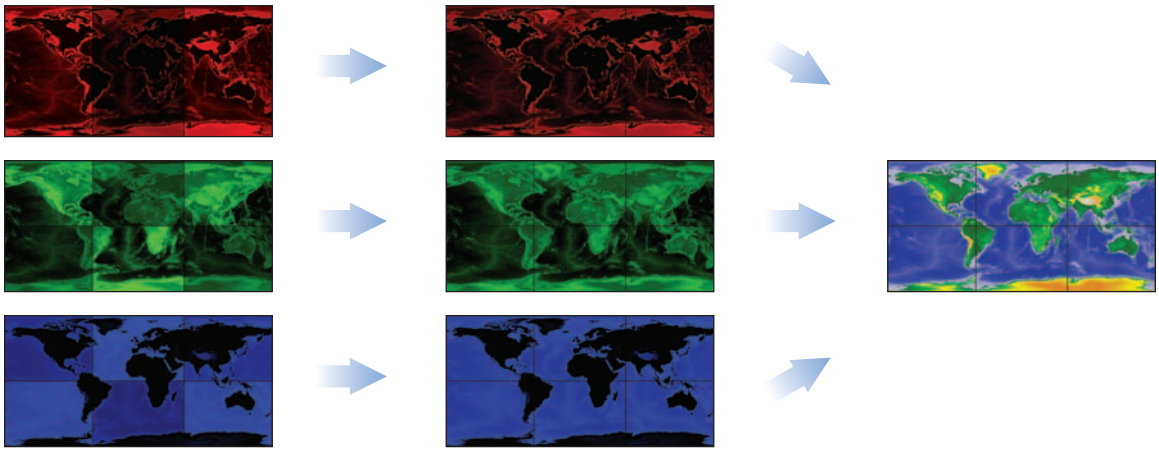
Geometric Distortion



With Geometric Distortion Correction



Color Uniformity



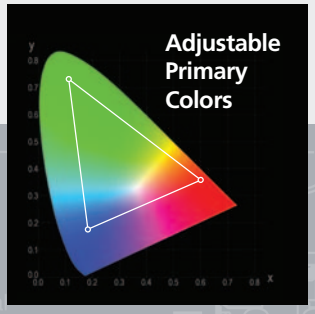
or keystone can be very noticeable in a tiling environment. Christie uses low distortion lenses designed specifically for rear screen tiling applications.

Excellent Color Uniformity

In a tiling environment, color uniformity within each display and across multiple displays is essential. If the color within a display is not uniform, it will become most evident when displays are tiled in a grid pattern. The color quality becomes unappealing and a "checker board" effect occurs.

For the RPMX and CX Series products, DLP technology is utilized for superior color uniformity characteristics. Colors are displayed evenly across the display with no uniformity degradation over time. A color wheel is used to provide over 16 million possible colors for display, and being a single chip system, there is never a convergence issue of the red, green and blue colors!

To ensure excellent color uniformity of all display colors across a tiled walled display with multiple projectors, the RPMX and CX Series utilize Primary Color Adjust (PCA™) which allows you to adjust the primary colors to match, projector to projector. This is not simply a drive or gamma adjustment but an actual adjustment of the primary colors themselves – a critical feature for tiled wall displays.



Over 16 million displayable colors and superior RGB color control with Primary Color Adjust (PCA™) for excellent color uniformity across tiled walled displays with multiple projectors.

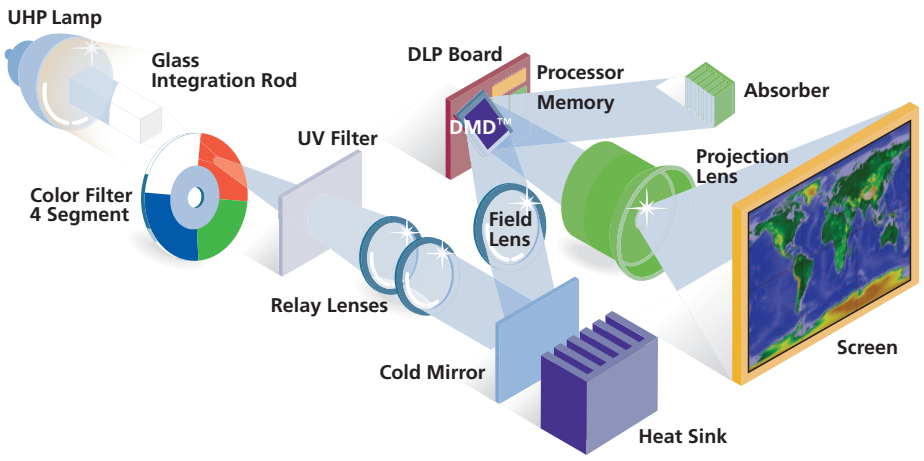
Christie Control Room Display Systems

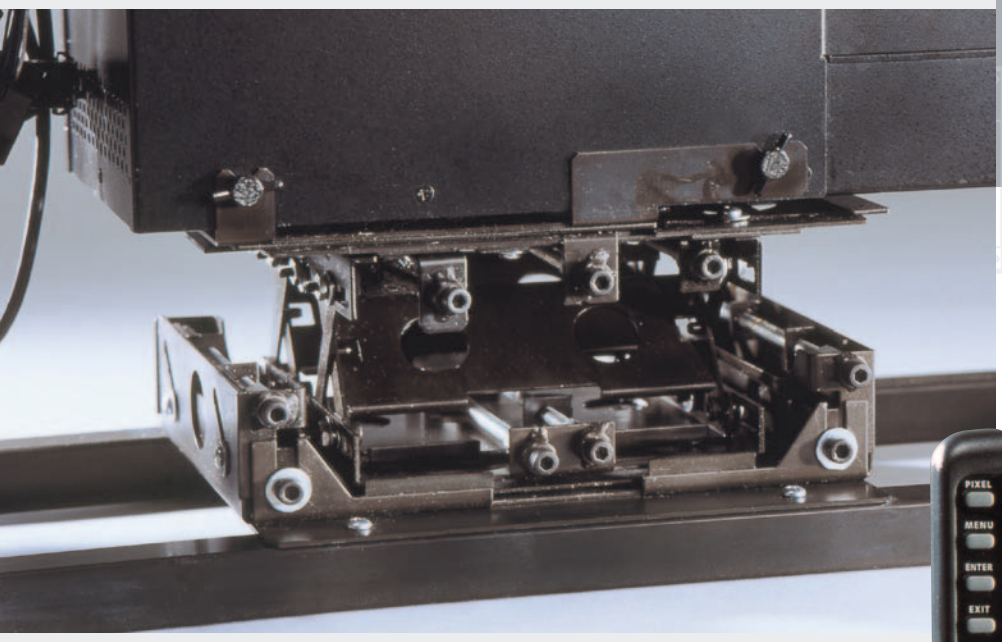
Whether a very small Operations Center with a few displays or a huge Command and Control Center with hundreds of displays, Christie provides the right solution for your application.

Advanced Color Wheel Systems

A specially designed color wheel system operates at "double speed" for an ideal balance between RGB performance and reliability. Christie's unique designs offer very long life and reliable performance and includes a 4 segment color filter, meaning it includes a red, green, and blue color filter, plus an additional clear segment. The clear segment, if activated by the user, allows a boost in brightness when displaying images with "white" content. However, when activated, it does compromise the ability to control for primary color adjustment. So Christie makes the white boost user selectable, allowing for the right balance between brightness and color matching requirements.

UHP Illumination System





Integrated, independent 6-axis adjustment provides accurate geometric control and set-up.

Christie's unique, user-friendly menu interface makes projector set-up and control fast and easy. And all our control room projectors use the same standard layout and format to make it easier for you.

MENU

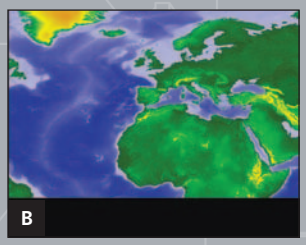
Main Menu	
1.	Size and Position
2.	Image Settings
3.	Input Setup
4.	Configuration
5.	Lamp
6.	Status
7.	Auto Setup

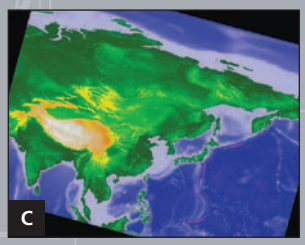
Size and Position		
1.	Resize Presets	
2.	Size	80
3.	Vert. Stretch	80
4.	Pixel Track	80
5.	Pixel Phase	80
6.	H-Position	80
7.	V-Position	80

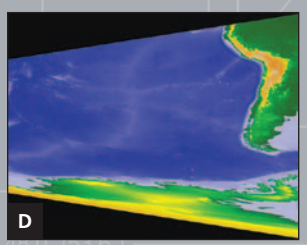
Resize Presets	
1	Default
2	No Resizing
3	Full Screen
4	Full Width
5	Full Height
6	Anamorphic

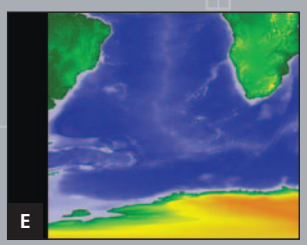
Integrated 6-axis Adjustment System

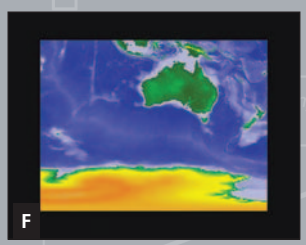
The RPMX and CX Series are the only XGA systems of their kind with a fully integrated 6-axis geometric adjustment system built directly into the design – resulting in overall system cost savings, increased performance and stability, and simpler installation. The 6-axis adjustment system allows the projector lens to be positioned very accurately relative to the display screen so that the image fits the screen with minimal distortion at all corners and edges. There are 6 directions of adjustment: side to side, top to bottom, zoom, tilt, pitch and yaw. Simple "adjusters" make adjustment very easy to perform by the set-up or installation technician. Once set-up, the projector remains stable with little need for future adjustment.











A. *Vertical Keystone*

B. *Vertical Position*

C. *Tilt*

D. *Horizontal Keystone*

E. *Horizontal Position*

F. *Zoom*

Christie Control Room Display Systems

Brightness and Lamp Life

	All Models	
	100W	**120W**
Boost On	500 ANSI lumens	600 ANSI lumens
Boost Off	400 ANSI lumens	480 ANSI lumens
Lamp Rating	Up to 10000 hours	Up to 6000 hours

* Rated lamp life is not associated with warranty. For lamp warranty details, contact your Christie Sales Representative.

Purpose-Built Flexibility

The RPMX and CX Series purpose-built 24/7 products are by far the most flexible system products for control room use. Because every control room and/or 24/7 application is unique, both the RPMX and CX Series offer extensive set-up and control capabilities to best suit your requirements. Our Christie-exclusive menu system and user-friendly graphics interface offers numerous set-up, control, service and display features and options to suit a variety of situations and needs. Broad range of control of display and input channel attributes, color temperature, primary color control, pixel adjustment, image scaling and geometric control are just a few of many controls provided within the base projection system.

Flexible Control

As an alternative to using the handy remote keypad, the entire projection wall can be controlled via an external control device such as a touch panel controller, computer, or a Christie display wall controller via serial network. A standardized protocol structure is included within the design for ease of use and control.

Calgary Transit Operations Control Center

Responsible for monitoring the Light Rapid Transit (LRT) train system, bus and ground transport services as well as an extensive CCTV security system for Calgary Transit, Calgary AB, this custom-built display structure is a 1x6 configuration featuring 6 RPMS-D100U projectors.

(Applied Electronics)

KCTS

Public broadcasting station KCTS in Seattle has embraced DTV since 1994 and as such, requires a master control with automation to handle all the new programming streams. Three Christie 50" GraphXMASTER cubes provide the video wall where an Avitech virtual monitor wall module enables the display of numerous real-time scalable images.

System Diagnostic Monitoring

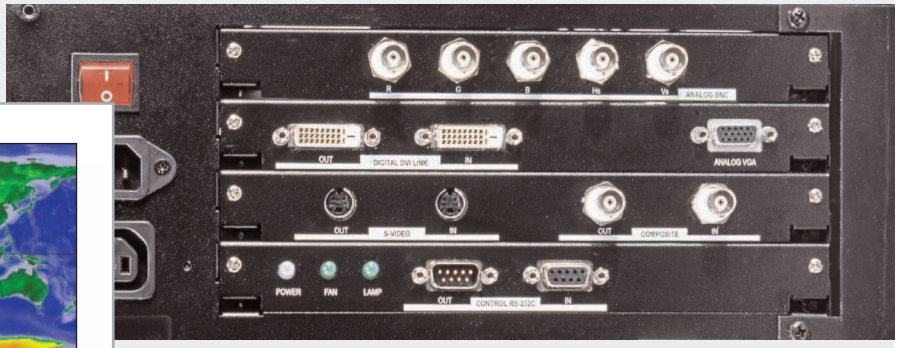
Both series include continuous diagnostic monitoring, fault display/messaging and status messaging features. Fault display LEDs are provided on the projector hardware for diagnostic fault identification.

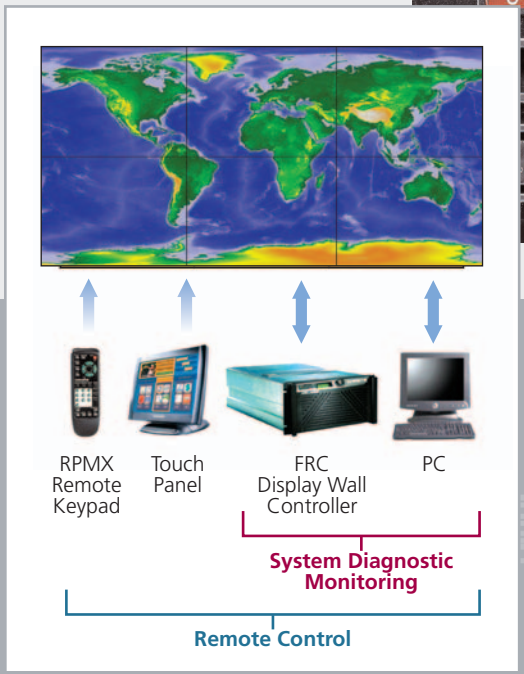
Superior Manufacturer Support

Christie recognizes that control room and tiled wall displays can be a significant and critical investment for our customers. Renowned for industry-leading support and service around the world, Christie ensures that customers are well supported with training, service and technical support through our extensive distribution and support network.

Christie is proud of its ongoing commitment to provide solutions that operate at maximum performance, combined with services and support that meet customer needs today and tomorrow.

Rear panel.





Powerful projector control and information/ diagnostic monitoring capabilities.

Christie Control Room Display Systems

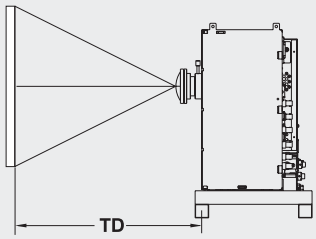
PISA Terminal – Italian Railways

The recently completed Pisa terminal, manages the track on the northwest coast of Italy, from Genoa to Rome. Ansaldo Signal NV Group (The Netherlands) won the public tender and partnered with Christie to install and support the display technologies integral to the Centralized Traffic Controls (CTCs).

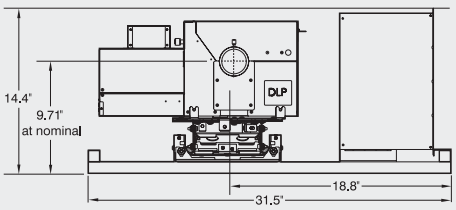
A display wall illustrates the traffic situation in the area, created using 26 DLV1280-DX projection systems. These systems project onto 26 DNP high-contrast, high-gain screens, each displaying 1,310,720 pixels of information (1290 x 1024) at more than 1500 ANSI lumens brightness. Operators work in 8-hour shifts, 24 hours a day, making this command and control installation truly 24/7 mission critical.

GraphXMASTER RPMX-100U

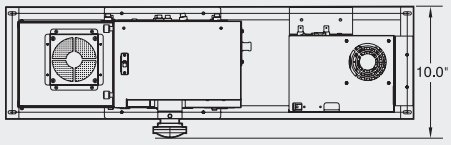
Throw Distance Formula
TD = (0.826*W)+ .048″
where w = screen width in inches



Lens may be positioned horizontally (0˚) or vertically (90˚).
Horizontal orientation shown.

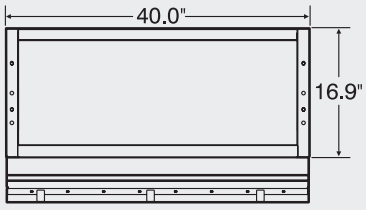


FRONT VIEW



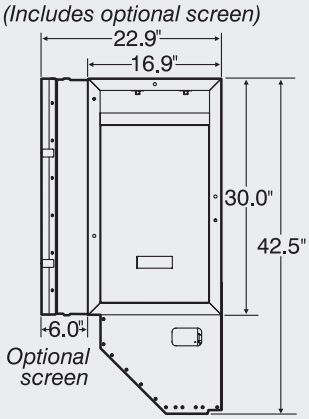
TOP VIEW

GraphXMASTER CX50-100U

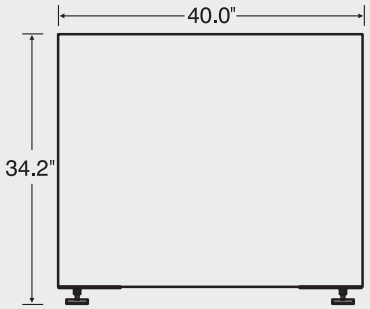


TOP VIEW

(Includes optional screen)

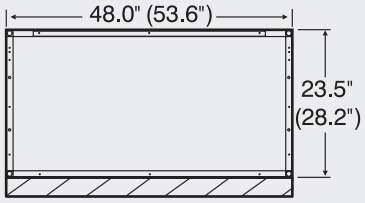


SIDE VIEW



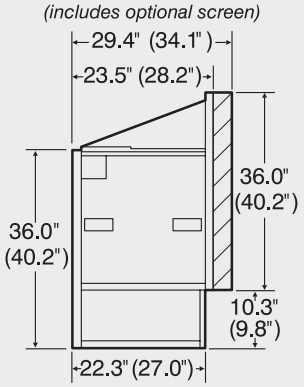
OPTIONAL PEDESTAL (FRONT)

GraphXMASTER CX60-100U
GraphXMASTER CX67-100U

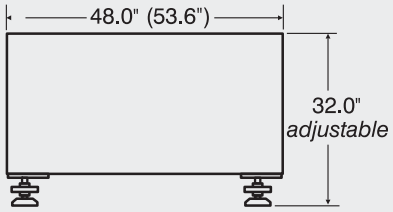


TOP VIEW

(includes optional screen)



SIDE VIEW



NOTE: Dimensions in parenthesis ( ) apply to CX67-100U only.

PEDESTAL VIEW

Dimensions shown are for reference only. See your Christie representative for details.

Dimensions in parenthesis ( ) apply to 67" cube.
All other dimension apply to 60" cube.

Christie RPMX & CX Series

Specifications

Christie offers the broadest range of high resolution 24/7 solutions for Control Rooms.

IMAGING PANEL TYPE
- DLP™, single black-chip, 12˚ DDR type

RESOLUTION
- XGA, 1024 x 768 native
- Supports SXGA

BRIGHTNESS
- Refer to the Brightness and Lamp Life chart in this brochure for nominal brightness at each operating mode

PROJECTION CHARACTERISTICS (PROJECTION ENGINE ONLY)
- >90% brightness uniformity
- Contrast ratio: 1200:1 maximum, 1000:1 nominal
- Color temperature range: 3200K to 9600K
- Display colors: 16.8 million

LENS (RPMX)
- 0.83:1 short throw lens

SCREEN SIZE FOCAL RANGE (RPMX)
- 40" to 70" diagonal (call for applications >70" diagonal)

SCREEN OPTIONS (CX SERIES)

CX50-100U with TruView™ High Gain Screen
- Horizontal viewing angle: 160˚ viewability range, 1/2 gain +/- 40˚
- Vertical viewing angle: 60˚ viewability range, 1/2 gain +/- 10˚
- On-axis peak gain: 3.7
- Type: Fresnel/Lenticular (two element)
- Surface finish: low reflective
- 1mm "seamless" design
- Cube brightness with screen: See brightness chart and multiply lumens by 1.5 for approximate cd/m² brightness

CX60-100U with TruView™ High Gain Screen
- Horizontal viewing angle: 160˚ viewability range, 1/2 gain +/- 25˚
- Vertical viewing angle: 60˚ viewability range, 1/2 gain +/- 9˚
- On-axis peak gain: 3.3
- Type: Fresnel/Lenticular (two element)
- Surface finish: low reflective
- 1mm "seamless" design
- Cube brightness with screen: See brightness chart and multiply lumens by 0.95 for approximate cd/m² brightness

CX67-100U with TruView™ Wide Angle Screen
- Horizontal viewing angle: 180˚ and +/-35˚
- Vertical viewing angle: 180˚ and +/-35˚
- On-axis peak gain: 0.82
- Type: Fresnel/Black Bead (two element)
- Surface finish: low reflective
- 1mm "seamless" design
- Cube brightness with screen: See brightness chart and multiply lumens by 0.2 for approximate cd/m² brightness

LAMP CHARACTERISTICS
- 100/120W UHP lamp (user-selectable wattage)
- Lamp life: up to 10,000 hours (see Brightness and Lamp Life chart)

COLOR WHEEL CHARACTERISTICS
- Long life, high reliability
- Specialized, double-speed, four-segment

INPUTS
- 2 analog inputs: 5 BNC (RGBHV); 15 pin VGA
- Digital: DVI-D IN (female) and loop through OUT (male) – cables not included
- Composite Video BNC IN and loop through

BNC OUT (CVBS)
- 5-Video IN and loop through OUT (Y/C)
- NTSC 4.43, PAL, PALM, PAL N, PAL60
- Scaling/tiling (Picture Integration) to 6 x 6 configuration

ELECTRICAL
- Horizontal input range: 15 kHz to 85 kHz
- Analog vertical range: 50 Hz to 85 Hz
- Pixel clock rate: 135 MHz
- Sync: RGBHV, composite, sync on green

CONTROL
- IR remote keypad
- Serial RS-232 IN (female 9-pin) and OUT (male 9-pin) with networking

POWER
- AC Input: 100-240V +/- 10% (auto switching), 50/60 Hz
- Consumption: 250W maximum
- Thermal dissipation: 850 BTU/hr

ENVIRONMENTAL (EXCLUDING SCREEN)
- Operating temperature range: 50˚ F to 95˚ F (10˚ C to 35˚ C)
- Operating humidity: 20 to 95% non-condensing
- Altitude: 0 to 4000m (0 to 13,123 ft)
- Storage: -20˚ to 60˚ C, 20 to 95% RH, NC

Note: For optimum optical performance of the screens, it is recommended to install and use the screens under regulated guidelines for temperature and humidity. Please consult installation manual.

PHYSICAL (RPMX SERIES)
- Industrial design for rack or cube type installation
- Unique integrated 6-axis geometric adjustment system – provides accurate and stable geometric alignment
- Both 0˚ and 90˚ lens orientation
- Modular design for fast and easy serviceability

PHYSICAL SPECIFICATIONS
- RPMX-100U rear projector weight: 42.2 lb (19.2 kg) (approximately, unpacked)
- CX50-100U display wall cube weight: 168 lb (76.2 kg) (with screen)
- CX60-100U display wall cube weight: 202 lb (91.6 kg) (with screen)
- CX67-100U display wall cube weight: 246 lb (111.6 kg)
- Maximum stack height: 4 cubes

SOFTWARE
- Christie exclusive menuing system, easy-to-use Graphical User Interface

PERFORMANCE
- 24/7 high reliability, long life design
- Primary Color Adjust (PCA™) – provides true color matching control across the display wall
- Lamp power switchable between 100 and 120W

REGULATORY
- Safety approvals: CAN/CSA C22.2 No. 60950-00, UL60950 3rd Edition, EN60950
- EMC – emissions: FCC Part 15 and EN55022 (CISPR22) Class A
- EMC – immunity: EN 55024
- This product conforms to all relevant European directives, safety, health and environmental concerns and bares the CE marking
- China Compulsory Certification (CCC)

RELIABILITY
- MTBF: >30,000 hours for major modules (excludes lamp, Color Wheel = 20,000 hours)
- MTTR: <15 minutes for any major serviceable component

WARRANTY
- 15 months parts and labor, excluding lamp

Corporate Offices

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Cypress, CA 90630
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FX: 714-503-3385
Toll free: 866-880-4462 (NA only)
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