

AIMSIGHT

MEASURING STATION



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AIMSight is a smart, autonomous and versatile camera-based remote system for both static and dynamic monitoring. It has been successfully deployed since 2017 in the following areas:

- Civil engineering structures
- Construction site impact and site safety
- Natural hazards
- Railway applications

The combination of the reflective position markers with state-of-the-art optical filters and illumination systems ensures the highest-possible marker positioning accuracy in the image plane, day and night. The reliability of measurement is improved by orders of magnitude when compared with other image-based monitoring systems. The system can also be deployed as a cloud-based solution to leverage existing image streams into structural-health-relevant data, e.g. to perform long-term monitoring through an existing surveillance camera network. In combination with adequate reflectors, measurements at over 1km are possible.

KEY FACTORS

- Versatility: monitoring small deformations or large displacements
- Plug & Play: Web interface, fast & easy to install
- Safety: No maintenance at the measuring point
- Traceability: Anonymized images are kept for review
- Energy savings: low consumption and pre-processed data (Edge Computing)
- 24/7 structural and natural hazard monitoring from your desk or phone
- Thermal monitoring
- Water flow monitoring

- Combining the [FLX-RAIL®](#) together with the AimSight camera provides the first and unique global railway infrastructures automatic monitoring solution for:
 - Railway tracks geometry monitoring (both static & under load) of cant, twist and rail gauge
 - Railway embankment
 - Catenary infrastructures (post, contact wire, etc)
 - Thermal rail monitoring
 - And many other possible applications.

TECHNICAL SPECIFICATIONS

GENERAL SYSTEM SPECIFICATIONS

Typical resolution	0.1 mm at 20 m typ., see lens specification below
Strain resolution	10 $\mu\epsilon$ to 100 $\mu\epsilon$ typ., depends on the virtual strain gauge size
Angular resolution	0.8 '' (arc second) with a 6 mm lens * (specification below) 0.07 '' (arc second) with a 75 mm lens *
Measurement frequency	from 1/min to 1/day in monitoring mode up to 230 Hz in burst mode
Typical system accuracy	+1mm at 80m depending on weather conditions

SECURITY

Communication	Communication encrypted using the Transport Layer Security (TLS) cryptographic protocol
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CAMERA SPECIFICATIONS

Optical System	Narrow bandpass IR filter for a reliable operation in adverse lighting conditions High-power active IR illumination system with up to 5W radiant power
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IMAGE SENSOR

Sensor type	SONY industrial-grade image sensor
Sensor Size	Diagonal 8.92 mm (Type 1/1.8)
Resolution	6.44M-Effective Pixel Monochrome CMOS Image Sensor Number of effective pixels 3096 (H) \times 2080 (V)
Unit cell (pixel) size	2.4 μm (H) \times 2.4 μm (V)
Sensitivity	380 mV@ 3200 K, 706 cd/m ² 1/30s accumulation
Saturation signal	945 mV

LENS SPECIFICATIONS

Focal length (mm)	Opening angle (°)		Typical resolution*			
	Horizontal	Vertical	at 1m	at 10m	at 100m	at 1km
6	63.5	45.2	4 μm	40 μm	0.40 mm	4.00 mm
9	44.9	31.0	2.7 μm	27 μm	0.27 mm	2.67 mm
12	34.4	23.5	2.0 μm	20 μm	0.20 mm	2.00 mm
16	26.1	17.7	1.5 μm	15 μm	0.15 mm	1.50 mm
25	16.9	11.4	1.0 μm	10 μm	0.10 mm	0.96 mm
35	12.1	8.2	0.7 μm	7 μm	0.07 mm	0.69 mm
50	8.5	5.7	0.5 μm	5 μm	0.05 mm	0.48 mm
75	5.7	3.8	0.3 μm	3 μm	0.03 mm	0.32 mm

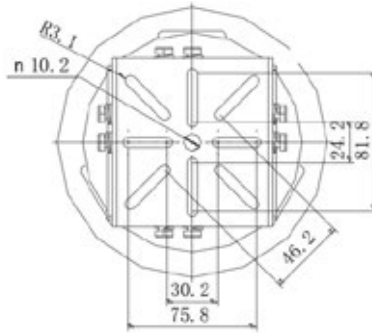
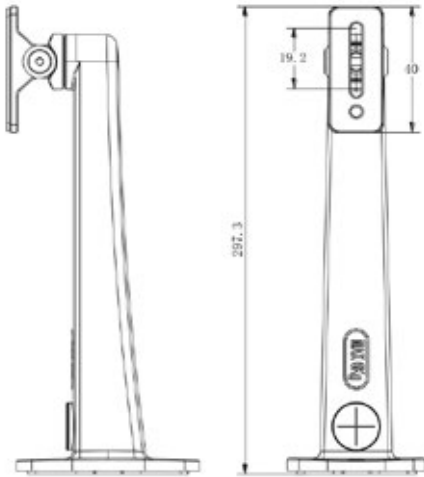
* In combination with AIMSight proprietary algorithms accessible through a monitoring subscription.

PHYSICAL FEATURES

Station dimensions	456 mm x 170 mm x 190 mm
Station weight	3 kg
IP class	IP 67 outdoor housing, suitable for year-round operation

Camera Mount
Wall Mount (Option 1)

Adjustable Bracket Mount (Option 2)



WEB INTERFACE

Image View

Live Camera view and access to archived images

Optional Plan view

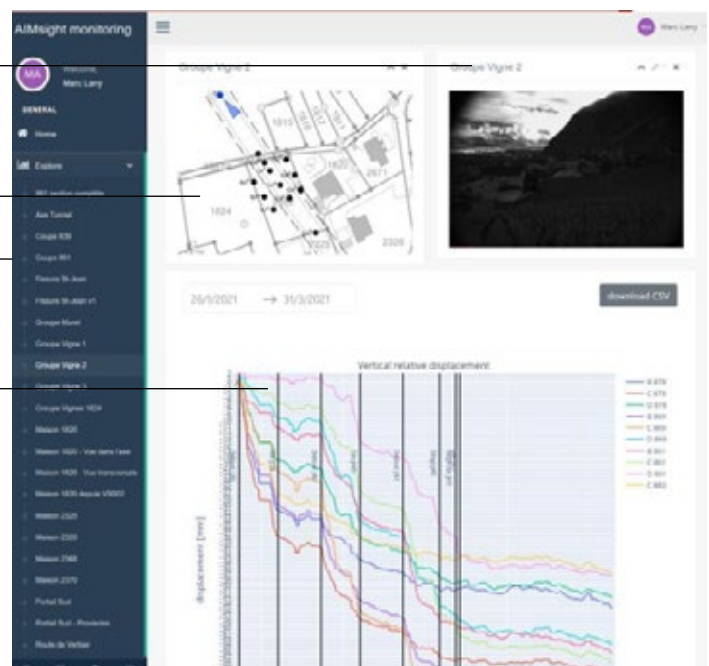
System supervision

Secure access to all your measurement systems

Sensor Data

Interactive plots of the measurements
Data export (.csv)

Token-based authentication 





SISGEO[®] RAIL IOT IN MOTION

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AFTER SALES SUPPORT

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