AIMsight CAM Station – Datasheet – Rev. 1

Highlights

Smart and autonomous camera-based remote monitoring system for small displacements, successfully deployed since 2017 in more than fifteen projects in the following areas:

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

Traceability: Anonymized images are kept for review
Speed: Web interface, easy to install
Ecology: No drilling required, low consumption solar unit (optional)

In combination with adequate reflectors, measurements a at over 1km are possible.

General System Specifications

Measurement Performance

- Typical resolution: 0.1 mm at 20 m typ., see lens specification on p. 2
- Angular resolution: 0.8 '' (arc second) with a 6 mm lens *
  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

Power and Size

- Typical consumption: <500 mW average in monitoring mode
- Station dimensions: 456 mm x 170 mm x 190 mm
- Station weight: 3 kg

Environmental

IP 67 outdoor housing, suitable for year-round operation

Security

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

Communication

Embedded cellular modem, 4G LTE CAT-4 with 3G/2G Fallback, compatible with the AIMsight IT0 range of SHM sensors and the AIMsight DAQ module for the acquisition of analog sensor signals.

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

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) × 2080 (V)
- Unit cell (pixel) size: 2.4 μm (H) × 2.4 μm (V)
- Sensitivity: 380 mV@ 3200 K, 706 cd/m2 1/30s accumulation
- Saturation signal: 945 mV

Lens specifications

Choice of high-resolution, low-distortion lenses based on the client requirements (6mm by default)

Focal length (mm)	Opening angle (°)		Typical resolution (mm) *		
	Horizontal	Vertical	at 10m	at 100m	at 1 km
6	63.5	45.2	0.040	0.40	4.00
9	44.9	31.0	0.027	0.27	2.67
12	34.4	23.5	0.020	0.20	2.00
16	26.1	17.7	0.015	0.15	1.50
25	16.9	11.4	0.010	0.10	0.96
35	12.1	8.2	0.007	0.07	0.69
50	8.5	5.7	0.005	0.05	0.48
75	5.7	3.8	0.003	0.03	0.32

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

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)