

**Visual Solutions** 

The Biggest Pictures with the Smallest Details:

## A Projector Technology Guide for Themed Entertainment and Immersive Spaces

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## Introduction

The thrill of seeing something unexpected or new for the first time is an experience that stays long in the memory. Today, our ability to use technology to place people right at the heart of these new experiences has never been greater. Whatever we can imagine, we can create as an immersive experience – past, present or future, reality or fantasy. And it's this promise that is bringing visitors back to our theme parks, entertainment and cultural venues. It adds up to big business with Greenlight Insights projecting the location-based entertainment market to be worth \$12 billion by 2023.

Dig a little deeper and it's clear that immersive experiences are going to be a long-term trend. Recent research shows spending on "doing" brings us more happiness than spending on "having". We have become an experience economy, where our basic needs are easily met, and we are looking for something more. We want to participate actively and feel connected. The researchers from the McCombs School of Business at The University of Texas believe one probable explanation is the endurance of experiences in people's memories, while the perceived value of material goods weakens over time.

So, what makes for a great immersive experience and how best to use technology to create one? This guide aims to break down those elements. It's written for those looking to understand more about the different projector technologies available and where and when they should be used to best immersive effect.

Your Panasonic Visual Solutions Team

# **Building the Experience**

To create an experience that people will remember and want to share with their friends and family, it must immerse the visitor in the content and the story. From a visual perspective this means ensuring people are close enough to the imagery to feel part of it – for it to feel so real that they could almost to be able to reach out and touch it.

In today's digitally connected world, the experience must also be able to be captured and shared on social media. The illusion of immersion must be maintained by the visual eye and by the camera through photos or video. This dual challenge is not always straightforward but it is important in helping to satisfy the visitors' need to share their experiences and through that communication successfully promoting the attraction to the wider world. Choosing the right projector to create your immersive experience is the first step to success.

### PROJECTION MAPPING ON BUDA CASTLE & PARLIAMENT BUILDING

We brought to life the most important event of the year in Hungary! 50 Panasonic high brightness projectors were used for an incredible projection mapping show on the country's Parliament building and Buda Castle in Budapest to celebrate the founding of the state. More than 700,000 people witnessed the fantastic spectacle. Take a look at the full story.

MORE INFORMATION

Visit: https://www.youtube.com/watch?v=0w-SUXTBo11 or https://business.panasonic.co.uk/sistemas-visuales/projection-mapping-Hungary





The most immersive experiences often require large scale images, surrounding and filling the vision of visitors with the content. This is achieved by seamlessly blending images from multiple projectors to look like one single image. It may sound simple, but this is not an easy task to achieve.

To ensure a truly immersive experience, the blended images must always look natural. This means that there should be a uniformity in brightness across the entire image and that colours are even - without any distractions or blemishes that could break the connection with the viewer. To successfully blend images, it is important that all the projectors chosen produce the same levels of visual quality and can be matched to one another seamlessly. The ability to stay consistently uniform is important because the projectors may be being used up to 20 hours a day, every day for months, or years. Brightness, colour saturation and image clarity are all areas to examine, as well as ensuring that the blending remains uniform even with warping techniques applied. Image warping (geometric correction) is a technique used to make an image look visually correct when it is projected onto an irregular surface.



### **Panasonic Blending Solutions**

Panasonic has invested significantly in this area to ensure that its projectors can blend images seamlessly using a range of easy to use tools. Panasonic Geometry Manager Pro software offers several levels of functionality to cope with increasing complexity. Geometric adjustment for 3D mapping can be used to create eye-catching effects and Auto Screen Adjustment is ideal for multiple projector set-up when time and accuracy is of the essence.

Panasonic is also continuously developing additional features to help the creators of immersive experience projects to create ever more life-like content.



### GEOMETRY MANAGER PRO SOFTWARE

Available on most Panasonic projectors, Geometry Manager Pro Software provides all the basic functionality required to set-up the projectors and deliver blended, immersive images.

To save time and ease the configuration of multiple projectors, it is possible to export/import settings and data from one Panasonic projector to another.

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### The software includes:

- Adjustment of lens and projector alignment
- Geometric correction
- Edge blending
- Uniformity adjustment
- Setup brightness control
- Colour matching adjustment
- Masking

#### **GEOMETRIC ADJUSTMENT FOR 3D MAPPING (ET-UK20)**

For creating eyes catching effects or stunning indoor or outdoor 3D mapping, Panasonic also provides an advanced upgrade kit for Geometry Manager Pro. The ET-UK20 upgrade kit can be used to expand the correctable range and lets you maximise the projector's performance by minimising set-up time and costs. It supports colour matching, edge blending, custom masking (line masking or bitmap masking), uniformity correction, and other useful functions for multi-projector setups (max. 32 units). Its flexible and complex projection capability suits a wide variety of screen shapes.

#### Upgraded features include:

- Creative line and bitmap masking enabled
- Flexible Correction Uniformity (V/H Flip/Rotation)
- Advanced Geometric Adjustment options

#### AUTO SCREEN ADJUSTMENT UPGRADE KIT (ET-CUK10)

For the most complex projector image set-ups, the Auto Screen Adjustment Upgrade kit is the ultimate tool. Use it to set-up multiple projectors automatically and simultaneously in three easy steps to save time and expense:



### **PROJECTOR SET-UP:**

Simply adjust the lens zoom, shift and focus to cover the whole screen area.





### CAMERA SET-UP:

Set the camera to cover the screen area and select multiple points on the edge of the screen using the PC.





### AUTO ADJUSTMENT:

Automatically calibrates correction values and applies them to the projectors.

Automatically adjust:

- Geometric Adjustment
- Edge blending
  - Colour matching
- Projector stacking
- Brightness control
  - Black level



### **Gradation Smoother**

To enhance the viewer's colour experience, Panasonic has recently added a Gradation Smoother feature to its projectors. This feature smooths out unwanted banding to show images as the content creator intended without the need for re-editing – significantly saving time in the set-up process.

How to create the biggest picture

## Edge Blending - Black Level Adjustment

A recent addition to Geo Manager Pro, flexible black border shape adjustment ensures the most effective blending on a curved screen. Previously black borders could only be blended on a straight line. Now up to 17 points can be adjusted in a curved line to fit any screen.

In addition, Panasonic laser projectors also have at least a 90% brightness uniformity, where the edges of the image are at least 90% as bright as the centre. This helps to ensure a good even edge blend and brightness levels, even on a curved surface.

### FLEXIBLE BLACK BORDER SHAPE ADJUSTMENT (Before/After)



CAN ONLY BLEND ON A STRAIGHT LINE Only the border width and angle are adjustable.



### CAN BE ADJUSTED ON A CURVED LINE

Can be adjusted at up to 17 points. Choose from 2, 3, 5, 9, or 17 points at equal intevals. When adjusted with 17 points, it is equivalent to 4K resolution. Can be matched within 0.5dot error.

EDGE BLENDING ON A CURVED SCREEN

- - Black border shape didn't fit the screen.



- - Black border shape can be adjusted to fit the screen.



## Brightness & **Colour Control**

To further ensure consistent colour and brightness control across an image created by multiple devices, Panasonic has an internal digital sensor in its projectors. When multiple projectors are connected, this sensor detects, replicates and maintains the same colour and brightness as all other units. If brightness levels of one projector drop, others will automatically adjust to maintain the integrity of the blended image. The sensor is also useful for maintaining accurately blended images with projectors capable of different brightness levels.

### **Conventional Projector**

Time when units installed (A)



Multi-Unit Brightness and **Color Control Function** 

Time

Time when units installed (A')

### **PANASONIC IMMERSIVE EXPERIENCES – ILLUMINARIUM**

Forty-six 50,000 lumen 4K laser Panasonic projectors will deliver projection mapping over three billion pixels in each of the 25 to 30 entertainment venues to be known as 'Illuminariums' around the world over the next five years. Panasonic has partnered with Illuminarium Experiences, a reprogrammable immersive theatre that surround visitors in a sensory space of sight, sound and scale unlike any other. Starting with an immersive virtual safari in the first venues, the aim is to bring to life out-of-reach places, people, and experiences to make our planet more connected.

# Resolution: Bringing to life the smalles details

As well as the impact of large, singular images on the immersive experience, another technology development that has significantly helped in the creation of immersion is the increase in image resolution. This is reflected in market sales figures, where the growth of projector sales can be seen for projectors with WUXGA and 4K resolution upwards as far as 8K resolution.

This growth is because of the visual benefits that higher resolution projectors can bring to the immersive experience. The audience can get closer to the image, seeing more detail, without visible pixellation. Imagine visiting a museum to see a master painting, such as the Mona Lisa in the Louvre. As you look at the image, it is not just the overall image that is fascinating. It is being able to see the brush strokes, how the paint sits on the canvas and the miniscule details. The higher resolutions available from projectors today, enables this same immersive experience to be replicated.

**Note:** One challenge of increasing resolution is that more detailed resolution and images create larger files and require more powerful and larger content management systems but this is a small price to pay for the increased realism on offer.

#### GENIUS

Get to know the world through the eyes of Leonardo da Vinci. In the new immersive experience "Genius" in Berlin, you have the possibility to interact with da Vinci's art and inventions. The stunning show is being brought to life by the producers of BIGborealis using 32x Panasonic PT-RZ990 / PT-RZ120 projectors with ET-DLE060 and ET-DLE020 lenses.

Hey, come closer and let's chat a bi Resolution: Bringing to life the smallest details

### Technologies to create your immersive experience

There are several projector technologies to consider for your immersive experience:

### LCD PROJECTORS WITH 4K INPUT CAPABILITY

This is for the budget constricted venues wishing to deliver an element of immersive visuals and remain future-proofed with their projector technology. These projectors are 4K ready, in terms of cabling and connecting to 4K content management systems for example, but the images projected will not be in 4K standard.

### NATIVE 4K CHIPSET IN 3-DLP PROJECTOR MODELS.

The ultimate in high resolution images, ideal for content creators that want images that perfectly match their original concepts with the exact same number of pixels replicated on screen. A top of the range solution, with 4K Native chipsets typically being used in cinematic film production.

### **1-CHIP AND 3-CHIP DLP PROJECTORS WITH WOBBLING TECHNOLOGY**

A range of projectors delivering enhanced resolution images for true immersive experiences. There are two types of Panasonic pixel shifting technologies that achieve these incredible resolutions.

#### 1-axis pixel shift.

1-axis pixel-shifting technology produces crisp, smooth, richly detailed images beyond the projector's panel resolution. This high-speed processing engine leverages the DMD's high pixel density and thin aperture ratio to almost double the number of pixels in the images delivering superior depth and definition. Fine details and textures are clearly expressed for a more captivating and sensory experience. **2-axis pixel shift:** Panasonic's unique Pixel quadrupling technology. Even better resolution is achieved by employing a high-speed DMD chip that shifts each pixel vertically and horizontally, quadrupling the pixel-count. Working in concert with Real Motion Processor 240 Hz frame-creation, Quad Pixel Drive technology produces film-like quality images. As well as silk-smooth video, this powerful processing engine renders text in the finest detail for immersive experiences.

#### PIXEL QUADRUPLING TECHNOLOGY

Shifting pixels vertically and horizontally creates ultra-high-resolution pictures that exceed standard Ultra HD resolution.



## Superior Image Quality LCD or DLP - Choosing the right technology

There are two competing projector technologies available on the market. Panasonic has a wide range of projectors in both technologies to meet your needs. Whether you choose LCD or DLP-based projectors for your immersive experience should depend on your individual requirements for colour, brightness, reaction times, reliability and available budget. Every set-up is different and the technology should be determined by your requirements. Both technologies have advantages and disadvantages and we examine them here:

### LCD Projector technology:

#### Advantages

Very useful when colour accuracy is important. No need for Ultra-HD resolutions. Mostly used when budget is a constraint and in single screen projection, or when running time is kept below 8 hours per day.

### Disadvantages:

More maintenance is required when compared to DLP. The colour panels still use inorganic components which means that colour will shift over time and it's difficult to predict what it will look like on screen. Recalibration also results in a drop in brightness – diminishing the quality of images.

LCD projectors also require air cooling. This means that dust can infiltrate, reducing brightness and reducing the lifetime of components. When it comes to blending images from multiple LCD projectors, they are more difficult to match than DLP and the slower response times of the units are not suited to 4K pixel shift. Lastly, they have a more highly visible pixel grid, sometimes reducing the immersive impact.

### **DLP** Projector Technology:

### Advantages

Ideal for when Ultra-HD resolution and when high contrast images are required. Easier image matching when multiple projections are deployed. Much more resistant to dust intrusion and high temperatures, so a very reliable solution for much longer hours of operation, with no maintenance required.

#### Disadvantages of 1-Chip DLP:

Major improvements have now minimised any potential disadvantages of this type of projector. The vibrant colour quality of 1-Chip DLP projector is now comparable with LCD. Visible rainbow effects via the human eye are also now very rare and rainbow effects when using most smartphones for photos or video have now been addressed meaning content can still be shared on social media.

#### Disadvantages of 3-Chip DLP:

3-Chip DLP projectors combine the best of LCD and 1-Chip DLP projectors to deliver some of the highest quality and most reliable solutions. Of course, as a result of the superior quality and performance, these are not low budget devices.

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Superior Image Quality

### **Light Source**

Your choice of LCD or DLP technology projector will already help to define the quality and type of image output but the type of light source is another important consideration. Most projectors are now already using a laser-based light source but with these laser light sources there are some differences that will have an impact on the image colours. However, in all light sources, the key to quality and reliable images is temperature control.





General laser light sources available are:

Superior Image Quality

### Laser/Phosphor

Superior Image Quality

### Laser/Phosphor with added red laser

Most projectors in themed entertainment are using the mature technology of laser/phosphor. It uses blue lasers and a phosphor colour wheel and is very reliable. Panasonic continues to heavily invest in this technology to add its own unique additional enhancements to ensure superior quality. For example, a dust resistant and filterless design for maintenance-free reliability, reliable phosphor colour wheels for accurate colour reproduction and energy efficient cooling for stability. To increase colour performance, many manufacturers are also adding a red laser. Mostly used in 1-DLP projectors to improve colour performance against LCD. The challenge with adding red laser technology is that it is very sensitive to heat issues. When the operating temperature is too high there is a significant reduction in light output and in the reliability of the device. As a result, Panasonic has developed two control technologies to maintain a constant temperature and deliver precise light-output correction to ensure stable projection in all usage scenarios.

### UNIQUE PANASONIC TECHNOLOGY EQUALS SUPERIOR QUALITY



Panasonic continues to invest in developing its own light sources to enable the best stand-out colour performance and reliability in its latest models.



# Invisible technology

Although projectors are an essential element in creating an immersive environment, they also need to remain an invisible technology, so as not to distract the audience from the immersive impact of the image. As a result, it is important to consider three important elements: Invisible placement, noise levels and power consumption. All three elements ultimately help to deliver return on investment by creating a better overall viewing experience and lowering running costs.

### PANASONIC IMMERSIVE EXPERIENCES – BYLO NEBYLO, VAN GOGH, MONET, RENOIR

"Thanks to the incredible Panasonic equipment we have here - which doesn't distract with noise or too much heat - we have created an incredible environment to deliver this successful visual event and, importantly, to be able to bring it to other countries," said Serge Grimaux, Event Producer of the immersive exhibition entitled Bylo Nebylo, Van Gogh, Monet, Renoir, at Prague Forum Karlin in the Czech Republic, that uses 28 Panasonic projectors to bring the works of the world's greatist impressionist painters to life.

MORE INFORMATION For more information vist: https://business.panasonic.co.uk/visual-system/ case-study/case-study-national-museum-prague



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Invisable Technology

## Noise levels of the Projectors.

When it comes to noise, Panasonic has some of the world's quietest projectors. Panasonic produces some of the quietest projectors on the market. For example, Panasonic invented the first LCD projector with a liquid cooling system – creating the lightest and quietest projector in its category at 38dB in normal operating mode.

### LIGHTEST AND THE QUIETIST PROJECTOR IN THIS CATEGORY (38dB NORMAL)





First LCD projector to have liquid cooling unit. Panasonic's original technology invented small and high quality cooling system realizes low noise operation.

### TYPICAL PROJECTOR MINIMUM AND MAXIMUM NOISE LEVELS:





Invisable Technology

### The ability to install the projectors in a non-visible position

Using the latest projectors and a wide variety of lenses, it is possible to position projectors where they will be unnoticed by the audience. Panasonic is constantly using the latest component technology and innovating to bring down the size of the projectors without impacting on the quality of image.

For example, Panasonic reduced the footprint of its latest generation **RQ35K** projectors by **40%**, compared to the previous generation, by creating a more powerful cooling system, designing a new laser drive engine and improving the laser drive, and adjusting the airflow design. It is also now possible to produce a 50,000 lumen projector in an almost identical size chassis that would have been used for a 30,000 lumen projector just 3 years ago.

### **REDUCED POWER CONSUMPTION RQ35K**

### New Cooling System

Finless Radiator 30% MORE powerful for Efficient Cooling.

### Laser Drive Engine

All new laser drive design Multi-Laser Drive.

### Improved Laser Drive

With efficient digitalized Laser drive, reduced the necessary volume.

### Air Flow Design

All new airflow design Optimized for the RQ35.

### Footprint RQ32K



### Successfully cut 40% from RQ32K Series

#### Footprint RQ35K



### PANASONIC IMMERSIVE EXPERIENCES – THE NATIONAL MUSEUM IN PRAGUE

When the National Museum in Prague built an underground corridor to connect its old and new buildings, they created a spectacular exhibit, called Moments of History. This unique multimedia projection brings to life the history of the city from prehistory to the present using 38 Panasonic projectors invisibly positioned in the ceiling with Ultra Short Throw lenses to create 112m of panoramic views.

MORE INFORMATION
Discover more at: https://bylonebylovystava.cz/en





Invisable Technology

### Overall power efficiency

In the same way that Panasonic is constantly striving to reduce the size of its projectors, the company is also looking to reduce the power consumption of its units. Power consumption can be directly linked to brightness and noise level but by using the latest laser diode technology, it is possible to reduce both power consumption and noise level.

### PANASONIC IMMERSIVE EXPERIENCES – VELÁZQUEZ

The art of Spanish painter has been brought to life in a stunning 360 degree immersive experience at the Velázquez Tech Museum in Madrid with the help of Panasonic. The tour shows different interpretations of the famous artist's work using innovative video mapping techniques, interactive systems and holograms. The Panasonic PT-RZ660 and PT-RZ120 projectors along with the Panasonic ET-DLE060 lens and Panasonic ET-DLE035 ultra-short throw lens have been used to help create this mesmerising experience.

### MORE INFORMATION

Find out more: https://business.panasonic.co.uk/visual-system/el-velzquez-tech museum-ofrece-una-expriencia-inmersiva-a-traves-de-proyectores-panasonic



# Reliability

Reliability is a critical consideration when creating an immersive experience. In most attraction and entertainment venues the projectors could be operating for extended periods. Downtime or black screen time are unacceptable and as a result the projectors need to be reliable. Panasonic projectors are designed for maintenance-free 24/7 operation to cope with user requirements.

All Panasonic's laser projector models contain built-in features to prevent black screen time. For example, all projectors have a multi drive laser light source, so that should one light source fail, the projector can still operate. All laser models also feature a fail-safe input system ensuring that if an input fails, it will switch to a back-up without loss of image.

Reliability can also be increased by selecting the right projection technology. Panasonic DLP projectors are fully maintenance free thanks to completely sealed and filter-less design. These include:

### • Filterless dust resistant optical design.

With a combination of liquid cooling and heat pipe cooling technology, Panasonic achieves low noise level and filter-less design.

- Liquid cooling system for laser light source.
   New liquid cooling system for laser light source keeps crisp image with low noise level.
- Heat pipe cooling system for DMD chip. Maintains high quality with low noise level.
- Filterless dust resistant optical block.

By reinforcing dust resistant design, eliminate the air filter for the entire optical path – from the light source to optical engine.

Alongside these reliability features, Panasonic projectors are also certified for use in high temperatures up to 45 degrees centigrade. This makes the projectors the ideal choice for use in confined spaces, such as when concealed in the ceiling.

LCD technology is less reliable because it requires air cooling and it is more difficult to completely seal the engine no matter how good the filters are. However, if there is a limited budget and downtime available for maintenance, then this technology can be used for immersive experiences.

### Reliability Suppressing projector vibration

Another factor that can ruin a visually immersive experience is any kind of small vibration of the projector. For example, projector vibration can be a major obstacle when projection mapping high definition images. Even the slightest vibration can cause distortion and blurring of images that are being projected many metres away. As a result, Panasonic has developed a unique lens-mounter for its high-end devices that holds the lens firmly in place, preventing vibration, while still allowing the lens to be changed quickly and easily by an operator.

### Reliability

### Warranty certainty

Regardless of technology, all projectors come with a standard 3-year warranty or a guarantee of 20,000 hours of non-maintenance operation in normal mode – whichever comes first. After 20,000 hours of operation, the projectors will still deliver at least 50% of original brightness levels. Depending on the operating mode used, projectors can run for almost 90,000 hours without maintenance. Warranty extensions are available for up to 5-years and also more customised warranty plans are possible.

Remote maintenance solutions are now also available, with Panasonic monitoring the performance of the projectors remotely and providing servicing and maintenance as required.

If you need immersive projectors, we have a solution to meet your needs!

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Reliability

## **Panasonic Immersive Projectors**

LCD 1-CHIP DLP <sup>TM</sup>			3-CHIP DLP™				
	- 60	0	0				
PT-MZ880 series	PT-MZ16 series	PT-RZ120 series	PT-RCQ10 series	PT-RQ13	PT-RQ22 series	PT-RQ35 series	PT-RQ50 series
3 Models	3 Models	5 Models	2 Models	1 Model	2 Models	2 Models	1 Model
6.000 to 8.000lm	10.000 to 16.000lm	6.000 to 12.000lm	8.000 to 10.000lm	10.000lm	20.000lm	30.000lm	50.000lm
WUXGA Resolution	WUXGA Resolution	WUXGA Resolution	2715x1697 Resolution Output	4K+ 5120x2880 Resolution	WUXGA or 4K Resolution	WUXGA or 4K 3840x2400 Resolution	4K Native 4096x2160 Resolution
Blue Laser + Phosphor	Blue Laser + Phosphor	Blue Laser + Phosphor	Blue Laser + Phosphor	Blue Laser + Phosphor	Blue Laser + Phosphor	Red & Blue Laser + Phosphor	Red & Blue Laser + Phosphor
			Improved 1 DLP Color Technology	2-axis Pixel Shift	2-axis Pixel Shift for 4K+ Model	2-axis Pixel Shift for 4K+ Model	4K Native
				PROFESSIONAL	PROFESSIONAL	PROFESSIONAL	PROFESSIONAL



### MORE INFORMATION

For more information on the right immersive experience projectors for your installation, visit: https://business.panasonic.co.uk/visual-system/projectors



# Beyond the projectors Optional Lenses

Your choice of projector is the most important decision for your immersive experience but there are also other important considerations, such as the special lenses and software applications.

### Panasonic has a very large selection of zoom lenses, using a wide range of technologies, in each projector series to meet any need.

### LENSES



#### MORE INFORMATION

For more detailed information on all available Lenses, visit: https://business.panasonic.co.uk/visual-system/projector-accessories/lenses



ET-D3QW200

# Beyond the projectors Ultra Short Throw (UST) Lenses

Panasonic has a range of UST lenses, using various designs and technologies, available for all three projector technologies: LCD, 1-Chip and 3-Chip DLP.

ET-DLEO20

Mirror type UST lenses with offset are ideal when you want to hide a projector in the ceiling. Zero offset UST lenses with V/H shift are available for projectors that can be installed within view and periscope lenses are available for our 3-Chip DLP projectors from 20-50K lumens. Panasonic also has unique fisheye lenses for 360° dome projection using just two projectors.



### MORE INFORMATION

For more information on Ultra Short Throw Lenses for your projector, visit: https://panasonic.net/cns/projector/download/catalog/pdf/ET-EMU100\_ELU20.pdf



### Beyond the projectors Real-Time Tracking Mapping Software

The trend of immersion has evolved from a requirement for large-scale images, then for viewers to be able to stand close to the projections and now to a desire for interaction with the immersive experience.

To respond to this requirement, Panasonic has introduced Real-Time Tracking Mapping Software for its 30K lumen 3-Chip DLP (PT-RQ35K) projector and its PT-FRQ 1-Chip DLP (PT-FRQ50/60) projector series.

Amazing visual effects can be achieved using the Real-Time Tracking Mappaing Software Development Kit (ET-SWR10). The projector, in combination with infrared light, camera, and a content server, creates a Real-Time Tracking Projection Mapping System that is ideal for use by production companies at live entertainment events, theme parks, museums and Esports. The kit enables the projector to accept and output 240Hz HD signals delivering enhanced images with a latency of just 5ms and the ability for virtual real-time tracking with the precise location calibration of moving objects.

Using this groundbreaking, real-time technology the creative possibilities are endless. Logos and images can be perfectly projected onto fast moving basketballs as they fly around the court and stunning visual effects can track every movement of the artists as they leap around the stage.





### PANASONIC IMMERSIVE EXPERIENCES – OLYMPIC COUNTDOWN EVENT

The real-time tracking and projection mapping projector was used for a highly innovative video performance during the "One Year to Go" Ceremony, held at the Tokyo International Forum on July 24, 2019.

During the opening performance, participants enjoyed an innovative video projection of colours and effects that followed a fast-moving dancer while she performed a dynamic routine that included many difficult gymnastics movements.



MORE INFORMATION

See the performance here: https://www.youtube.com/watch?v=T7j6q\_zAkjM&t=43s



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# Securing your Return on Experience (ROX)

Working with Panasonic ensures the creators of immersive experiences have the widest range of projections solutions to meet any need. To maximise return on that experience it is important to consider:

### **Superior Image Quality**

- The right projector technology for each budget, including blending and geometric corrections
- State of the art colour reproduction

## Flexible Installations in existing structure

- Extensive lens options offer flexible installation in an existing structure
- Low noise operation

### 24/7 Reliability for low running costs

- Maximum uptime no black screens
- Efficient maintenance
- Remote service solutions
- Eco efficient power design

#### MORE INFORMATION

For more information on the right immersive experience projectors for your installation, visit: https://business.panasonic.co.uk/visual-system/projectors



## Panasonic CONNECT

Pansonic Connect Europe GmbH Hagenauer Straße 43, Wiesbaden, Gemany



### MORE INFORMATION

For more information on the right immersive experience projectors for your installation, visit: https://business.panasonic.co.uk/visual-system/location-based-entertainment-solutions

For more information about Panasonic projectors, please visit: Projector Global Website – panasonic.net/cns/projector Facebook – www.facebook.com/panasonicprojectoranddisplay YouTube – www.youtube.com/user/PanasonicProjector



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