AIMsight FAQ

Frequently Asked Questions

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NOTE
This FAQ covers standalone station operation, integration options, and selected AIMsight Cloud features. Questions that apply specifically to the Cloud are marked **(AIMsight Cloud — optional service)**. These features require the corresponding service and licence. Standalone operation without an active AIMsight Cloud subscription requires a local software licence.

Installation and commissioning

My AIMsight camera does not start. What should I check?

First check that the **internal battery is connected**. Depending on transport or storage conditions, the battery may have been disconnected and must be connected before commissioning.

Then connect the external power supply and check the **charging / power LED**.

If the LED does not turn on:

- check that the external power supply is connected;
- check the power connectors and cabling;
- for a mains-powered installation, verify that the power supply is energized;
- for a solar-powered installation, verify the solar-panel connection and that sufficient charging voltage is available.

If the unit appears to be powered but cannot be reached remotely, try connecting to it locally over Ethernet. This helps distinguish a startup or power problem from a 4G or remote-connectivity problem.

If there is no charging indication and the system remains unreachable after checking the power supply and battery connection, contact AIMsight support.

The camera is running but is not connected over 4G. What should I check?

A 4G connection may take a few minutes to become available after the station starts.

Check the following:

- Make sure the cellular antenna is correctly connected.
- Check the cellular signal level in the camera interface, if available.
- If the camera is installed indoors, underground, or behind substantial concrete or metallic structures, cellular reception may be weak even if a connection is occasionally available.
- If possible, relocate the antenna to a location with better reception or use an appropriate antenna extension / external antenna.
- Check whether the camera can be reached locally over Ethernet. If local access works, the camera itself is operating and the problem is limited to remote connectivity.
- If cellular signal is sufficient but the connection remains unavailable, the modem/SIM configuration should be checked.

For installations with persistently poor cellular coverage, Ethernet or another external communication solution may be preferable.

How can I access the camera locally?

The station provides its own web interface.

A computer connected locally to the station through Ethernet can access the interface using a standard web browser.

Remote access can also be provided through AIMsight's secure VPN infrastructure when an Internet connection is available.

What should I check before leaving the installation site?

Before leaving the site, perform at least the following commissioning checks:

- **Communication:** verify that the station is accessible through either 4G or Ethernet, according to the intended installation configuration.
- **Power supply:** verify that the external power supply is operating correctly, whether mains or solar.
- **Battery:** verify that the internal battery is connected and charging.
- **Charging indication:** check the charging / power LED.
- **Camera access:** verify access to the camera web interface.
- **Image:** check image quality, focus, exposure, and field of view.
- **Targets:** verify that all required targets or prisms are clearly visible in the image.
- **References:** verify that all selected reference targets are clearly visible.
- **Target identification:** verify that the configured processing areas correspond to the intended physical targets.
- **Distances:** verify that the distances from the camera to the monitored targets are known and correctly entered where required for displacement conversion.
- **Reference configuration:** verify that a sufficient and appropriate set of reference targets has been configured.
- **Reference fit:** verify that the reference-network fit and `sigma0` are reasonable.
- **Acquisition:** trigger at least one measurement and confirm that valid measurements are produced.
- **Schedule:** verify that the required periodic acquisition schedule is enabled.
- **Data transfer:** verify that data reach the intended server, FTP destination, optional AIMsight Cloud platform, or API consumer.
- **Timestamps:** verify that exported data contain the required timestamp information and that the timezone is understood.
- **Alarms:** where alarms are required, verify their configuration and perform a functional test whenever practical.

Whenever possible, allow at least one complete scheduled measurement and data-transfer cycle to run before leaving the site.

What is the expected battery autonomy if external power fails?

With a typical monitoring cycle of approximately **one measurement every 15 minutes**, the internal battery provides an indicative autonomy of approximately **five days**.

Actual autonomy depends on the acquisition configuration, communication activity, environmental conditions, and battery condition.

What happens if the camera moves or changes orientation after commissioning?

The effect depends on the size of the processing areas defined around the tracked targets and on the selected optics.

Larger processing areas allow targets to remain tracked after larger camera movements, at the cost of additional processing time.

If a target reaches the edge of its processing area, the processing area must normally be redefined. The same applies if the monitored target itself undergoes a very large displacement.

Camera-orientation changes are also available in the processed measurement data and can be monitored to identify excessive station movement before it affects measurement availability.

References and camera-motion compensation

Where should reference targets be placed?

Reference targets are used to estimate and compensate for movements of the camera itself. Their placement therefore has a direct influence on the quality of this compensation.

Whenever possible, references should be installed on elements that can reasonably be considered stable and distributed across the image, ideally surrounding or framing the area

containing the measurement points. A good horizontal and vertical distribution makes it easier to distinguish camera pan, tilt and roll and avoids extrapolating the correction from references concentrated in a small part of the image.

It is also preferable to place the references at a distance comparable to or greater than that of the measurement points, ideally in the background. More distant references are less sensitive to parallax effects caused by small translational movements of the camera support.

Conversely, references located significantly in the foreground may show a relatively large apparent displacement following a small lateral movement of the camera. If this information is then used to correct points located much farther away, the camera movement may be overcompensated.

In practice, preference should therefore be given to:

- supports whose stability can reasonably be assumed;
- references located as far from the camera as practical, preferably in the background of the monitored area;
- references distributed around the measurement area rather than grouped in a single part of the image;
- references that will remain reliably visible over time, with limited risk of obstruction by vegetation, vehicles, equipment or other objects.

If no perfectly fixed references are available, several measurement points can also be used together as a reference network. Camera movement is then estimated robustly from the overall network, while the system remains sensitive to differential movements between individual points.

What should I do if all targets may potentially move or settle?

If no target can be considered perfectly stable, several targets can be configured as references. In some applications, **all targets**, or preferably a suitable set of relatively distant targets, can be used.

Camera motion is estimated using a **robust fit over the complete reference network**. The algorithm therefore tolerates the displacement of a limited number of individual reference targets without immediately interpreting their displacement as camera motion.

The system consequently remains sensitive to **differential settlement or deformation** within the monitored area.

For a real structural displacement to be entirely absorbed into the camera-motion correction, the complete reference network would have to deform according to a very specific geometry that is indistinguishable from a camera rotation.

For example, in a simple configuration, all targets would have to settle simultaneously by approximately an amount proportional to their distance from the camera: a target twice as far from the camera would have to settle approximately twice as much.

Such a displacement pattern is generally sufficiently unlikely that using a distributed set of potentially moving targets as references remains a robust solution in practice.

How should reference targets be selected?

Where possible, use several reference targets distributed over the image rather than relying on a single target.

A distributed reference network makes camera-motion estimation more robust and provides redundancy if an individual target becomes obstructed, damaged, or moves.

Reference targets should preferably:

- be clearly visible;
- provide good image contrast;
- remain visible under the expected illumination conditions;
- be distributed over the monitored image;
- be sufficiently far from the camera where appropriate;
- not all belong to a small local area that could deform as a single block.

When no completely stable point is available, a larger reference network can still be used because camera-motion estimation is based on a robust fit and its consistency can be monitored using `sigma0`.

How can I detect deformation of the reference network?

Camera-motion estimation provides a reprojection error called **`sigma0`**, which is available in the system metrics.

`Sigma0` measures how well the observed displacement of the different reference targets can be explained by the estimated global camera motion.

An abnormal increase in `sigma0` can therefore indicate that the reference network is deforming in a way that can no longer be explained by simple camera movement. A low value indicates that the observed movements of the reference targets remain consistent with a common camera movement.

It is useful for monitoring the **consistency and stability of the reference network** and can be used to trigger further investigation if necessary.

`Sigma0` and the per-target **Error Value** provide complementary information:

- **Error Value** checks whether an individual target is still visible and resembles its reference image;
- `sigma0` checks whether the reference targets remain geometrically consistent with the estimated camera movement.

Does the system detect excessive camera instability?

Yes.

The processed data include an indicator of camera stability based on the history of estimated camera-angle variations.

Camera-angle changes and, where appropriate, excessive raw pixel movement toward the edge of a processing region can be used to identify an unstable installation before it affects measurement quality or availability.

Targets and measurement quality

One target is no longer being measured. What should I check?

First inspect the corresponding camera image and the target's **Error Value**.

Check:

- whether the target is still visible;
- whether the target is still inside its processing area;
- whether the **Error Value** has increased above the configured **Error Threshold**;
- whether the target is partially or completely obstructed;
- whether the target is dirty, damaged, or covered by water, dust, snow, vegetation, or another object;
- whether a reflective target or prism has changed orientation;
- whether illumination conditions have changed significantly;
- image focus and exposure;
- whether the camera itself has moved significantly;
- whether the physical target has undergone a displacement larger than the configured processing area.

If several targets become invalid simultaneously, also check:

- camera movement;
- focus or contamination of the camera window;
- illumination conditions;
- communication with the camera;
- the reference-network fit and `sigma0`.

If the **Error Value** exceeds the threshold, the measurement is normally rejected rather than interpreted as a valid displacement.

The current image, the target-recognition metrics, **Camera Movement**, and `sigma0` are generally the fastest way to distinguish an optical or visibility problem, camera instability, reference-network deformation, and an actual displacement. When AIMsight Cloud is included, a measurement can be opened together with its corresponding archived image, making it easier to identify the cause of an abnormal value without first retrieving image files separately.

What happens if a target changes shape or becomes partially obstructed?

Target recognition operates in parallel with displacement measurement.

For each monitored target, the current image is compared with the reference image used when the target was configured. This produces a **recognition error**.

The recognition error increases if, for example:

- the target becomes dirty;
- the target is partially obstructed;
- part of a reflective target becomes detached;
- its appearance changes significantly.

Above a configurable recognition-error threshold, the displacement measurement is considered invalid.

An alarm can also be configured based on the number of rejected targets, making it possible to detect problems such as poor visibility, contamination, or damaged targets.

Are white enamel targets with a black border suitable? Other home-made targets?

They can be used at relatively short distances, but they are less effective than more directional reflective targets such as:

- prisms;
- retroreflectors;
- reflective tape;
- AIMsight markers.

Measurement availability, particularly at night, may therefore be lower with simple painted or enamel targets.

Target selection should be based on the required measurement accuracy, distance, lighting conditions, and expected measurement availability.

Can AIMsight measure without dedicated targets?

Yes, depending on the application, AIMsight can track suitable natural image features.

However, dedicated reflective targets generally provide substantially better robustness and measurement availability, particularly when lighting or weather conditions vary.

For safety-critical alarm applications, natural-feature tracking should therefore be evaluated carefully before being relied upon as the sole measurement method.

How do atmospheric turbulence and heat shimmer affect measurements?

Atmospheric turbulence can produce apparent image motion due to variations in temperature and humidity along the optical path. This is commonly visible as **heat haze** or **heat shimmer**.

AIMsight reduces this effect by combining a series of images, typically approximately **20 to 40 images**, for each measurement.

If this averaging is insufficient, measurements can also be repeated over a longer period and averaged to further reduce atmospheric noise.

What does the Error Value represent?

The Error Value corresponds to the target recognition error.

For each monitored target, the current image of the target is compared with the reference image recorded when the target was configured.

The error value therefore indicates how much the current appearance of the target differs from its reference appearance.

A higher error value can indicate:

- Partial or complete obstruction of the target.
- Vegetation, vehicles, equipment, or other objects temporarily hiding the target.
- Dirt, water, snow, or contamination on the target.
- Significant changes in illumination.
- Damage or modification of the target.
- Any other significant change in its appearance compared with the original configuration.

A low error value indicates that the target still closely matches its reference image.

What is the Error Threshold?

The Error Threshold defines the recognition-error value above which a measurement is considered invalid.

By default, the threshold is 0.7. This mechanism is primarily used to reject measurements when a target is obstructed or its appearance has changed too much for the measurement to be considered reliable.

The threshold can be overridden with a user-defined value when required by the application.

Which diagnostic signals are available in Data Exploration?

In addition to the principal displacement values, **Data Exploration** provides signals describing target visibility, image quality, registration reliability, and camera movement. These indicators are calculated by the station and are intended to be interpreted together with the corresponding images and as trends over time.

The principal signals are:

- **Relative Horizontal / Vertical:** the main target-displacement results in millimetres, after calibration and, when enabled, camera-motion correction.
- **Raw Horizontal / Vertical:** the target position in the image in pixels, before conversion to millimetres and before camera-motion correction.
- **Error Value:** the difference between the current target image and its reference after registration. It is the main general-purpose recognition-quality indicator and is used by the obstruction filters.
- **Sharpness:** indicates how concentrated the target image is. A decreasing trend can suggest defocus, vibration, atmospheric disturbance, or another loss of image quality.
- **FWHM:** estimates the apparent width of the target image in pixels. An increasing trend can indicate image spreading caused by defocus, turbulence, motion blur, or vibration.
- **Dominance:** indicates whether another bright feature is becoming comparable with the tracked reflector. A value approaching 1 indicates an increasing risk of competition between image features.
- **Peak Intensity:** the maximum pixel value in the target image. It helps identify major changes in illumination or target response, as well as possible saturation.
- **Flux:** the total target signal after estimating the image background. It is useful for detecting gradual changes in illumination, reflector condition, alignment, or obstruction.
- **SNR:** compares the target signal with variations in the local background. A decreasing value means that the target is becoming less distinct from its surroundings.
- **Camera Movement:** the global movement estimated from the reference targets and used to compensate for movement of the camera or its support.

No single metric should normally be treated as a universal pass/fail criterion. The combination of several trends is generally more informative. The **Available Signals and Diagnostic Metrics** section of the station manual provides the complete definitions and interpretation guidance.

How are targets with excessive recognition error handled in Data Exploration?

The Data Exploration tools can use the Error Value to identify and handle measurements affected by poor target recognition.

Available processing and visualization options include:

- Highlighting periods or areas where the Error Value is too high.
- Hiding data points whose Error Value exceeds the selected threshold.
- Replacing rejected or hidden data points with interpolated values where appropriate.
- Overriding the default Error Threshold with a user-defined value.
- Applying additional filtering or smoothing, such as a rolling median, to the resulting data where appropriate.

The original Error Value remains useful for distinguishing actual displacement from periods where the target was not reliably visible.

What does Camera Movement represent in Data Exploration?

Camera Movement represents the estimated changes in camera orientation calculated from the reference targets.

These values can reveal small changes in station orientation caused, for example, by:

- Thermal effects on the camera support.
- Mechanical movement or relaxation of the mounting system.
- Wind-induced movement.
- Accidental displacement of the station.

Camera Movement is used internally to compensate for station motion so that the reported displacement primarily represents movement of the monitored targets relative to the reference network.

The Camera Movement plots are also useful for diagnosing installation stability and identifying changes in the camera support over time.

What do the columns in the CSV export represent?

Measurement columns are prefixed with the corresponding target or channel name, for example target_06_rch.

The most relevant columns for normal displacement monitoring are rch and rcv.

The remaining columns are retained for traceability and advanced post-processing, including the possibility of recomputing camera-motion compensation using a different reference network.

- x: Absolute target X position in the image [px].
- y: Absolute target Y position in the image [px].
- rx: Relative X displacement before camera-motion correction.
- ry: Relative Y displacement before camera-motion correction.
- rch: Camera-corrected horizontal displacement [mm].
- rcv: Camera-corrected vertical displacement [mm].
- error: Target recognition error. This metric compares the current image of the target with its reference image and is used to detect obstructions, visibility problems, or other changes in target appearance.
- rcx, rcy: Intermediate camera-corrected values used for processing and post-processing. They are normally not required when using the final rch and rcv displacement results.

Global camera-transformation values are prefixed with camera:

- camera_pan: Estimated camera pan angle [deg].
- camera_tilt: Estimated camera tilt angle [deg].
- camera_rotation: Estimated camera roll angle [deg].

- camera_scale: Estimated image scale factor, where 1.0 means no scaling.
- camera_sigma0: Residual error of the reference-network fit. An increase can indicate reduced consistency or deformation of the reference network.

Additional reference-network statistics may include:

- inlier_{channel}: Information on whether/how the reference channel contributed to the robust camera-motion fit.
- reproj_err_{channel}: Reprojection residual associated with the reference channel.

What is the error column in exported data?

The error column is a target recognition error, not a displacement uncertainty or accuracy estimate.

It compares the current appearance of a target with the reference image recorded during configuration.

The value typically increases when:

- The target is partially or completely obstructed.
- Vegetation, vehicles, people, animals or equipment pass in front of the target.
- The target becomes dirty, wet, covered, or damaged.
- Illumination changes significantly.
- The appearance of the target otherwise differs substantially from its reference image.

Measurements for which the recognition error exceeds the configured Error Threshold can be rejected as invalid.

The default Error Threshold is 0.7 unless a different value has been configured.

My measurements suddenly become noisy or invalid. What should I check?

Useful checks include:

- whether the target remains visible and inside its processing area;
- water, condensation, dirt, or contamination on the target or camera window;
- partial or complete target obstruction;
- significant changes in illumination;
- atmospheric turbulence or heat shimmer;
- excessive camera movement; and
- `sigma0` if reference targets are being used.

The diagnostic signals can help narrow down the likely cause:

- An increasing **Error Value** indicates that the target image no longer matches its reference reliably. This can result from obstruction, changed appearance, poor visibility, or incorrect registration.
- Decreasing **Sharpness** together with increasing **FWHM** suggests that the target image is becoming more diffuse, for example because of defocus, vibration, motion blur, or atmospheric turbulence.
- Decreasing **Peak Intensity**, **Flux**, and **SNR** suggests reduced illumination, partial obstruction, contamination, reflector misalignment, or generally poorer target visibility.
- Increasing **Dominance** indicates that another bright feature is competing with the tracked reflector and that the risk of selecting the wrong image feature is increasing.
- Similar apparent movement across several targets, accompanied by a change in **Camera Movement**, points toward movement or instability of the camera support.
- An increase in `sigma0` indicates that the reference targets are becoming less consistent with a single global camera movement and may indicate deformation of the reference network.

The corresponding camera image remains essential for confirming the interpretation. When AIMsight Cloud and image archiving are enabled, the image associated with a selected measurement or period can be opened directly from the history view. The image and the trends in **Error Value**, **Sharpness**, **FWHM**, **Dominance**, **Peak Intensity**, **Flux**, **SNR**, **Camera Movement**, and `sigma0` together provide the most effective way to distinguish between:

- a visibility or target-recognition problem;
- optical degradation or atmospheric disturbance;
- camera instability;
- deformation of the reference network; and
- actual structural movement.

Measurement capabilities

How many points can one AIMsight station monitor?

AIMsight supports multi-point displacement monitoring.

There is no fixed hard limit on the number of tracked points. Existing applications use **more than 100 simultaneously tracked points on a single station**.

The practical number depends on acquisition frequency, processing-area size, and the required processing performance.

What is the maximum operating distance?

Operating distance depends on:

- required measurement accuracy;
- lens and field of view;
- target size and type;
- atmospheric conditions;
- illumination;
- required measurement availability.

At short range, AIMsight can achieve micron-level resolution.

At long range, it can operate in applications traditionally addressed using total stations. A test installation has been operated with monitored points at approximately **1.6 km**.

Can two cameras be combined to obtain X, Y, and Z displacement?

Yes.

Two cameras viewing the monitored structure from sufficiently different directions can be combined to reconstruct three-dimensional displacement.

Measurements are currently available independently from the two systems, and their outputs can be combined using relatively simple post-processing.

Can the camera automatically scan several monitoring areas?

A motorized scanning concept has been considered, particularly for crack monitoring on large structures where each monitored area has its own reference points.

However, AIMsight does not currently aim to provide scanning while simultaneously maintaining total-station-like absolute angular accuracy.

For applications requiring continuous high-accuracy angular scanning, a total station remains the more appropriate instrument architecture.

Can AIMsight perform event-triggered or high-speed measurements?

Yes.

AIMsight can operate using:

- scheduled acquisitions;
- periodic monitoring;
- continuous or dynamic acquisition;
- externally triggered or event-based acquisition.

The appropriate configuration depends on the required measurement rate and application.

Data export and integration

The camera is online, but I am not receiving data. What should I check?

An online camera does not necessarily mean that measurements are being acquired or exported correctly. Acquisition and data transfer should be checked separately.

First verify **measurement acquisition**:

- Is the required acquisition schedule enabled?
- Has the scheduled acquisition time been reached?
- Can a measurement be triggered manually?
- Are valid target measurements being produced?
- Are the expected measurements visible in the local interface or Data Exploration tools?

Then verify **data transfer**:

- Is the required FTP, optional AIMsight Cloud, or other export destination configured?
- Is the destination server reachable?
- Are the hostname, address, port, and path correct?
- Are authentication credentials valid?
- Is the expected export format enabled?
- Is the station's Internet connection operational if the destination is remote?

If data are available locally but do not reach the external destination, the problem is most likely related to communication or export configuration rather than measurement acquisition.

Which file formats can AIMsight export?

AIMsight can generate:

- HDF5 (`.h5`) files containing the complete acquisition and advanced diagnostic signals;
- CSV files;
- Parquet files;
- images;
- video streams.

Additional export formats can be implemented where required as an integration or development service.

How can I export the advanced diagnostic metrics?

Select the **HDF5** (`.h5`) format in the acquisition schedule. This format can include the complete set of signals computed by the station, including the displacement results and advanced target-quality metrics such as **Error Value**, **Sharpness**, **FWHM**, **Dominance**, **Peak Intensity**, **Flux**, and **SNR**, together with camera-related information.

The other export formats are intentionally simplified. Depending on the selected format and output, they contain either displacement results only or a reduced set of quality metrics.

Use HDF5 when complete diagnostic traceability or advanced post-processing is required. Use CSV or Parquet when a smaller and simpler dataset is preferable for routine integration.

What do `x`, `y`, `rx`, and `ry` represent in exported data?

`x` and `y` are the **raw target positions in image pixels**. They can be useful, for example, to visualize the apparent trajectory of a target within the image.

`rx` and `ry` are the **relative displacements calculated by AIMsight**, expressed in the configured distance units.

They should therefore not be calculated simply as `x - x_initial` and `y - y_initial`.

How can I redefine the zero/reference position used for `rx` and `ry`?

The displacement reference can be redefined by **redefining the target/reference patterns**.

This establishes a new measurement reference. In the local interface, saving the configuration again replaces the reference patterns and defines a new zero. When AIMsight Cloud is included, additional update strategies determine whether reprocessed data restart from zero or retain trace continuity; see the Cloud-specific question in the **Software and licensing** section.

My exported CSV file does not contain a timestamp. What should I do?

Time information is required for most external data-processing workflows.

If the selected CSV export does not contain a timestamp, check the export type and configuration being used.

Where required, the export configuration can be adapted so that each measurement contains an explicit timestamp suitable for external processing.

For data integration, the timestamp convention should always be defined explicitly rather than inferred from the file creation time.

Which timezone is used for timestamps?

When AIMsight data are combined with measurements from other sensors or external acquisition systems, the time basis must be handled explicitly.

In particular, verify:

- which timestamp field is being used;
- whether timestamps are expressed in UTC or local time;
- the station timezone configuration;
- whether daylight-saving-time conversion is performed by the station, server, or external processing software;
- timestamp precision;
- which instant the timestamp represents for the selected acquisition mode.

For automated processing, using an unambiguous timestamp convention such as UTC is recommended.

Do not rely solely on the CSV file creation or modification time as the measurement timestamp.

Which data-transfer methods are available?

FTP can be configured directly by the end user through the camera interface.

AIMsight also provides an **API** for functions including:

- triggering acquisitions;
- controlling the system;
- retrieving measurement data.

AIMsight Cloud is an additional optional destination when it is included in the project configuration and licence. Additional transfer mechanisms can be implemented where required for specific integrations.

Can I retrieve measurements acquired before FTP was configured?

Manually triggered local dynamic acquisitions are stored in the local database and can be retrieved using the **Data Exploration** tab.

Periodic monitoring acquisitions are not intended to provide permanent onboard backup storage.

Local storage is managed to avoid filling the station's internal storage once data have been transferred to the configured remote destination.

Does the camera operate without a Cloud connection?

Yes, provided that the station includes a **local software licence** enabling standalone operation.

With this licence, image acquisition and processing run directly on the station. The local web interface remains accessible over Ethernet, and measurements can be stored locally without a connection to AIMsight Cloud. Functions requiring external communication — such as remote access, data transmission, and Cloud notifications — remain unavailable while the connection is down.

The station can also be supplied without a standalone local licence. In this configuration, its operation depends on an active AIMsight Cloud subscription. The applicable licensing model and the functions available without a Cloud connection are specified in the project quotation or agreement.

Alarms and communication

What happens to alarms if the Internet or 4G connection is lost?

Loss of remote connectivity does not necessarily mean that the measurement station itself has stopped operating.

When the station includes a local software licence, acquisition and local processing can continue while the camera is disconnected from the Internet, provided that the station remains powered. A station supplied without a standalone local licence depends on an active AIMsight Cloud subscription, as specified in the project quotation or agreement.

Alarm behavior then depends on the type of alarm and how it is implemented.

Local alarm actions, such as an alarm evaluated directly on the station and connected to a local output or relay, can operate independently of the Internet connection when the station has the required local software licence and is configured accordingly.

Remote alarm notifications, such as cloud notifications, SMS, email, or alarms transmitted to an external system, require the corresponding communication path to be available. They cannot be relied upon during a loss of 4G or Ethernet connectivity.

Cloud notifications and Cloud-based alarm supervision require the optional AIMsight Cloud service.

For applications where alarm transmission is safety-critical, the communication architecture should therefore be designed accordingly. Possible measures include:

- a local relay or digital alarm output;
- redundant communication paths;
- communication-loss monitoring;
- an external system supervising station availability.

Loss of communication should itself be treated as a condition worth monitoring in critical applications.

Can AIMsight activate a relay or dry-contact alarm?

As an option, the camera can be equipped with an output that can be used to control a relay or, depending on the electrical requirements, another local alarm device.

This makes it possible to implement local alarm actions that do not depend solely on a remote cloud or cellular connection.

The electrical interface and relay configuration should be verified for the specific installation.

Software and licensing

Is dedicated monitoring software available?

Yes.

AIMsight offers Cloud-based monitoring software. The station can also be supplied with a local software licence enabling standalone measurement operation.

The embedded web interface can be accessed:

- locally using Ethernet and a web browser;
- remotely through the secure AIMsight VPN, when the station has an Internet connection and the remote-access service is enabled.

AIMsight Cloud is a subscription service. It is optional for a station equipped with the standalone local software licence. A station supplied without that local licence depends on an active AIMsight Cloud subscription.

Is the software web-based or desktop-based?

The normal station interface and cloud monitoring workflows are web-based.

Additional local or external processing workflows can also be implemented depending on the project architecture and integration requirements.

Which licensing models are available?

Both **subscription-based** and **local software licence** models are available, depending on the selected configuration.

A standalone local software licence allows the station to acquire, process, and store measurements without an active AIMsight Cloud subscription. Alternatively, the station can be supplied without this licence and operated as part of an active AIMsight Cloud subscription.

AIMsight Cloud can also complement a locally licensed station by providing centralized data access, image archiving, alarms, visualization, and post-processing. The project quotation or agreement specifies the applicable licence, subscription, and included services.

(AIMsight Cloud — optional service) Which additional diagnostic and post-processing tools are available?

Image acquisition and processing are performed on the station. Depending on the selected licensing model, these functions are enabled through either a standalone local software licence or an active AIMsight Cloud subscription. AIMsight Cloud additionally keeps measurements, diagnostic information, and — when image archiving is enabled — the associated images together in one historical view.

This is particularly useful when reviewing an unexpected measurement. From the measurement history, the user can open the image corresponding to a selected point or period with a simple click and inspect what the camera actually saw. This can help distinguish structural movement from causes such as an obstruction, vegetation, a vehicle, changed illumination, contamination, a shifted prism, or camera movement.

The Cloud interface also exposes recognition-quality information for each target, including **Error Value**, **Sharpness**, **FWHM**, **Dominance**, **Peak Intensity**, **Flux**, and **SNR**, together with camera-motion and reference-network metrics where available. Measurements, quality indicators, and visual evidence can therefore be reviewed in the same context rather than as separate files.

The visualization and post-processing tools support tasks such as:

- navigating through the measurement history and opening the corresponding archived image;
- comparing target traces and camera-motion information;
- highlighting or filtering periods with excessive recognition error;
- applying offsets, rolling filters, or other available post-processing options;
- reviewing the consistency of the reference network; and
- reprocessing measurements when the target configuration or reference system must be changed.

These functions improve traceability and make abnormal measurements easier to understand. A station equipped with a local software licence can continue to acquire and process data independently if the Cloud connection is temporarily unavailable.

(AIMsight Cloud — optional service) How can I apply a target configuration from a historical image?

The general **Pattern Configuration** workflow is shared by the local station interface and AIMsight Cloud. The Cloud interface additionally allows patterns to be defined from a stored image and the affected measurements to be reprocessed.

After selecting the image at the required date and configuring the targets, the **Actions** button and **Update Strategy** dropdown determine how the new reference is applied:

- **Reinitialize** — Uses the selected image and configuration as a new reference and restarts the corresponding displacement values from zero. This is typically used when reconfiguring all targets, for example after a significant movement or repositioning of the camera station.
- **Reinitialize with motion compensation** — Preserves the reference network and camera-motion correction while reinitializing an individual target. A typical case is a prism that was accidentally moved and then placed back at a slightly different position.

- **Continuous** — Applies the updated pattern or reference while preserving continuity of the existing measurement trace. The displacement curve therefore does not return to zero when the new reference is introduced. This is useful when a pattern must be updated or refined without creating a discontinuity in the history.

Before applying the action, verify the date of the selected image, the target zones, the reference network, and the intended result. The selected strategy determines both the measurement zero and the continuity of the reprocessed data.

Environmental conditions and special configurations

Can AIMsight be installed in a marine environment?

The standard enclosure and camera supports are primarily aluminium and are suitable for temporary monitoring campaigns such as a several-month port installation.

For marine installations:

- stainless-steel fasteners can be used;
- the camera sun/rain shield should be installed;
- the front optical surface may require periodic cleaning depending on exposure.

For recurrent offshore use or permanent marine installations, a dedicated marinized configuration can be considered, potentially including stainless-steel components and automated window-cleaning solutions.

Is a thermal-camera option available?

A thermal-camera configuration can be considered for applications requiring it.

Thermal-camera specifications and cost depend on the required resolution, optics, measurement rate, and application. A project-specific configuration and quotation should therefore be requested.

Commercial and project questions

What is the delivery time for multiple stations?

We strive to keep standard versions available off-the-shelf. Delivery time depends on quantity, optics, accessories, and system configuration.

Current lead time should therefore be confirmed when requesting a quotation rather than considered a fixed product specification.

Is periodic metrological maintenance required?

No routine metrological recalibration is currently required as part of normal operation.

A verification procedure can be performed when required to confirm measurement-system behavior.

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