LAZZ

OUTDOOR PROJECTION SYSTEM



BEHIND THE LIGHT

This article explains the original LM3X[™] projection mapping technology and how you can use it to light up your projects.



Early days

A group of friends founded Lumitrix Ltd. in 2012.

We started by building the prototype of a fully integrated projection mapping device. The goal was to make this device weatherproof since we envisioned most installations outdoors.

We designed a variety of brackets to enable installations of the projectors outdoors, on existing light poles, roofs, walls and other urban objects.

Vision

LM3X[™] company is built around the idea of projection mapping, using digital projectors to illuminate physical objects.

Projection mapping is the most advanced lighting technology to date. It is a natural progression of lighting from analogue to digital. Projection mapping is dynamic and more capable than traditional static (GOBO) lights.

You can use projection mapping for traditional illumination, colour-changing schemes or festive illumination. You can show moving video content, visualize data or create augmented reality experiences. When projected light merges with the underlying 3D object, a perfect illusion is created: it's impossible to tell what is reality and what is projected over it.





Wireless innovation

When working with projectors in real-life scenarios, we quickly learned that the ideal spot to install them is at a height (out of reach) to protect them from being tampered with and to provide them with a clear view of the illuminated building. While this is good for security, it also makes it difficult to access the projectors to change their settings or upload new content.

For these reasons, we decided that the system will be entirely wireless and manageable from remote.

We equipped the projectors with wireless mobile data connectivity (IoT, Internet of Things) so authorized users could control them from an unlimited distance via the Internet. This approach comes with a few extra benefits: Our support team can access the projectors anywhere within the mobile network range and provide instant help & troubleshooting. Another benefit is the ability of the projector to pull the latest software updates over the air and get better features over time.

Design the light

The most exciting part of projection mapping is aligning the projected artwork with illuminated shapes. When the projected content merges with the illuminated object, a unique augmented reality experience occurs.

To make this technique available to creators, we equipped the projector with a camera, and we developed an algorithm that enables the projector and the camera to "see" the position of projected pixels relative to the object's shape.

This process results in a simple project pixel map that any artist, content designer, or motion designer can quickly understand and work with.

We designed a straightforward editor that enables users to upload & edit digital content and compose the projection artwork. We call it Lumiverse™. It's like Photoshop for building projections.

When many work as one

LM3X[™] projection system is modular, so you may group multiple projectors to work together. This modularity enables projector swarms to illuminate anything no matter how tall, no matter how long, no matter how crazy the shape.

Lumiverse[™] comes with a simple Multicanvas app, which makes it easy to connect multiple projectors and stretch content all over them with an invisible seam at the connections.

When many projectors project one video, they must be in perfect time sync. LM3X™ newest innovation enables 100% wireless time coordination within projector groups; no ethernet cables are required. The projectors can accurately align video frames wirelessly, submillisecond precision.



Contact

LM3X™ Lumitrix s.r.o VAT ID: CZ29395950 Registered in Czech Republic European Union

tel +420 725 08 99 08

International Sales / Get in touch with our experts

LM3X.com

info@LM3X.com



Lumiverse TM (i) (ios ondroid PC Moc







Lumiverse™ is the player and the content management system at the heart of our projectors. It is remotely accessible through your phone or laptop via cloud service. It offers simple yet powerful tools for content editing and mapping on spatial surfaces.

Lumiverse[™] full integration with the projectors brings simplicity, a smooth installation experience and higher reliability than traditional combinations of systems from various manufacturers.

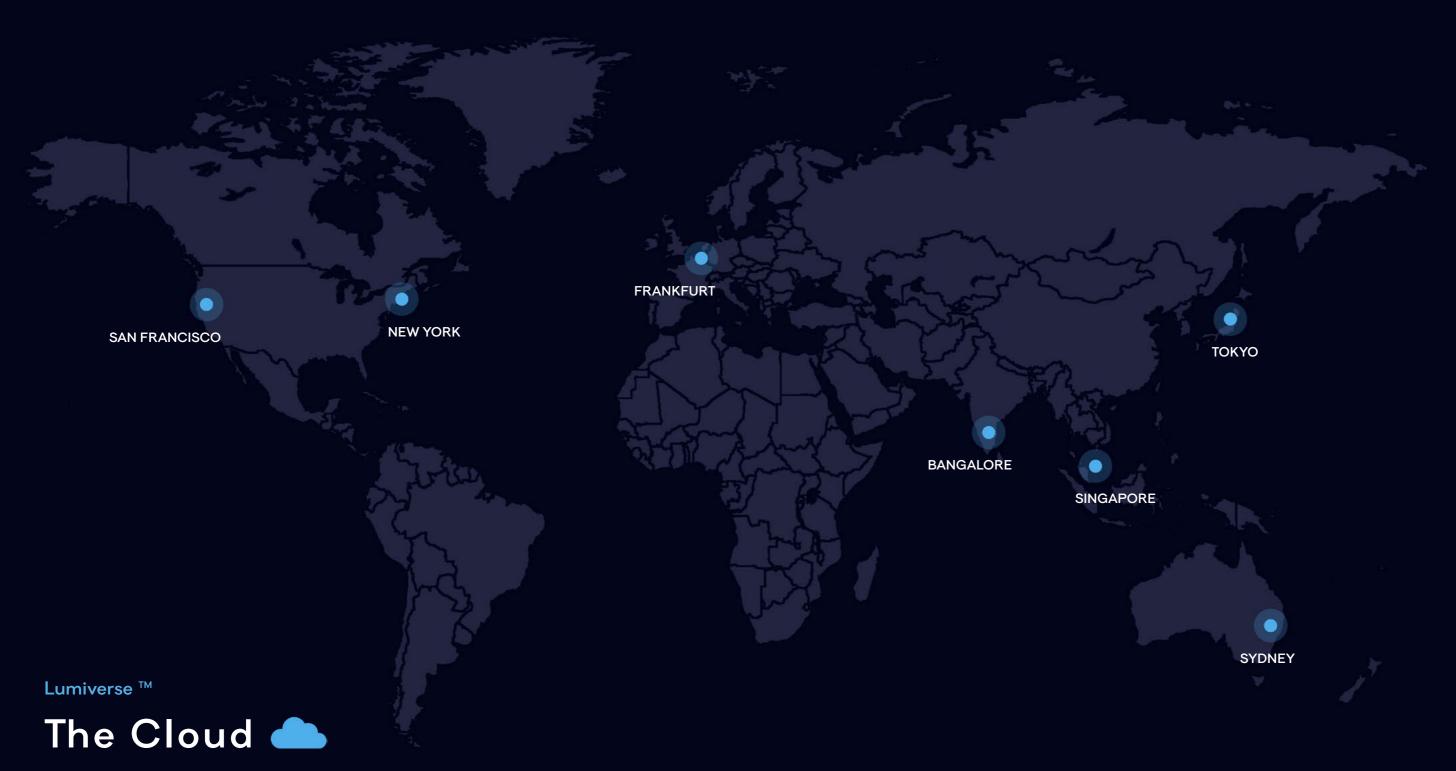
Lumiverse™ lifetime licence and support service come standard with every projector.

PROJECTION MAPPING 4G 4G LM3X PROJECTOR LM3X PROJECTOR CLOUD

Mission Control

Mission Control makes sure your installation process is streamlined and swift. Our experts and engineers will personally help you with image calibration and oversee the system in the long run. LM3X™ system comes with lifetime software support so that you will get human help free of charge any time you need.



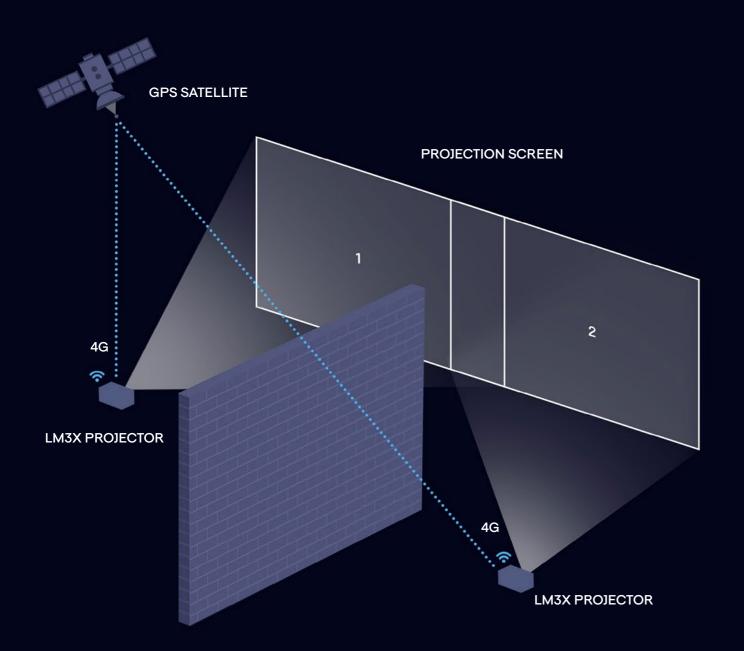


The server network powering LM3X[™] cloud service is currently (Y2024) located across the following server-stations. Projectors are connected to the geographically nearest server station to provide low latency response and smooth operation.

Lumiverse ™

Wireless

Turning large buildings into digital canvas requires multiple projectors to work as one. LM3X™ projectors use 4G mobile networks for data connectivity and GPS time code to synchronize video frames among multiple video projectors. This breakthrough enables fully wireless deployment of multiple projectors in the most challenging urban environments.



Lumiverse ™

Projection Mapping Tools

Lumiverse[™] provides a toolkit for mapping videos onto reallife objects. Lumiverse[™] transfers the shape of the building (or another object) to your remote computer screen, where you can easily apply your artwork (picture, video, HTML5) precisely onto the shape of the illuminated object. In addition, Lumiverse[™] supports multi-projector blending and video synchronization, commonly used on larger projects.











SCALE

VIDEO CONTENT



PIXELMAP











UPLOAD







SCANNER

The scanner scans the building and generates pixelmap of the project.











WECTOR MASK

You can modify your media content to match the shape of the scanned building.







GRADIENT

Gradient tool allows you to create gradual changes of color and light across an image.









CLOCK







WRITE

You may easily add many widgets into your light design.





MULTICANVAS

Multicanvas app manages blending of mutliple projectors into unified output.











From

TRANSFORMATION

Play until

You may apply deformations to place the media on the building from an angle or to illuminate cylindrical surfaces.







То 2023-03-16



2023-03-16

SCHEDULER

You may use the scheduler to program the projector to play automatically on a desired day at a desired time.





You can real-time paint with light.









HUE/SATURATION

CONTRAST/ **BRIGHTNESS**

COLOUR

You can apply filters to your media and change their colour, contrast and other settings.





HTML 5





INTERACTIVE QR

VIDEO

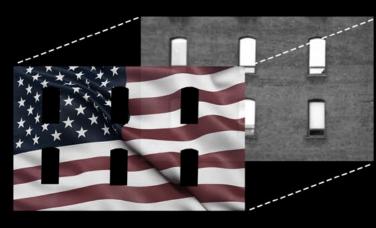
IMAGE

Supported fie formats: .mov .hap .avi .mp4 .jpg .gif .png .html

Examples

In this example, you can see a set of four projectors in an overlay arrangement projecting the American flag video loop onto a red brick building. The window area is software masked to prevent disturbing residents.

PIXELMAP



VIDEO CONTENT + SOFTWARE WINDOW MASK



KALAMAZOO, MICHIGAN, USA



PROJECTION MAPPING





VIDEO CONTENT





MACON, GEORGIA, USA

PIXELMAP



VIDEO CONTENT









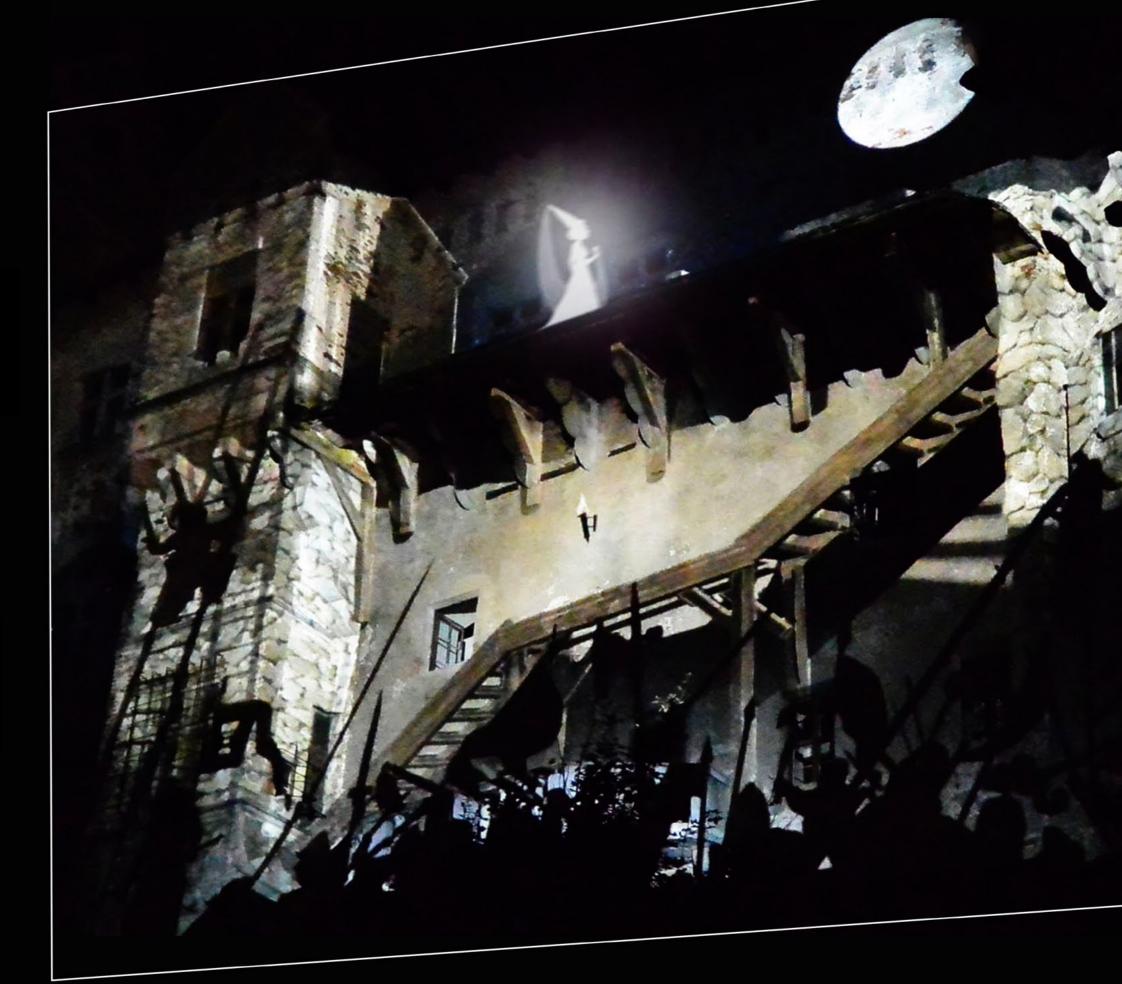


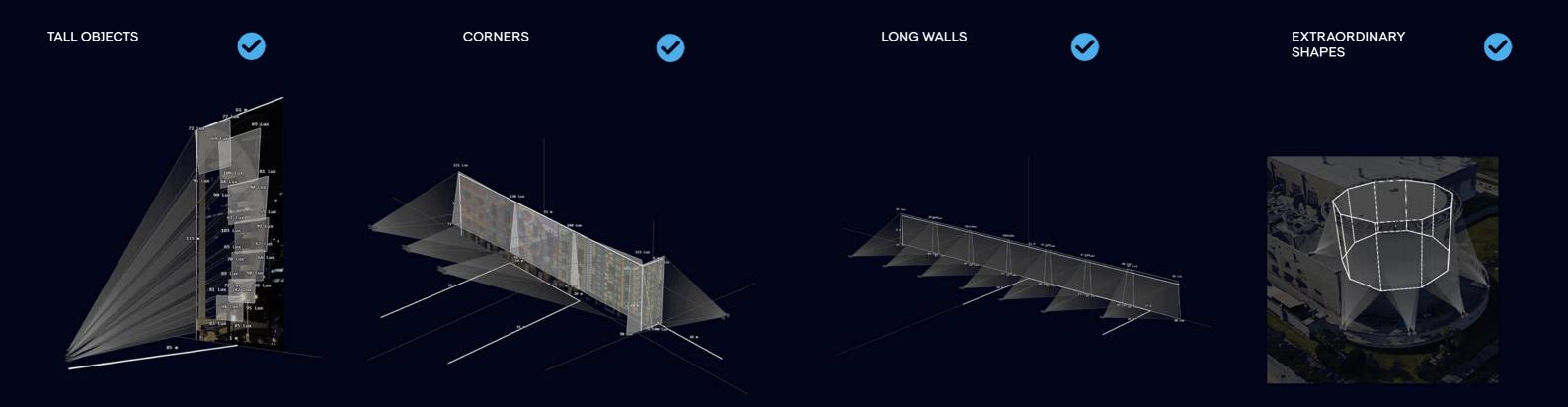


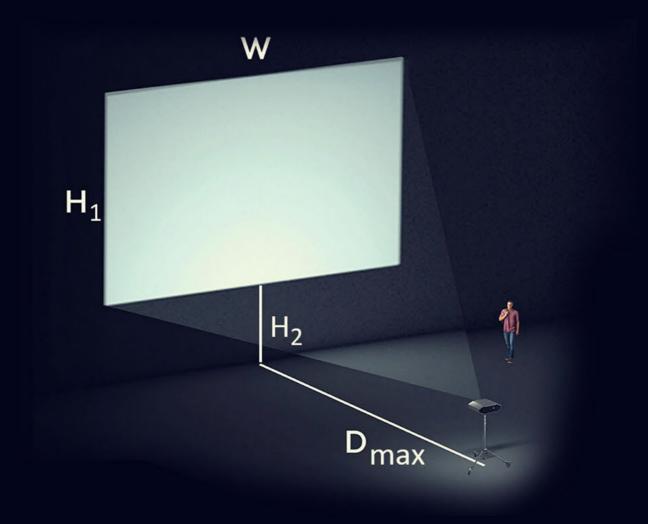


PERNŠTEJN, CZ









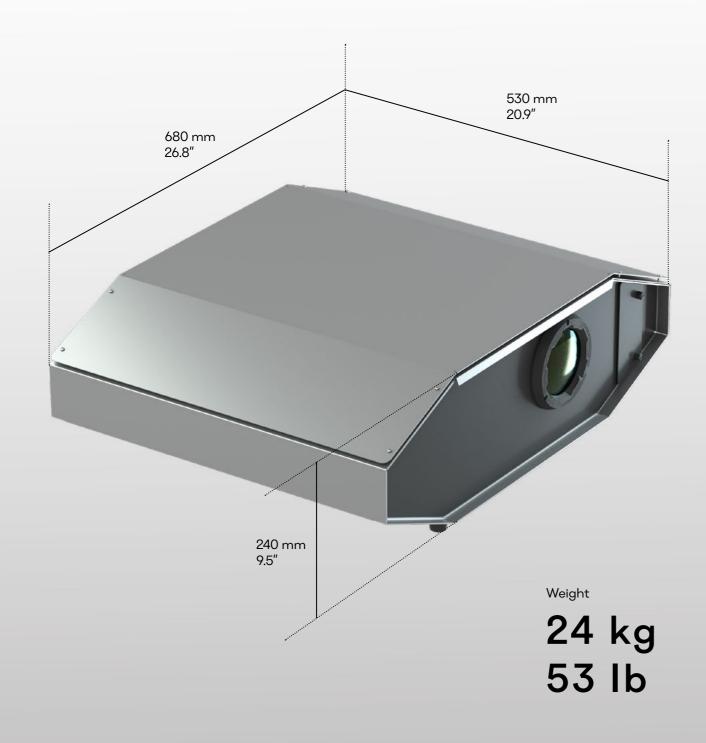
Your Project

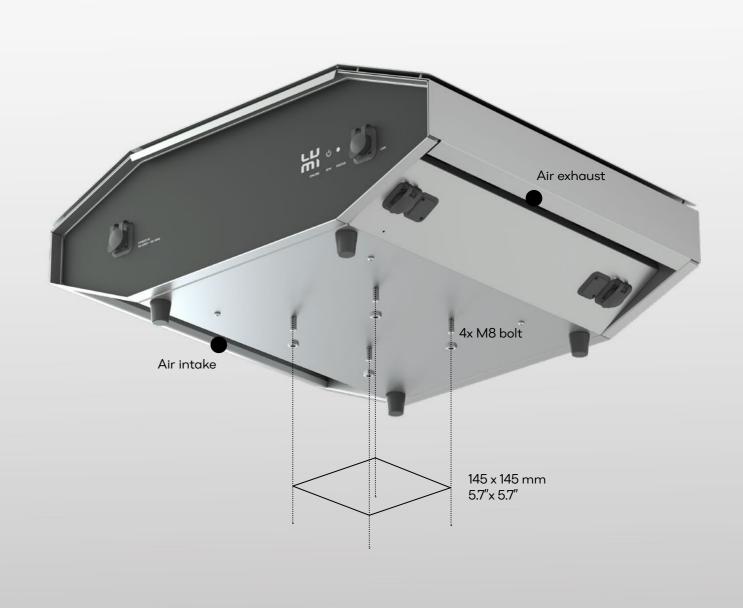
You can use the LM3X[™] projector configurator (**projectorconfigurator.com**) to simulate your project, or you can send details of your project to **info@LM3X.com** and we will prepare the simulation and quotation for you. To prepare a project proposal for you, we need to know the google maps pin of the location, to measure the building, analyze the surroundings and to propose optimal placement of the projectors.

DIMENSIONS											
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H2		n									
D max		n									
ADDRESS / GOOGLE MAPS PIN											
MATERIAL OF OBJECT											
WHITE PLASTER	WHITE PLASTER										
⊘ wood											
COLOUR											
GLASS											
GLOSSY ALUMINIUM											
OUTDOOR PROJECTION WORKS ONLY	Y AT NIGHT										

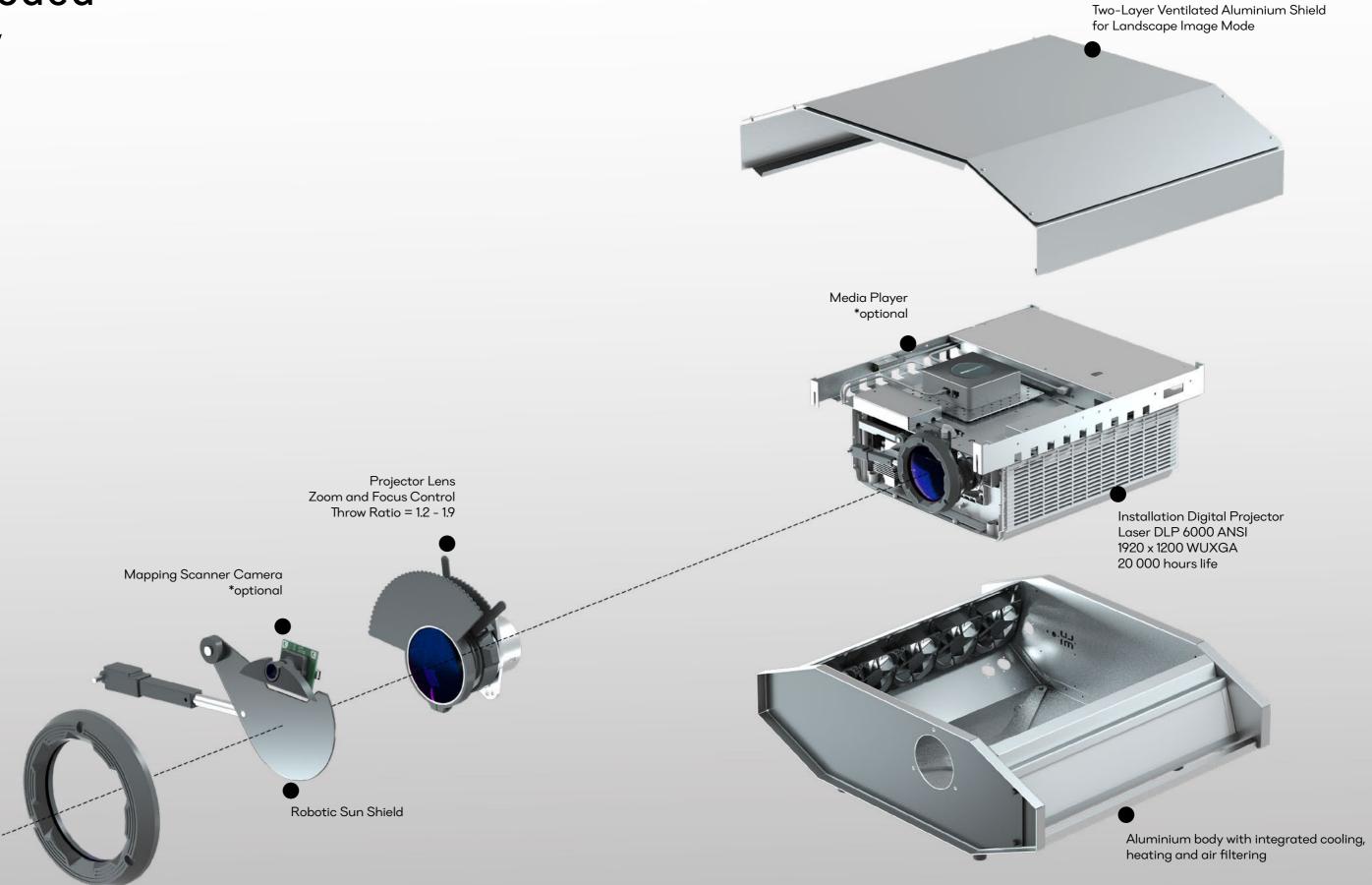


Overview & Dimensions





Exploded View



Outdoor Rugged Lens





L A Z R™ Outdoor Projector



Robust Power Management

When power is lost, the device goes to sleep. The device reboots to operation mode after the power supply is restored.

Technical Specification

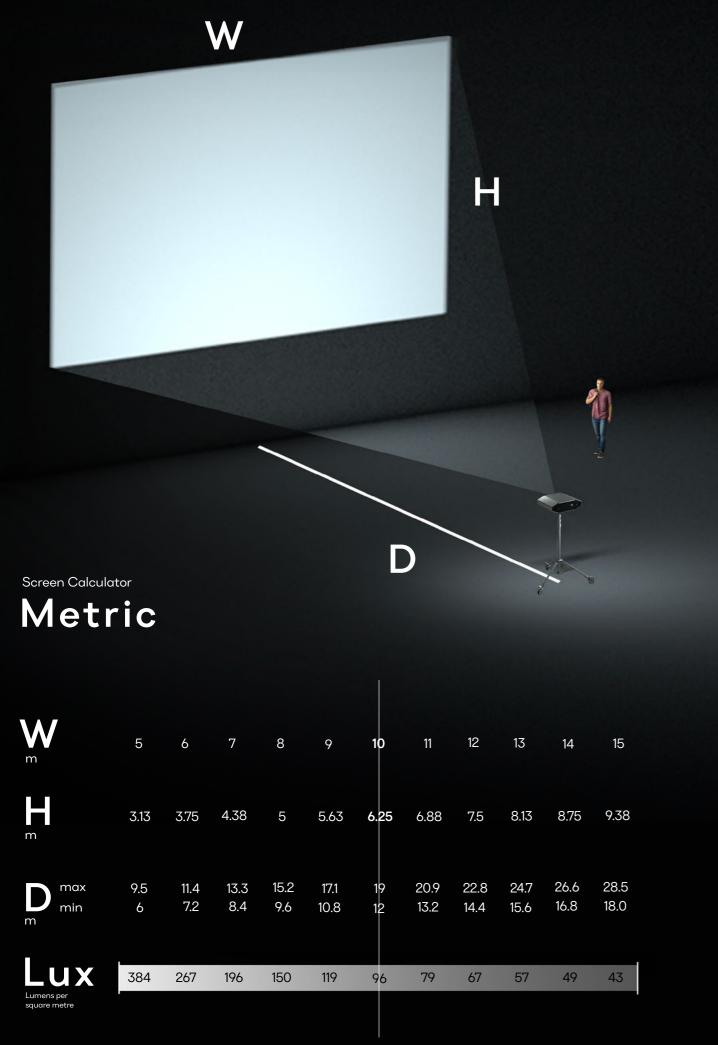
LAZR™ DIGITAL OUTDOOR PROJECTOR

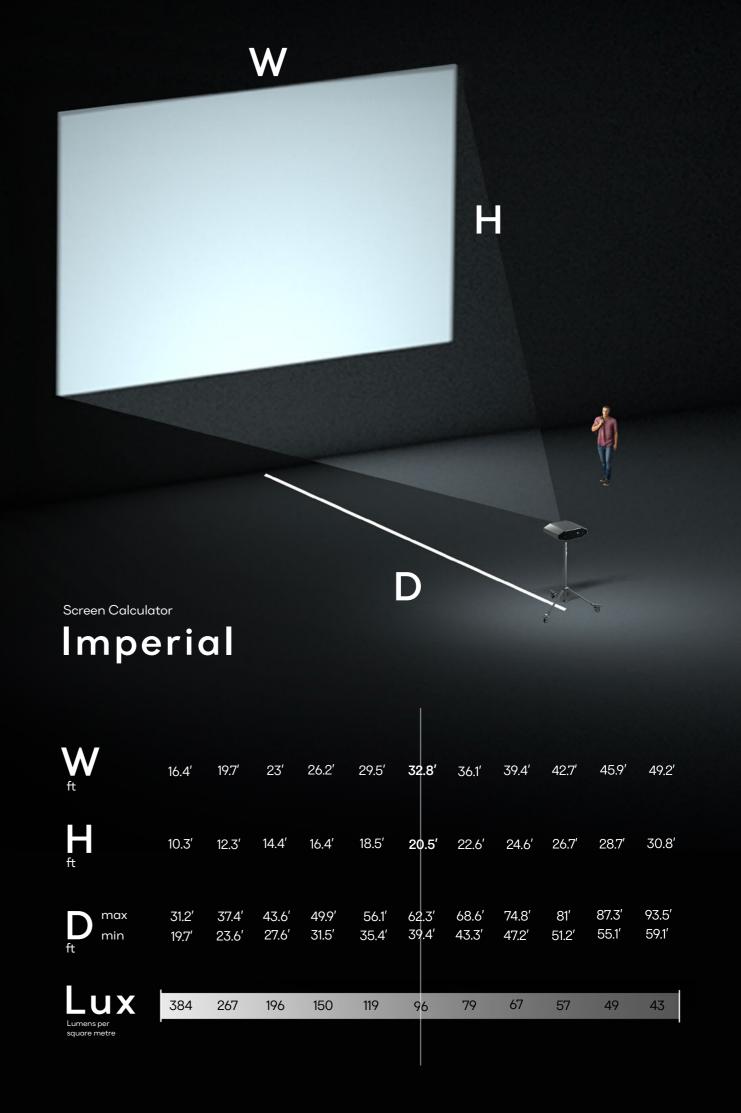
Image Projection Technology	Laser DLP
Image Resolution	1920x 1200 WUXGA
Light Source Life	20000 h
Brightness	6000 ANSI Im
Throw Ratio	1.2 – 1.9
Power	550 W, 100 – 240V
Ingress Protection	IP 43 body, IP 68 connectors
Weight	24 kg / 53 lb
Default Image Orientation	Landscape Mode
Available Image Orientation Extention	Portrait Mode Kit

(€



CA





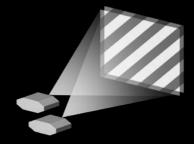


1:2 +

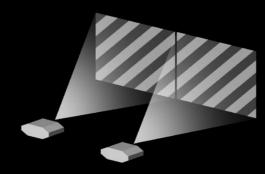
Multiprojection

You can link multiple LAZR "4G™ outdoor projectors to create a seamless outdoor projection screen of the desired shape, size, and brightness.

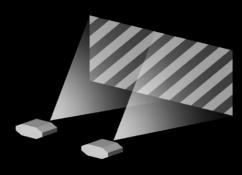
Overlay / Stacking Lux Increase +100 %



Simple Array Size Increase +100 % Visible Seam



Soft Edge Blend Size Increase +95% Invisible Seam







LM3X

weather resistant, 3 year warranty

designed for permanent outdoor installations

wireless control, simple automation, staff not required

one manufacturer = central point of contact for warranty and accountability



the vibration in the scaffolding impairs projector calibration

not weather resistant, no warranty

only suitable for several days of installation

staff on-site required to control the show

systems from multiple manufacturers = no central warranty

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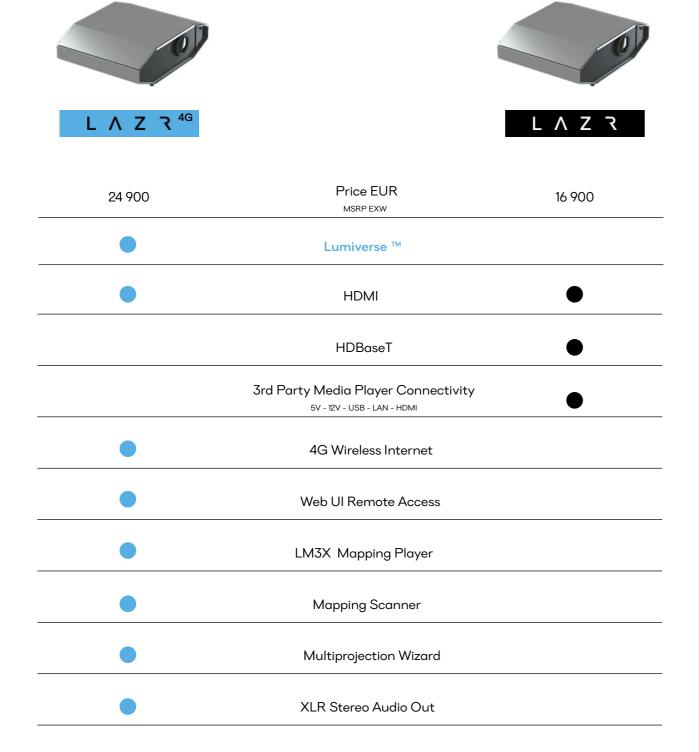




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Recommended Set-Ups

We offer L A Z RTM Outdoor Projector in 2 configurations: The basic L A Z RTM is more affordable and compatible with well-known AV standards. On the other hand, the L A Z R $4G^{TM}$ comes with a unique set of extra features, such as Remote Acces Web UI, Mapping Scanner, and Multiprojection Wizard.



model required for this set-up

4G Wireless Remote Mapping

You can access your LAZR4G™ all over the planet and control the projected media in real-time. This set-up enables Full Remote Management and support services.

2-Channel Internet Connection available for improved reliability (Wired and/or 4G Wireless), at least 1 Channel Unrestricted Internet required for system operation.

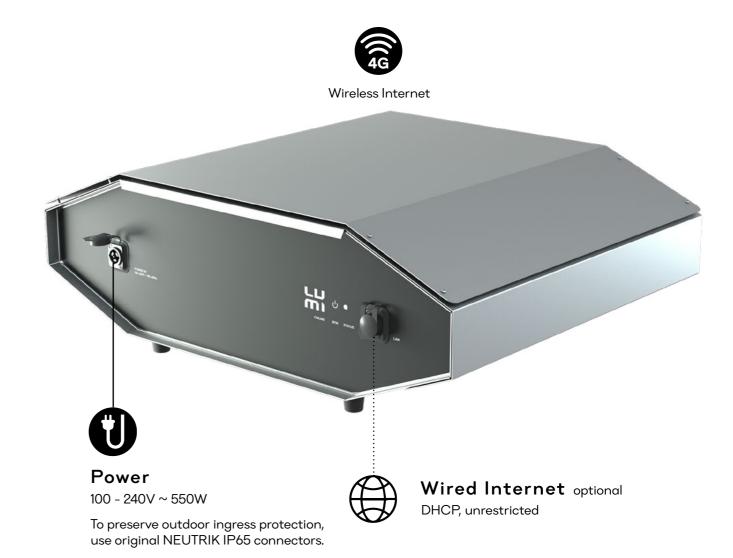
LAZR4G™ Features

- PLAY / STOP / SCHEDULE Simple Mapping Player
- Mapping Scanner
- Mapping Tools
- Remote UI Media Upload & Management
- Remote UI Calendar & Clock for Playback Scheduling





Control device (PC, Mac, Android, iOS)
Internet access and Chrome browser required to access LAZR4G UI





Multiprojection Mapping

1:2 +

You can link multiple L A Z R 4G[™] projectors to create a seamless outdoor projection-mapping screen of the desired shape, size, and brightness. Comes with a simple PLAY / STOP / SCHEDULE functionality.

2-Channel Internet Connection available for improved reliability (Wired and/or 4G Wireless), at least 1 Channel Unrestricted Internet required for system operation.

LAZR4G™ Multiprojection Features

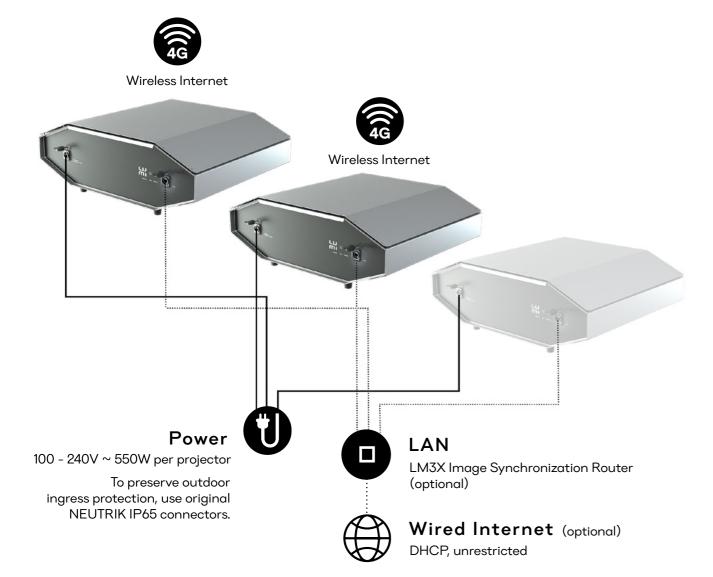
- Wireless multiprojection (SIM card in each device required)
- Network (LAN cable) or GPS (wireless) Video Frame Synchronization
- Edge Blending
- Multiprojection Wizard

This setup requires a LM3X Image Synchronization Router or a data SIM cards in each device.





Control device (PC, Mac, Android, iOS)
Internet access and Chrome browser required to access LAZR4G UI



model required for this set-up

$L \wedge Z$

Wi-Fi Screen Sharing

Simple, affordable, and very capable set-up for local wireless screen mirroring, photo sharing, presentations, movies, video stream, TV, music video, etc. (not available in the USA)

*This set-up requires L A Z R™ accessories: Wi-Fi Plastic Shield

*This set-up requires 3rd party accessories: Chromecast or similar device









Power

100 - 240V ~ 550W

To preserve outdoor ingress protection, use original NEUTRIK IP65 connectors.

 $L \wedge Z$

HDMI Short Cable

Simple set-up compatible with a wide range of computers. Use your PC or Mac, plug-in HDMI, and play.

1:2 +

Mulitiprojection and edge-blending are available via an external computer with multi-HDMI graphics output and with the use of 3rd party mapping software such as Madmapper, Resolume, Watchout, etc.

*This set-up requires an external media player



LAZR

HDBaseT Long Cable

HDMI cables mentioned previously, are limited in length. In case the distance between the computer and the LAZR $^{\text{TM}}$ projector exceeds 15 meters / 50 feet, we recommend using the HDBaseT Converter near your computer and convert the HDMI signal to an HDBaseT signal. The HDBaseT protocol allows for 100m / 330 ft cable length. (800 m / 2625 ft with 8x multi hops)

1:2 +

Mulitiprojection and edge-blending are available via external computer with multi-HDBaseT graphics output and with the use of 3rd party mapping software such as Madmapper, Resolume, Watchout, etc.

i: French company Videmus has presented a media server using Dataton WATCHOUT with six channels HDBaseT output integrated.

*This set-up requires an external media player



LIGHTFORM Mapping Kit

LIGHTFORM is the well-known projection-mapping tool from California. The LIGHTFORM LFC Kit can be easily integrated into the LAZR $^{\text{TM}}$ outdoor projector and thus freely used outdoors. Local Wi-Fi or LAN control is available.

- *This set-up recommended L A Z R™ accessories: Wi-Fi Plastic Shield
- *This set-up requires 3rd party media player: LIGHTFORM LFC

#events #light design



$L \wedge Z$

model required for this set-up

miniMAD by Madmapper

Videomapping pioneers from Switzerland brought to the world the very affordable and quite capable Raspberry Pi based mapping player called miniMAD. It works smoothly with their state-of-the-art Mad Mapper video-mapping software. miniMAD uses a plug-in SD card for media storage.

*This set-up requires 3rd party media player: miniMAD by Madmapper

#events #light design

1:2 +

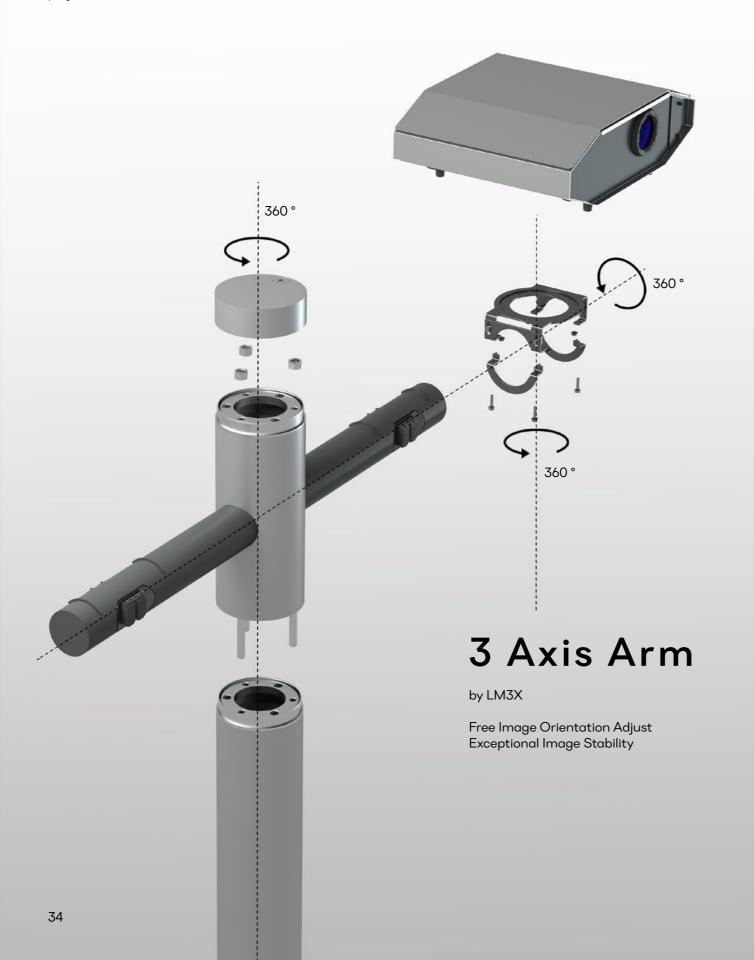
Affordable miniMAD includes multiprojection support. The manufacturer warns, that the miniMAD multiprojection is not precisly frame to frame synchronized and that if using fast image transitions minor lag between screens might be noticeable. Cable LAN connection required for miniMAD multiprojection.

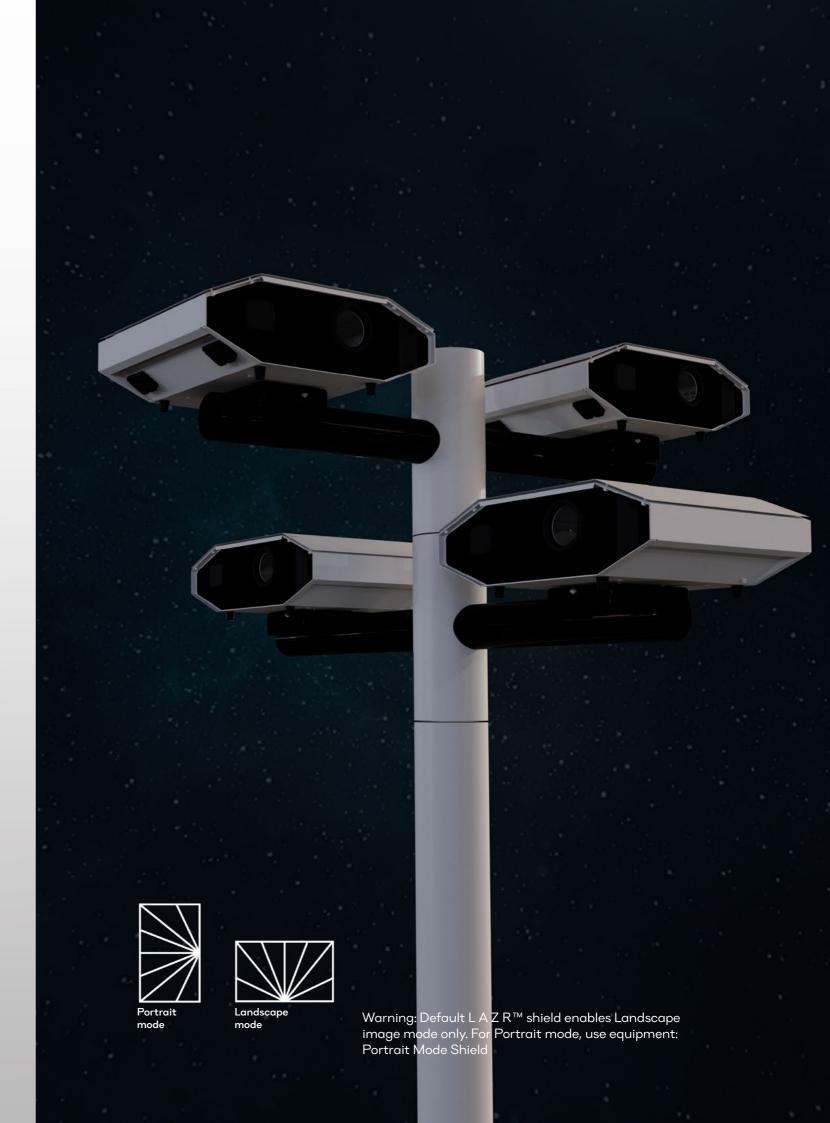


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Urban Pole™

Slim & robust design for hi-end locations.
Single Urban Pole can carry up to 12 L A Z R 4G™ projectors.

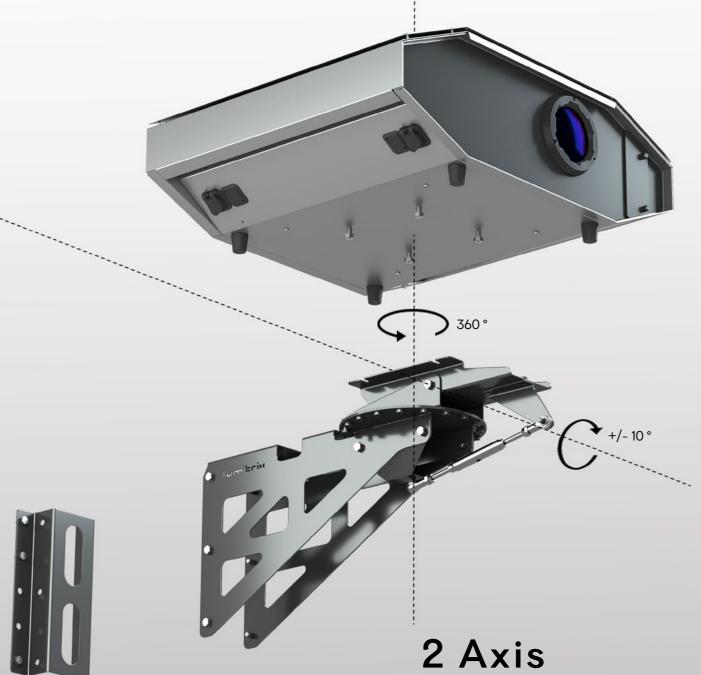




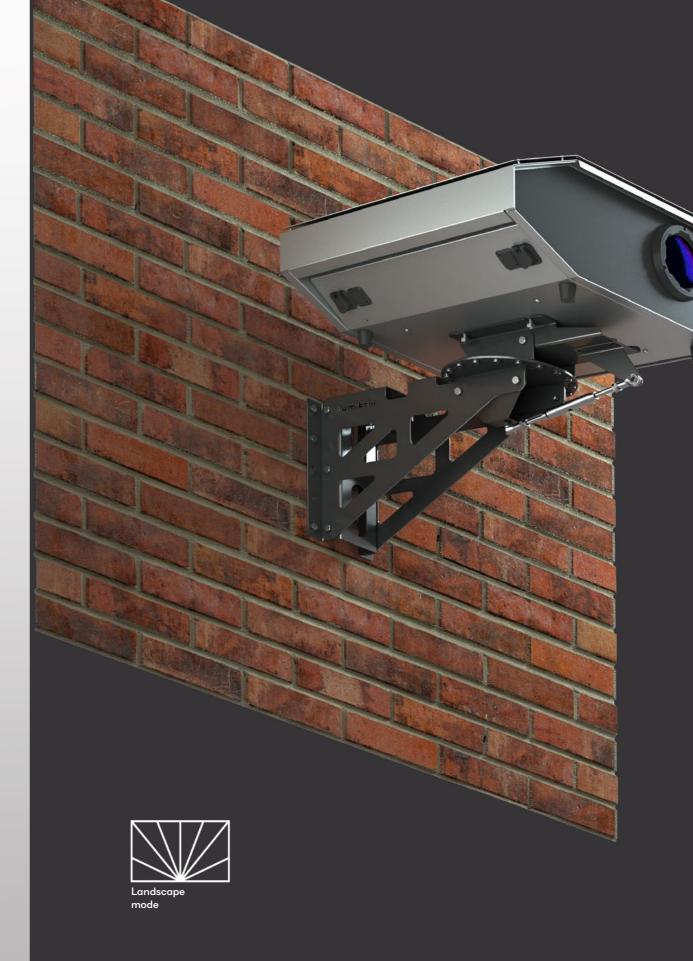


Wall & Pole Bracket™

Compact and versatile bracket for a wide range of use









360° Bracket™

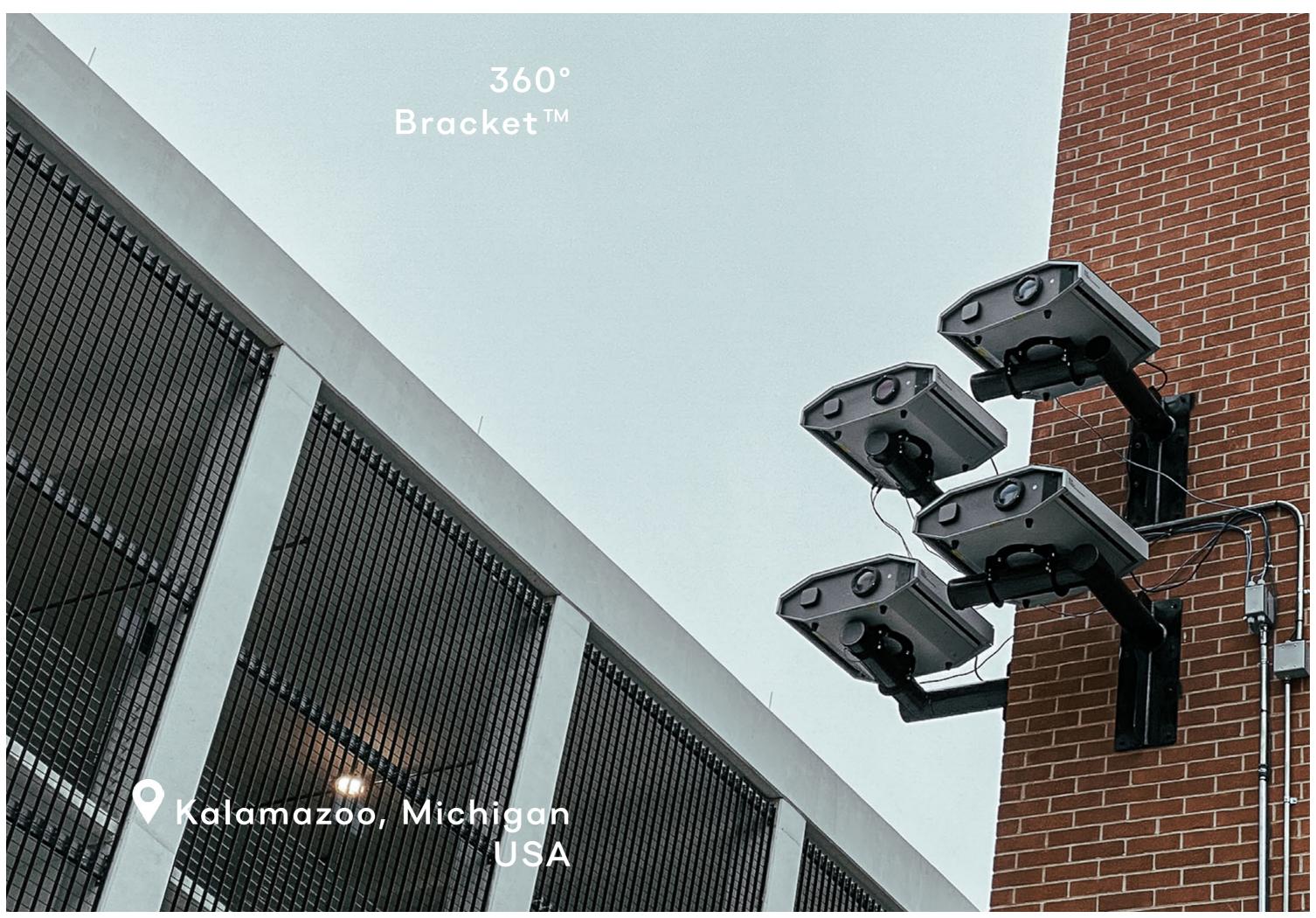








Warning: Default L A Z R™ shield enables Landscape image mode only. For Portrait mode, use equipment: Portrait Mode Shield



Tripod for Events

Compact and versatile chassis







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						4G											
			Λ	Z	7												
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€16 900

Shipping and tax not included

 $L \wedge Z$

Outdoor Video Projector

HDMI HDBaseT

Landscape mode

24 kg HS 8528 62 00



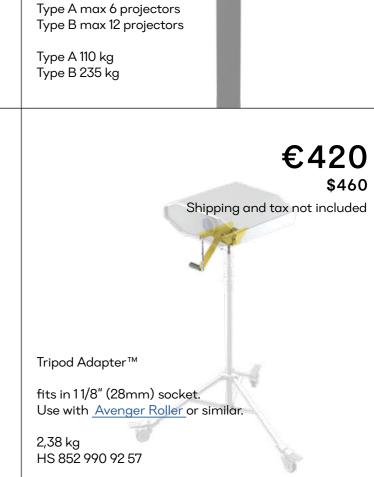


€4 900

Shipping and tax not included

\$5 300

Urban Pole™ Main Columnn



Type A **€5 900**

\$8 500

Shipping and tax not included









Shipping and tax not included

LM3X Image Synchronization Router 0,7 kg HS 8517620000

Price offer valid 2024

€200

\$220

Aluminium Shield

portrait mode

3 kg

 $LAZR^{TM}/LAZR4G^{TM}$ add-on

Cellular network

T4 L A Z R $4G^{\text{TM}}$ is made with two types of cellular network receiver. The type of modern used in your device is indicated on the side of the device.

If you use your device in a diff erent location than what your machine is confi gured for, you may experience problems connecting your device using the cellular network.

CELLULAR NETWORK - E:

Variant for EMEA/Brazil/APAC

- · LTE-FDD: B1/B3/B5/B7/B8/B20/B28/B32
- LTE-TDD: B38/B40/B41
- 2×CA: B1+B1/B5/B8/B20/B28;

B3+B3/B5/B7/B8/B20/B28;

B7+B5/B7/B8/B20/B28;

B20+B32; B38+B38; B40+B40; B41+B41

• WCDMA: B1/B3/B5/B8

CELLULAR NETWORK - A:

Variant for America/Canada/Mexico/Argentina

- · LTE-FDD: B2/B4/B5/B7/B12/B13/B25/B26/B29/B30/B66
- · 2×CA: B2+B2/B5/B12/B13/B26/B29;

B4+B4/B5/B12/B13/B26/B29;

B7+B5/B7/B12/B13/B26/B29;

B25+B5/B12/B13/B25/B26/B29;

D23 1 D3/ D12/ D13/ D23/ D20/ L

B30+B5/B12/B13/B26/B29; B66+B5/B12/B13/B26/B29/B66

• WCDMA: B2/B4/B5

Declaration of Conformity

Hereby declare that:

Product: OUTDOOR PROJECTOR

Product family: T Machine Type: T4 CE FR

Is compliant with the essential requirements and any other relevant provisions of the following EC directives, and that all the necessary steps have been taken and are in force to assure that the production units of the same product will continue to comply with the above specified requirements.

ELECTRICAL SAFETY TEST

The following regulations have been used: EN 62368-1:2014 + AC:2015-05 + A11:2017

ELECTROMAGNETIC COMPATIBILITY TEST

The following regulations have been used:

EN 55024:2010

EN 55032:2015

EN 61000-3-2:2014

EN 61000-3-3:2013

EN 61000-4-2:2008

EN 61000-4-3:2006 +A1:2007 +A2:2010

EN 61000-4-4:2012

EN 61000-4-5:2014

EN 61000-4-6:2014

EN 61000-4-11:2004,

44

Declaration of RoHS2 Compliance

Product: OUTDOOR PROJECTOR

Trade Name: LUMITRIX

Machine Type: T4



This product has been designed and manufactured in compliance with Directive 2011/65/EU of the European Parliament and the Council on restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS2 Directive) and is deemed to comply with the maximum concentration values issued by the European Technical Adaptation Committee (TAC) as shown below:

Substance	Proposed Maximum	Actual				
	Concentration	Concentration				
Lead (Pb)	0.1%	< 0.1%				
Mercury (Hg)	0.1%	< 0.1%				
Cadmium (Cd)	0.01%	< 0.01%				
Hexavalent Chromium (Cr6+)	0.1%	< 0.1%				
Polybrominated biphenyls (PBB)	0.1%	< 0.1%				
Polybrominated diphenyl ethers (PBDE)0.1% < 0						

Certain components of products as stated above are exempted under the Annex III of the RoHS2 Directives as noted below:

Examples of exempted components are:

- 1. Mercury in cold cathode fl uorescent lamps and external electrode fl uorescent lamps (CCFL and EEFL) for special purposes not exceeding (per lamp):
- (1) Short length (=<500 mm): maximum 3.5 mg per lamp.
- (2) Medium length (>500 mm and =<1,500 mm): maximum 5 mg per lamp.
- (3) Long length (>1,500 mm): maximum 13 mg per lamp.
- 2. Lead in glass of cathode ray tubes.
- 3. Lead in glass of fl uorescent tubes not exceeding 0.2% by weight.
- 4. Lead as an alloying element in aluminium containing up to 0.4% lead by weight.
- 5. Copper alloy containing up to 4% lead by weight.
- 6. Lead in high melting temperature type solders (i.e. lead-based alloys containing 85% by weight or more lead).
- 7. Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound.







Hardware Sale Terms, Conditions, Warranty

Document Updated Q1 2024

This term sheet describes the sale, terms, conditions and warranty of the manufacturer LUMITRIX s.r.o (LM3X.com), registered in the Czech Republic, European Union, VAT nr. CZ29395950. We manufacture original outdoor projectors with video mapping software since 2012. We have delivered our systems to 56 countries worldwide. We build robust hardware for permanent outdoor use.

I. Sale and delivery

We sell our products directly via an email conversation with the Lumitrix (LM3X) representative or via a 3rd party project partner (LM3X reseller). The sale is confirmed when we receive the 100% upfront payment. You may confirm the order here https://lm3x.com/outdoor-projector-shop/ or you may send the purchase order with the list of selected products to info@lm3x.com

Pricing policy

Our prices are public at https://lm3x.com/outdoor-projector-shop/

Delivery service

We organize delivery service to your destination for you. We add the shipping cost to the purchase price. We send the goods in euro-pallets.

Typical delivery timeline

1-4 projector units – delivery 6 weeks after payment or sooner

+5 projector units - delivery 12 weeks after payment or sooner

The delivery timeline as described above is usual, however, not guaranteed unless confirmed by our representative.

Refund of payment if not happy

You may request a refund of payment (shipping cost non-refundable) if you're not happy with the delivered product. We will accept the refund request if you send such a request to info@lm3x.com within 3 days after the goods have been delivered to your address. You must send the goods back to our factory with no delay in original package with all accessories. Once we receive the goods back in our factory in undamaged and unused condition (a few hours of testing is considered unused) we will refund the payment back to you.

II. Product training

LM3X products and documentation are straightforward; product training is not required. In case you struggle with projector use, our remote access support service will help you solve any issues that may occur on the way. Remote Image Calibration service is available free of charge for the first use of every 2+ projector sale. During this service, the LM3X technician remotely connects to your installation and calibrates your projector setup for a seamless multiprojection experience.

III. Warranty

LAZR 4G™ warranty 3 years / 10 000 hours

Warranty terms

Lumitrix guarantees, that the LAZR 4G[™] projector will work well for three years after delivery or for 10 000 hours of use (lamp on), whichever comes first terminates this warranty. If a malfunction happens during the warranty period, we will remotely access the device to fix a possible software error. If we find out, that the problem is hardware-based, you must send the device back to our factory for a free-of-charge repair. We will fix the device within 21 workdays and send it back to you.

LAZR™ warranty 2 years

Warranty terms

Lumitrix guarantees, that the LAZR™ projector will work well for 24 months after delivery. If a malfunction happens during this warranty period, we will advise you of solutions or you may send the device back to our factory for repair. We will fix the device within 21 workdays and send it back to you.

All hardware

Lumitrix warranty does not cover damage caused by the wrong use of devices such as not following the User's Guide, opening-the-device-with-scissors-and-cutting-cables-randomly, upside-down installation, dropped-on-the-concrete-floor, or a similar event of destruction. We are happy to accept the warranty request when the device comes in one piece.

Lumitrix warranty does not cover brightness decrease as explained in the following statement: We embed state-of-the-art laser DLP technology in our projectors, the most advanced projection technology available. The laser DLP projector light source life is 20 000 hours. The brightness of the projector decreases over time and reaches 50% of the original value when 20 000 hours of operation is achieved. This is true for all digital laser projectors on the market and LAZR $^{\text{TM}}/\text{LAZR}$ 4G $^{\text{TM}}$ projectors are no exception.

Note: We highly recommend regular annual air-filter checks and replacement to keep your projectors well operational for many years. Extreme dirt fatigue of the air filter may decrease the efficiency of the inbuilt cooling system and therefore shorten the projectors' life.



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M Malaysia Martinique Mauritius Morocco Ν Netherlands 0 Oman

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Q Quatar R

Romania

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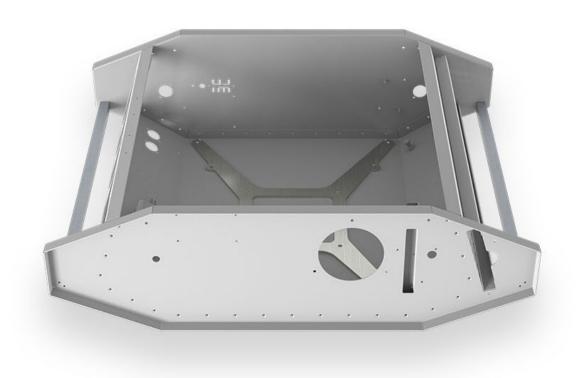
Canada

Croatia

Cape Verde

Dubai (UAE)

Czech Republic



Aluminium Exoskeleton

LM3X