



Mosaic X

High Precision 360° Camera for Panoramic
Street View, Photogrammetry, 3D Scanning and
Industrial Applications



The only all-in-one 360° mobile mapping camera with **global shutter sensors**

The Mosaic X camera is a cutting-edge solution for high-resolution 360° mobile mapping. Built for speed and precision, it captures detailed imagery and integrates seamlessly with various sensors, including LiDAR and GNSS.

Proudly designed and built in the Czech Republic, it is durable and future-proof to meet the highest industry standards.

Quick Specs

- FOV: 360° x 139° / ~89%
- Single lens FOV: 109° x 80°
- GSD (pixel size at 10 m distance): 4.6 mm
- Focus Range: 0.8 m – ∞
- Spatial Accuracy: < 2 mm at 10 m

Six 12.32-Megapixel
image sensors

Industrial-grade
construction and
durability

Advanced, +/- 1.5m
precision GNSS



8-bit h.264
compressed images

Hot-swappable
storage

Secure
mounting
hardware

Resolution

| | |
|---|--------------------------------|
| Single sensor resolution | 4096 x 3008 = 12.32 MP |
| Total Native resolution | 12.32 MP x 6 = 74.00 MP |
| Equirectangular (2:1 panorama) resolution | 13504 x 6752 = 91.20 MP |

- Sealed and water-resistant housing
- Protected lenses with replaceable covers for scratches or smudges
- Data without vendor lock-in
- 10 fps h.264 at 120 Mbps per sensor
- Onboard hot-swappable 3.1 Gen1 storage
- Option for external storage over Ethernet via Samba



Designed for Precision and Performance

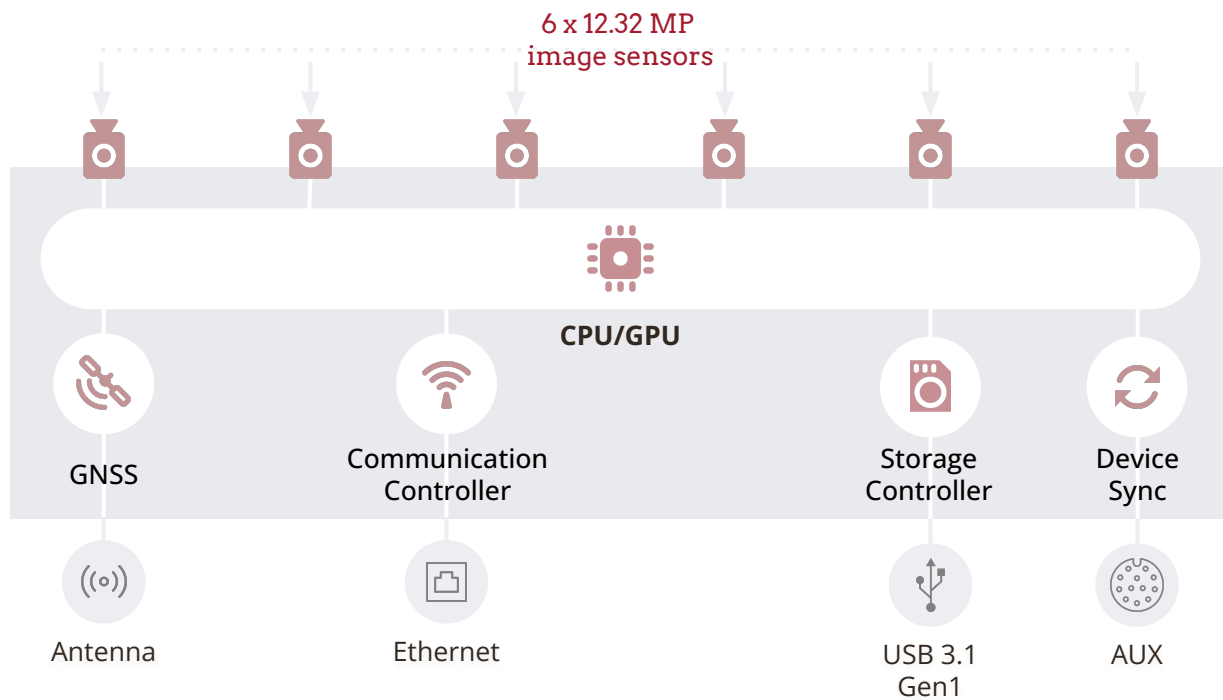
The Mosaic X's architecture is built to deliver the highest quality 360° imagery you need for your project.

The 6 Sony image sensors with wide angle lenses capture 360° of RAW image data, which is precisely synchronized by our proprietary algorithm.

The image data is processed into an 8-bit image file by the ISP and compressed to a high-bitrate h.264 file and written to the removable USB dongle w/ 1TB SSD

Key features

- Six Sony image sensors with wide-angle lenses
- Unique sync technology & optimized image processing
- Onboard storage for uninterrupted function
- Remote camera management for user safety and convenience



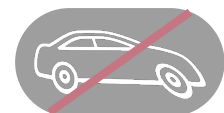
Enhanced Imaging with Minimal Distortion:

Six wide-angle cameras with high sensitivity and low noise sensors ensure ideal pixel density and consistent optical resolution across the frame, minimizing fisheye distortion and compression.

The global shutter technology further enhances image quality by eliminating motion artifacts and providing crisp, clear visuals even in dynamic environments.



Global shutter



Rolling shutter

| | | | |
|-------------|---------------------------|------------------------------|----------------|
| Sensor | Sony CMOS 12.32 MP | Lens focal length | 2.52 mm +/- 5% |
| Pixel size | 2.74 μm (H) × 2.74 μm (V) | Lens focal length / 35mm eq. | 14.1 mm |
| Focus range | 0.8 m – ∞ | Aperture | f/2.4 |



Built for the Toughest Environments

The Mosaic X camera is engineered for durability and reliability in demanding conditions:

- Industrial-grade waterproof connectors.
- Protected lenses: Withstand harsh daily use.
- Hermetically sealed, Water-resistant enclosure: features substantial thermal mass and heat sinks for passive cooling.

Superior Optical Design

- Sharp Images at all angles: No drop-off in resolution at the edges.
- Uniform sharpness: Achieved without excessive image sensors.

Easy-to-Use Features

- Removable, swappable storage
- Web browser control: Simplifies onboarding and operation for any staff member.

Technical Data

Dimensions

Length: 210 mm

Width: 210 mm

Height: 250 mm

Weight

Approx. 7 kg (15.4 lbs)

Power consumption

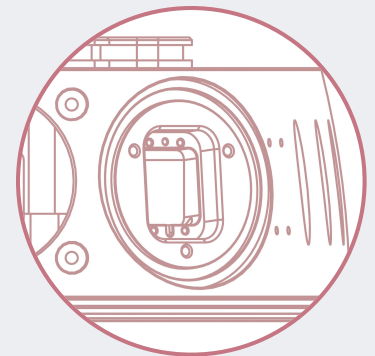
Average: 25 W

Maximum: 35 W

Guaranteed temperature performance

Operation Temperature Range: -20°C – 45°C

Operation Humidity Range: 0% – 100%

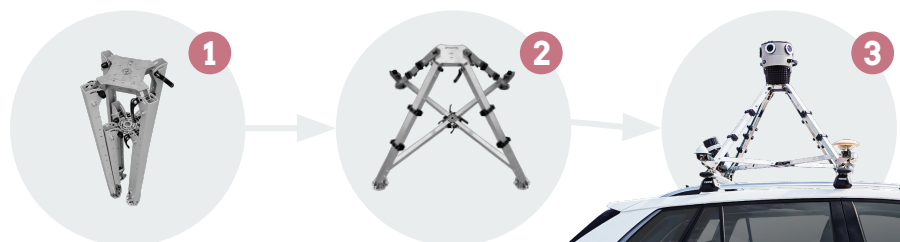


Quick and Easy Setup with Mosaic Camera Travel Mount:

Simply open and set up in minutes.

Mounting Compatibility:

- Compatible with T-groove cross bars and full cross-section roof bars.
- Supports additional accessories like XVN, LiDAR, and antennas.



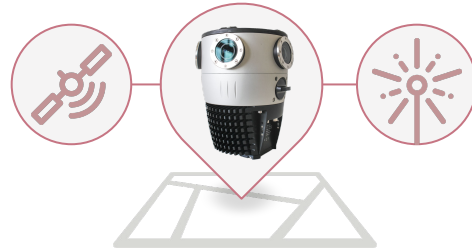
The optional Mosaic Camera Travel Mount offers effortless installation, secure mounting, and ultimate flexibility. **(Sold separately)**





Upgrade Your Mosaic Cameras with External Sensors

Mosaic offers customers the flexibility to enhance their camera systems with various external sensors, including GNSS, INS, and LiDAR, to tailor the system to their specific needs or their customers' demands.



Customize Your System

Integrate additional sensors to create a setup that perfectly fits your requirements.



Utilize Existing Devices

If you already have compatible devices, they might work seamlessly with Mosaic systems.



Ready Out-of-the-Box

If you don't have the necessary sensors, Mosaic provides integration packages, delivering a fully prepared product.

Out-of-the-Box Integrations



Emlid Reach RS2/RS2+/RS3: Reliable performance in harsh conditions, independent operation without internet connection, and seamless integration with Mosaic cameras.

[Read more about EMLID Integration.](#)

*Sold separately.



XVN (Xsens Vision Navigator): Fully integrated setup for centimeter-level accuracy and high-quality imagery, enhancing GIS platform integration and 3D projects.

[Read more about Xsens Integration.](#)

*Sold separately.

Partner Integration



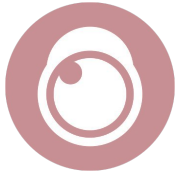
RIEGL: Integration handled by RIEGL for high-resolution 360° camera and laser scanning solutions.

[Read more about RIEGL Integration.](#)

*Sold separately



Top-of-the-Line Protected Optics



The crispest, cleanest and most true-to-life images available on the market.

- Six 12.32-Megapixel image sensors (five in a circle and one pointing up) giving 13.5K resolution panoramas, unsurpassed in this class.
- Microsecond-level synchronization (sync measured in microseconds, not milliseconds).
- 109° x 80° lenses utilizing all pixels on the sensor, with optimal overlap producing the ideal balance of overlap vs. resolution.
- Minimal stretching and distortion of the source images means that the actual resolution in the final panorama is consistent across the whole image, including straight up.
- Image sensors with proper thermal management, giving noise-free operation even in the harshest environments.
- Replaceable flat glass lens covers allow for economical repairs without need to replace the lens itself.

Advanced Precision GNSS



Built-in GNSS receiver allows for distance based triggering out of the box.

- Connect up to 4 GNSS networks simultaneously (GPS, Galileo, Glonass, BeiDou) for precision measured to the meter
- Active dual-band antenna giving a fix in seconds, and precise location even in urban canyons
- Able to integrate with external RTK GNSS to achieve centimeter level accuracy
- Utilize built-in GNSS or external GNSS for distance-based triggering

Centralized Data Storage



Perfect balance between preserving highest quality and efficient image storage.

- 8-bit images stored in h.264 video stream
- Timestamps stored in CSV, trajectory in GPX file formats
- Hot-swappable 1TB SSD (up to 2TB) storage with USB 3.1 Gen1 interface
- Option for external storage over Ethernet via Samba



Level of detail:

Never before seen crisp, clean, 13.5K-resolution video to better map your city, assets, space, or streets.



Mosaic X camera



- preserves nearly all of the dynamic range even in harsh lighting
- eliminates artifacts from different image sensors exposing the scene differently
- offers a single unified and consistent image
- minimizes 'blowout' between sun and edge of buildings

The competition



- camera / image processing implementation is sub-optimal
- many over- and under-exposed pixels
- very few correctly-exposed pixels
- high 'blowout' between sun and edge of buildings









Mosaic X



Competitive matrix

Mosaic X outperforms
the competition in
every category

| | Mosaic X | NCTech Pulsar | Insta360 Titan | Ladybug 6 | Ladybug 5 | Google |
|--|---|---|---|---|---|---|
| |  |  |  |  |  |  |
| Equirectangular resolution* | 12.3K | 11K | 11K | 8K | 8K | 16K |
| Single-standalone system | YES | NO | NO | NO | NO | YES |
| Lens protection | YES | NO | NO | NO | YES | NO |
| On-board GPU | YES | NO | NO | NO | NO | NO |
| IP64 water resistance | YES | YES | NO | NO | YES | NO |
| Waterproof industrial grade connectors | YES | NO | NO | NO | NO | YES |
| Vendor unlocked | YES | NO | YES | YES | YES | NO |
| Deep LiDAR integration ready | YES | NO | NO | NO | NO | NO |
| H.264 120 Mbit | YES | NO | NO | NO | NO | YES |
| Single swappable storage | YES | NO | YES | YES | NO | NO |
| Internal & external storage via Samba | YES | NO | NO | NO | NO | NO |
| Built-in GNSS receiver w/ ext. antenna | YES | NO | NO | NO | NO | YES |
| Robust integrated car mount | YES | NO | NO | NO | NO | YES |

* Width of rendered equirectangular panorama in pixels