



Mosaic 51

Most durable, precise and practical 360° camera



Beyond Limits: 75MP AI-Compatible 360° Camera for Industrial Applications

Mosaic 51 is a robust 360° mobile mapping camera system, which collects high resolution street view imagery at scale for surveying, infrastructure inspection, and asset inventory for those in the AEC, Telecom, and DOT / Road Authorities industries.

Proudly designed and built in the Czech Republic, it combines durability with future-proof technology to meet the highest industry standards.

Quick Specs

- 10 fps h.264 at 120 Mbps per sensor
- Onboard hot-swappable USB 3.0 storage
- Option for external storage over ethernet via Samba

Six 12.35-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	$4054 \times 3046 = \mathbf{12.35 \text{ MP}}$
Total Native resolution	$12.35 \text{ MP} \times 6 = \mathbf{74.00 \text{ MP}}$
Equirectangular (2:1 panorama) resolution	$12288 \times 6144 = \mathbf{75.50 \text{ MP}}$

- Sealed and water-resistant housing
- Protected lenses with replaceable covers for scratches or smudges
- Data without vendor lock-in

- FOV: 360° x 157°
- Single lens FOV: 124° x 96°
- GSD (pixel size at 10m distance): 5.5 mm / Spatial Accuracy
- Focus Range: 0.5 m - ∞



Designed for Precision and Performance

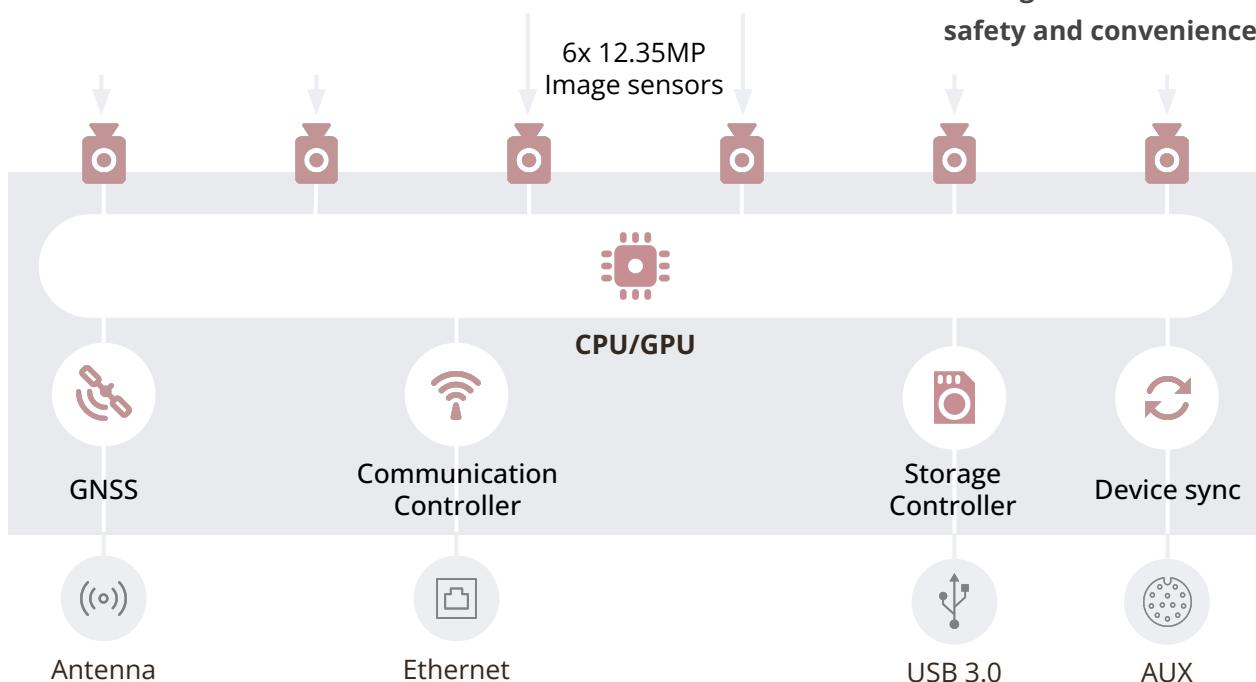
The Mosaic 51's architecture is built to deliver the highest quality 360° imagery you need for your project.

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

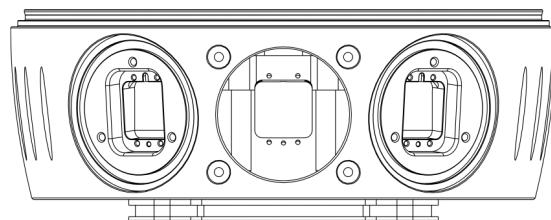
Key features

- 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.



Sensor	Sony CMOS 12.35 MP	Lens focal length	2.52 mm +/- 5%
Pixel size	1.55 µm (H) x 1.55 µm (V)	Lens focal length / 35mm eq.	14.1 mm
Focus range	0.5 m - ∞	Aperture	f/2.4



Built for the Toughest Environments

The Mosaic 51 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: 190 mm

Width: 190 mm

Height: 200 mm

Weight

Approx. 4.6 kg (10.14 lbs)

Power consumption

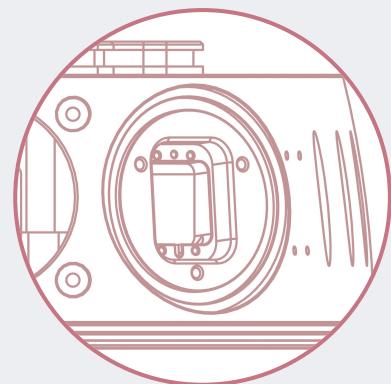
Average: 15 W

Maximum: 30 W

Guaranteed temperature performance

Operation Temperature Range: 0°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.

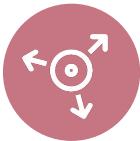


The optional Mosaic Camera Travel Mount offers effortless installation, secure mounting, and ultimate flexibility. **(Sold separately)**



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



Robust performance in challenging conditions and independent operation without relying on internet connection.

The Reaches' durability complements the Mosaic cameras, providing seamless operation even in tough environments and weather conditions.

[Read more about EMLID Integration.](#)

*Sold separately.

XVN (Xsens Vision Navigator)



Fully-integrated setup to enhance precision and efficiency in mapping and 3D reconstruction.

Combining Mosaic 51 with XVN achieves centimeter-level accuracy and high-quality imagery—a major step forward for GIS platform integration and 3D projects.

[Read more about Xsens Integration.](#)

*Sold separately.



Top-of-the-Line Protected Optics



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

- Six 12.35-Megapixel image sensors (five in a circle and one pointing up) giving 12.3K resolution panoramas, unsurpassed in this class.
- Microsecond-level synchronization (sync measured in microseconds, not milliseconds).
- 124° x 96° 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 3.0 interface
- Option for external storage over ethernet via SAMBA



Level of detail:

Never before seen crisp, clean, 12.3K-resolution video to better map your city, assets, space, or streets.



Mosaic 51 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 51

Competitive matrix

Mosaic 51 outperforms the competition in every category



	Mosaic 51	NCTech Pulsar	Insta360 Titan	Insta360 PRO	Ladybug 5	Google
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
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	YES	NO	NO	NO	YES
Robust integrated car mount	YES	NO	NO	NO	NO	NO