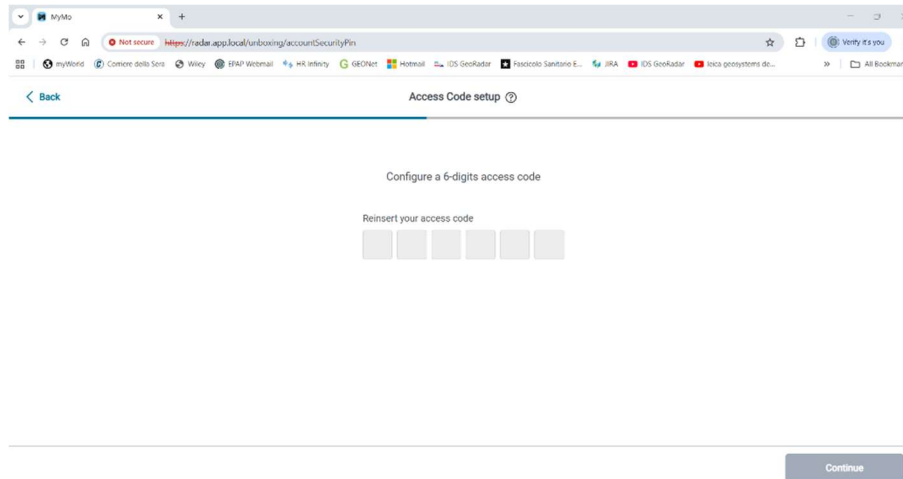
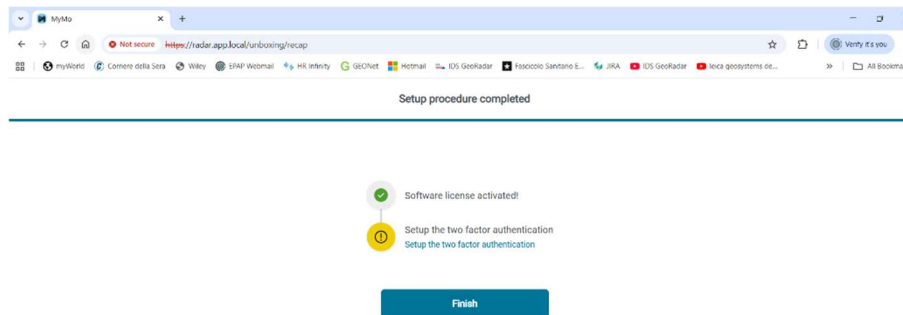


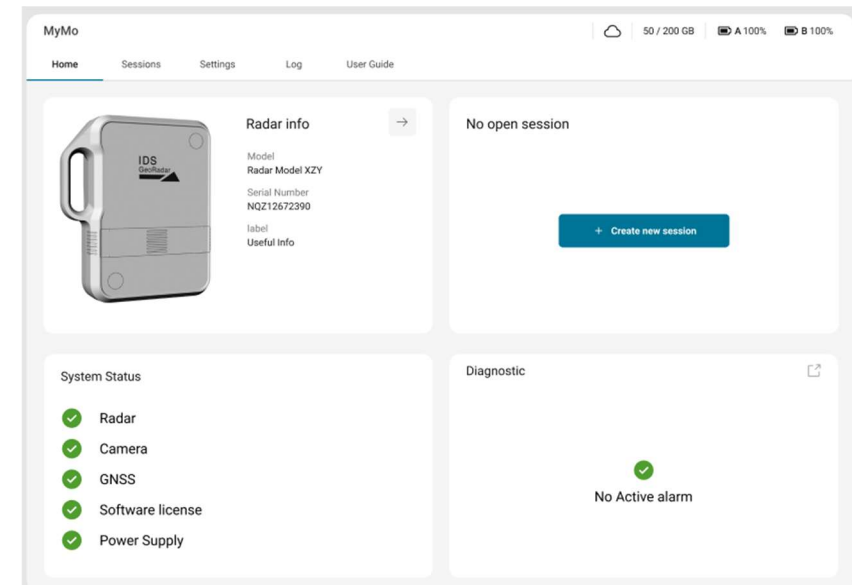
23. Re-insert the same 6-digit access code to confirm and press *“continue”* to proceed,



24. And the set-up procedure is complete,



25. The **MyMo Field App** Home page shall appear, and the system is ready to start monitoring.



NOTICE: please, re-start MyMo at the end of the “unboxing” and before the first actual monitoring session.

7.2 How to get started MyMo Field App (using LAN cable connection)

To get started **MyMo Field App** (in this case the PC Controller and **MyMo** are connected via LAN cable) follow the steps below:

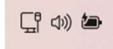
1. Turn on **MyMo** using the O/I button,

NOTICE: For MyMo to power on, hold the O/I button for about 6 seconds until the LEDs turn from white to green.

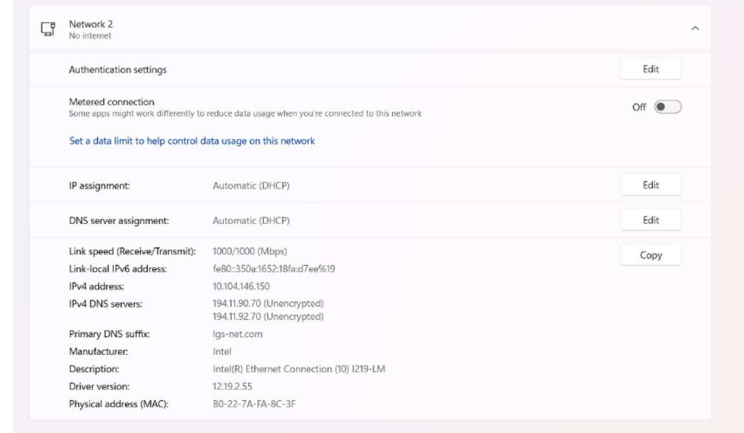


After each start, MyMo performs a Built-in-Test of the internal electronic. This operation takes about 3 minutes and after that the system is ready. Now, only battery and Wi-Fi LEDs shall be on solid green.



2. Turn on the PC Controller,
3. Verify that the internal watch of the PC is synchronized,
4. Connect MyMo (use LAN 2 port of 5.4) and the PC Controller using the LAN cable (987232),
5. Press on the Network Connection icon  and the connection is now established.

Network & internet > Ethernet



6. Follow now the same steps 9 to 25 as illustrated at 7.1



NOTICE: for connection stability, it is recommended to establish the LAN cable connection for the first start of the system.



NOTICE: It is recommended to re-start MyMo at the end of the “unboxing” and before the first actual monitoring session.

8. HOW TO WORK ON SITE WITH MYMO

Steps described in Par. 7, are to be finalized only once, after unboxing the system, for the first time.

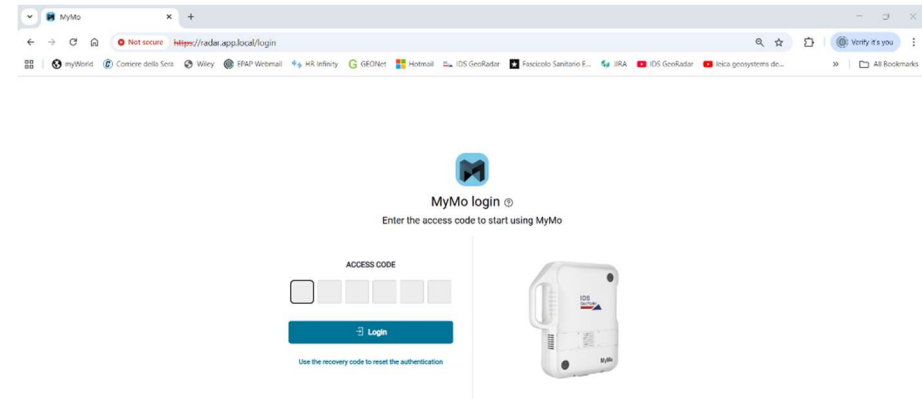
To start any monitoring campaign instead, User should follow the steps below:

1. Install the system, based on field conditions and survey-specific requirements, following up instructions illustrated in paragraph 6,
2. Turn on MyMo (press the O/I button for about 6 seconds, until battery/power, WiFi, and Camera LED turn green),

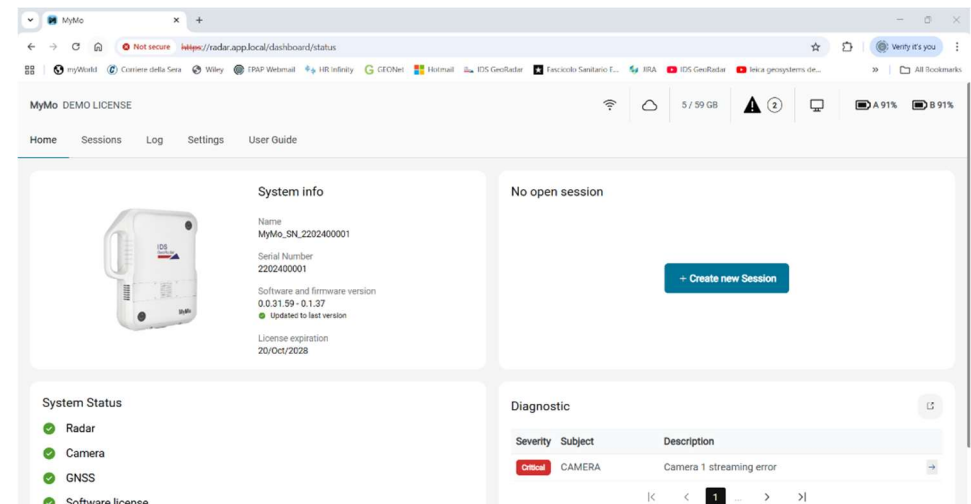


3. Turn on the tablet/PC used with MyMo,
4. Connect MyMo and the tablet via WiFi or LAN cable, as illustrated in 7.1 or 7.2, respectively,
5. Launch MyMo Web App from your browser using the URL <https://mymo.app.local/login>

6. Enter your own access code,



7. And the page below shall appear indicating connection between MyMo and the PC. User and MyMo are now ready to start monitoring.



The type of monitoring that MyMo can perform (Fig. 7) includes the following:

1. **Vibration and displacement analysis** of structures (bridges, buildings...) in **dynamic mode**, at a distance up to 200 meters from MyMo sensor, and at a frequency up to 400Hz. The so-called Structure Health Monitoring (SHM).
2. **Displacement analysis**, of structures up to 400 meters away from the radar sensor, in **Static mode** (sampling time of 15 sec, 30 sec or 60 sec), and
3. **Slope Monitoring**, of natural or manmade slopes up to 400 meters from radar head sensor, in **static mode**.

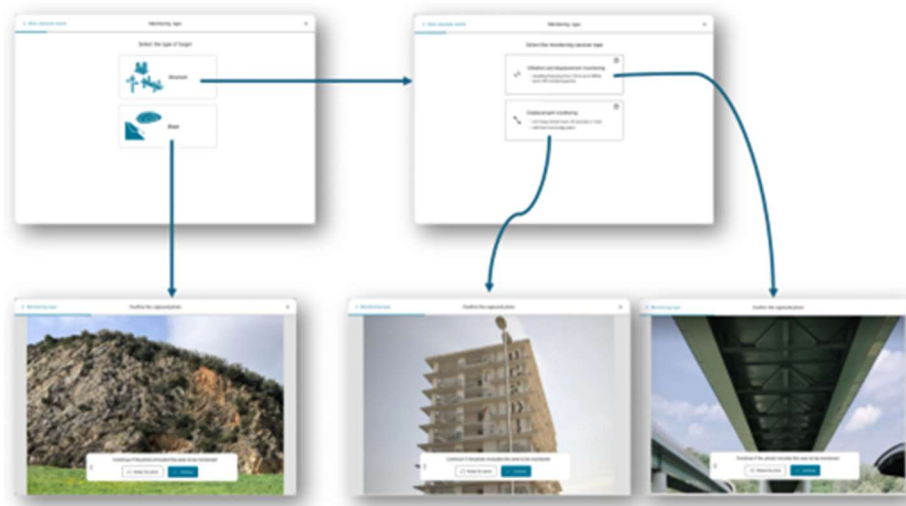
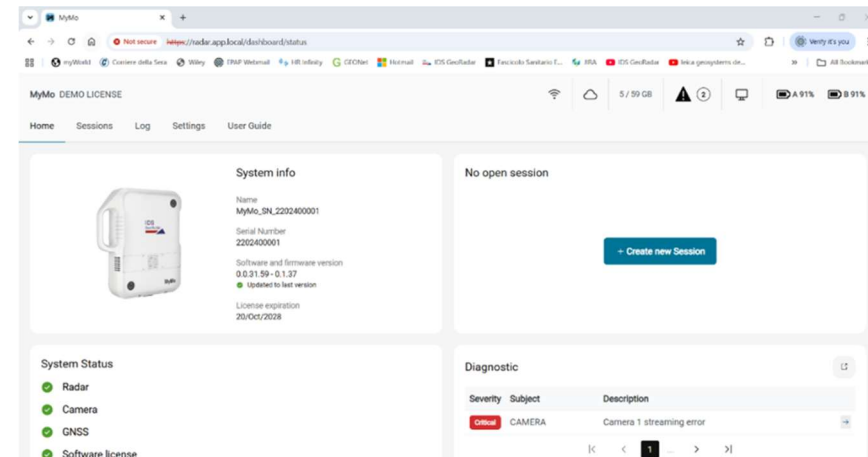


Fig. 7 Schematic view of MyMo monitoring types

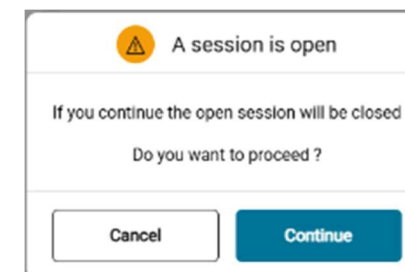
8.1 How to...perform a Vibration and displacement analysis (dynamic mode)

To monitor a structure in terms of its own **displacement and resonant frequency**, follow the steps below:

1. Create a new session by pressing  icon in the window below,



2. If a session is still running a pop-up message shall appear, asking if the running session should be closed,



3. Enter the name of the new session and notes (if applicable), press continue,

New Session

Session name (mandatory)

MyMo_SN_090-00-000002_UM 15042026 33/50

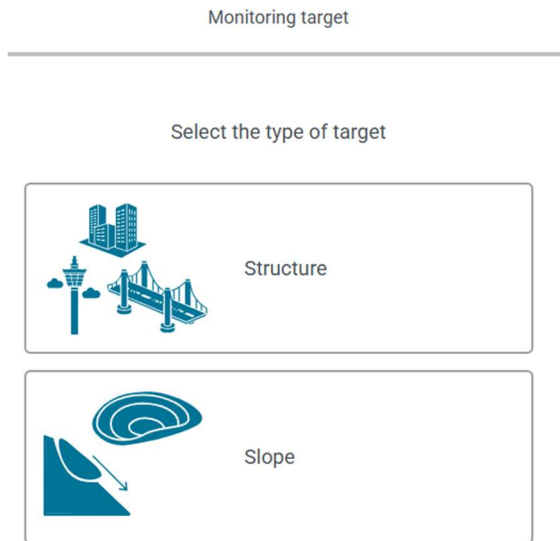
Notes

IDS GeoRadar Dynamic Building Monitoring

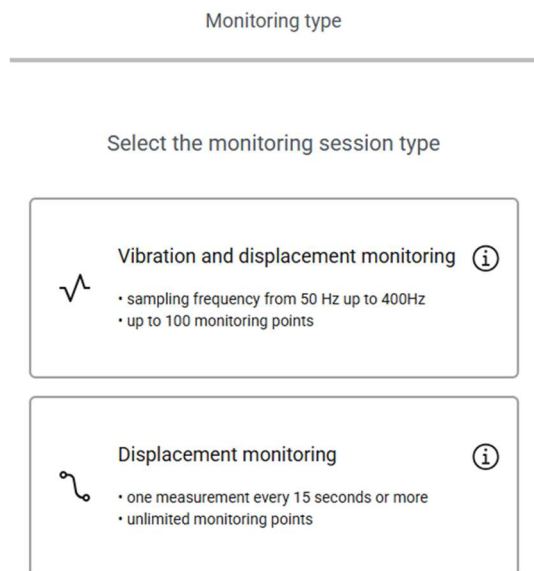
40/200

Continue

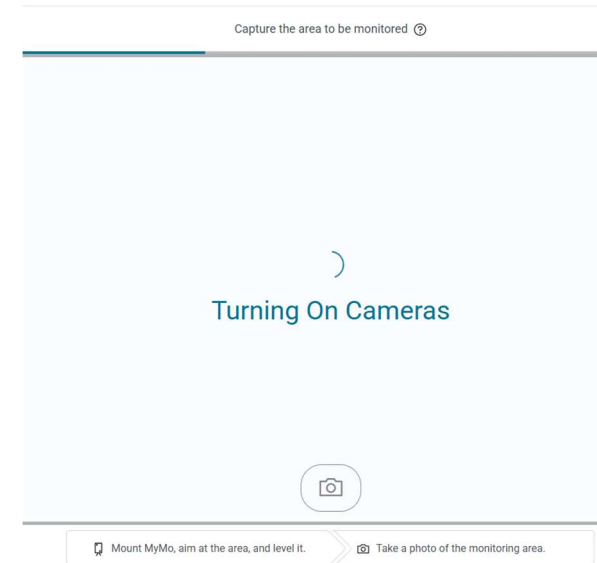
4. Select “**Structure**”, from the *Type of Target* icon,



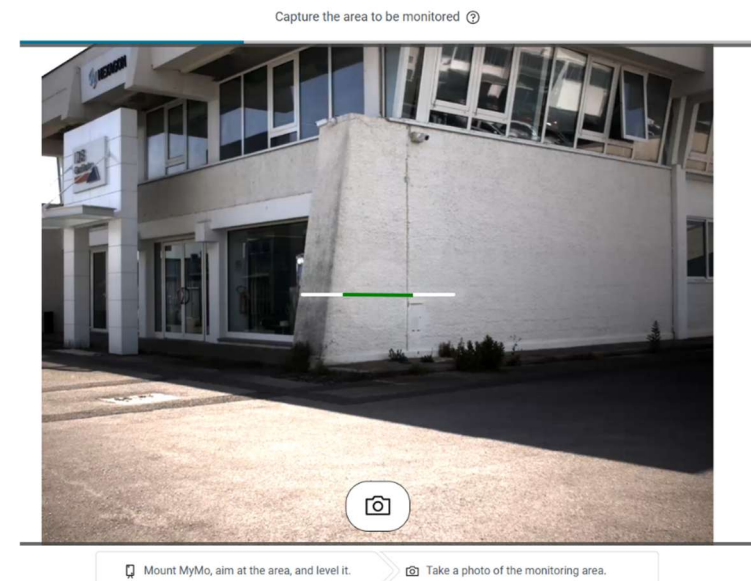
5. Then, select “**Vibration and displacement monitoring**” from the monitoring session type icon,



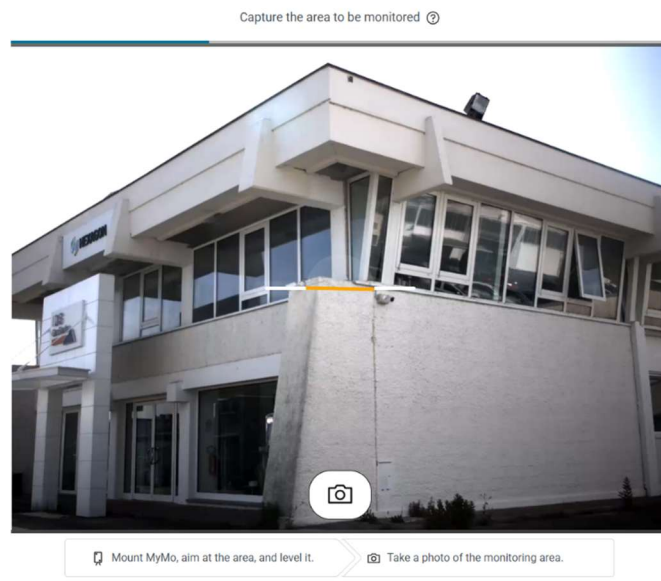
6. Wait for the MyMo photogrammetric cameras to activate,



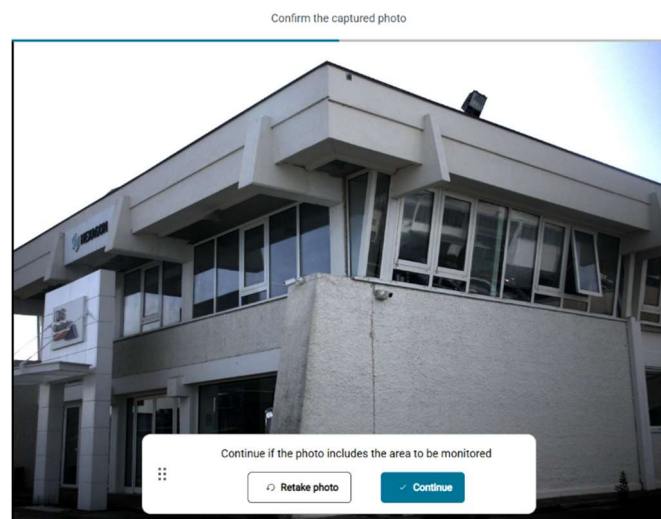
7. Verify if the survey area is fully included in the image,



8. If not, adjust the heading of MyMo (refer to [Fig. 4](#)), until the survey area is included in the image on screen.



9. Take a photo of the monitoring area by pressing on the icon , and press "Continue",



10. Select now the monitoring area, inside the photo just taken, by pressing with the mouse at each of the corners that should include the survey area,



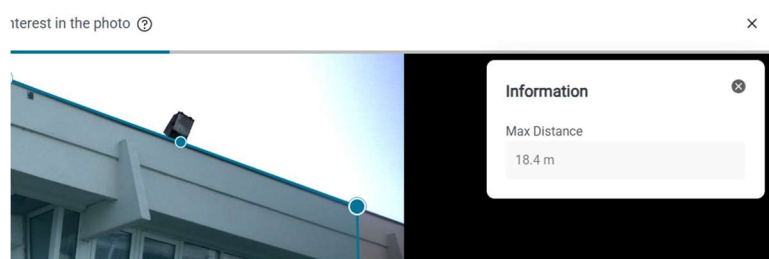
NOTICE: if possible, avoid including the sky within the monitoring area.



11. Press **DONE**, when all the survey area is included (inside the blue dots, below),



12. A pop-up message indicating the maximum distance is now showing.



NOTICE: For survey scenario located at a distance less than 30 meters, one single photo is enough.

If the monitoring area is further away than this distance, more pictures (up to 6) should be taken by the Operator, after taking the radar head sensor from tripod, and following instructions of tablet screen. Pictures, should be taken moving sideways along the virtual base lines.

13. If the distance to target is more than 30 (e.g.: 100 meters in the image below), then **MyMo field App** will ask to take more photos, along a baseline of a given length (20 meters in the example below),

Information

Max Distance
100 m

Number of footsteps between photos

2

Photo Baseline
20 m

14. Take MyMo radar sensor off the tripod by holding with both hands,



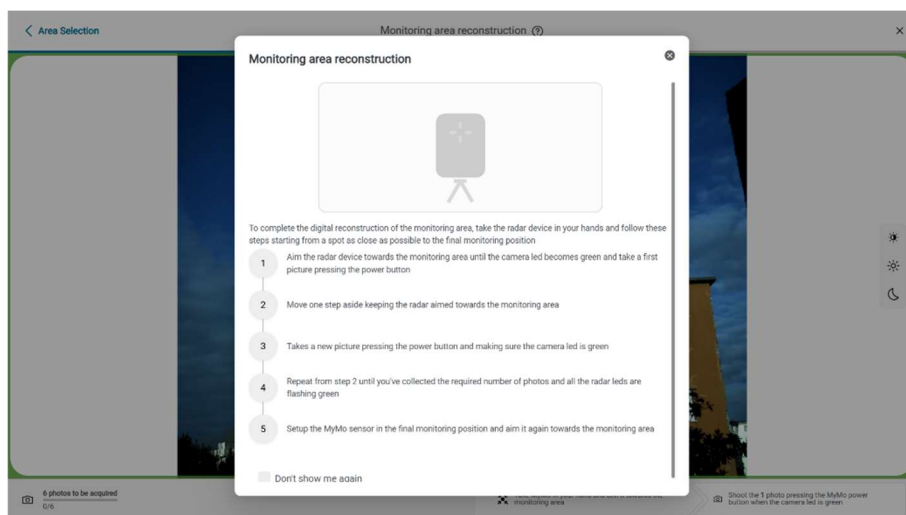
15. Aim the MyMo Cameras towards the target to be monitored,



16. Shortly press on the O/I button beside the icon to shoot a photo

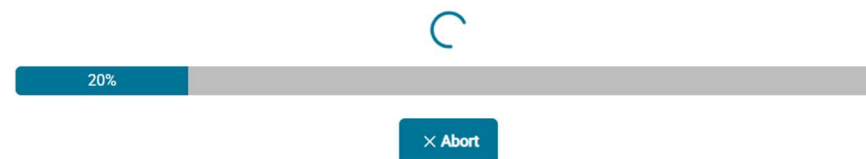
17. Wait for the Camera LED to stop blinking , before taking the next photo,

18. The number of photos taken should appear on screen indicating how many photos of the scenario should still be taken,

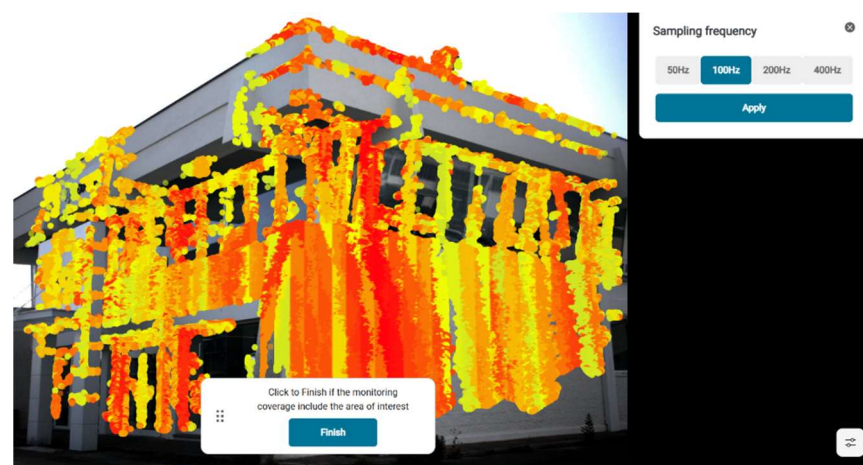


19. Repeat the same until the whole baseline is covered,
20. Place now the MyMo radar sensor back on the tripod, and press “**DONE**”,
21. MyMo Radar data shall start to be gathered (initialization),

Radar acquisition in progress, please do not cover the radar view!



22. As the MyMo Point Cloud is ready, the sampling frequency must be chosen. Press “**FINISH**”,

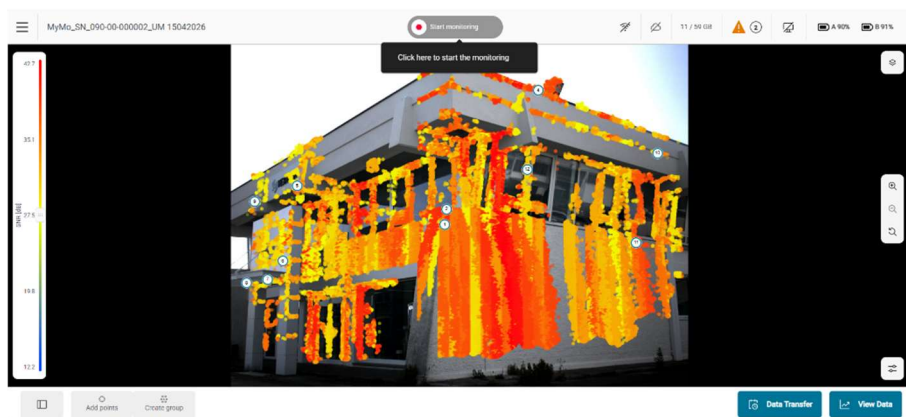


23. Select the monitoring points (on the point cloud) by selecting the

 icon,



24. The session is now created,



25. Press the **"START MONITORING"** icon to start the session, and select the points to be visualized in real time



8.2 How to...perform a Displacement analysis (static mode)

To monitor a structure in terms of its own displacement (static mode), follow the steps below:

1. Follow the same steps illustrated in 8.1 *till point 4*,
2. Select “**Displacement Monitoring**” from the monitoring session type icon,

Monitoring type

Select the monitoring session type

Vibration and displacement monitoring ⓘ

• sampling frequency from 50 Hz up to 400Hz

• up to 100 monitoring points

Displacement monitoring ⓘ

• one measurement every 15 seconds or more

• unlimited monitoring points

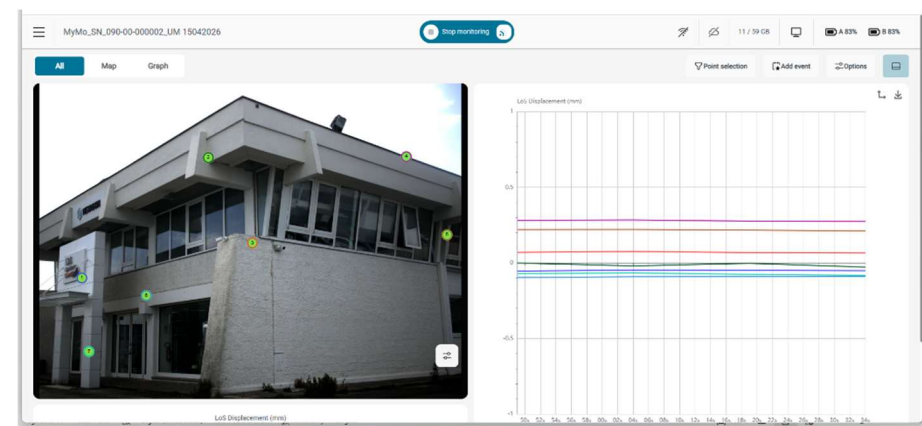
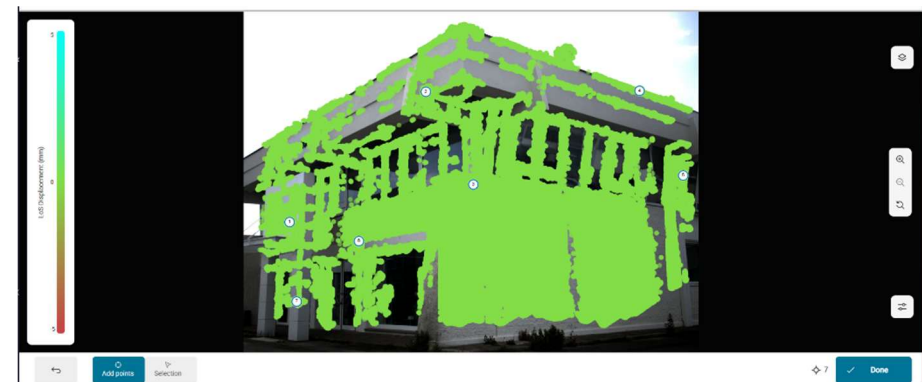
3. Follow the same steps illustrated in 8.1 *from point 6 till point 21*,
4. Select the Acquisition time,

Acquisition time ⓘ

15sec 30sec 60sec 120sec

Apply

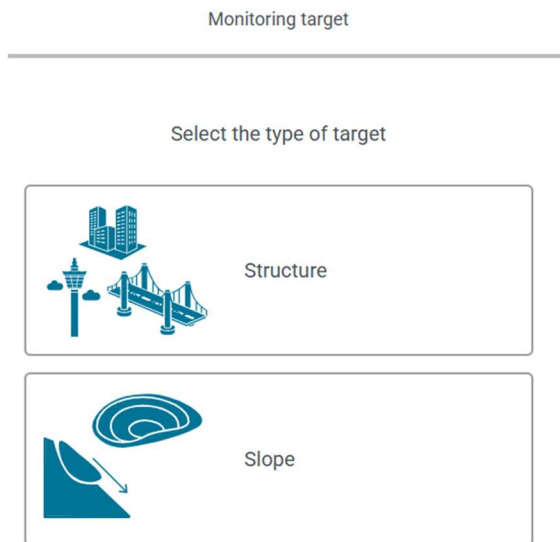
5. Start the monitoring as illustrated in 8.1 from point 23 till point 25



8.3 How to...perform slope monitoring (static mode)

To monitor a slope in terms of its own displacement (static mode), follow the steps below:

1. Follow the same steps illustrated in 8.1 *till point 3*,
2. Select “**Slope**”, from the *Type of Target* icon,



3. Now, follow the same procedure illustrated at 8.2 from point 4.

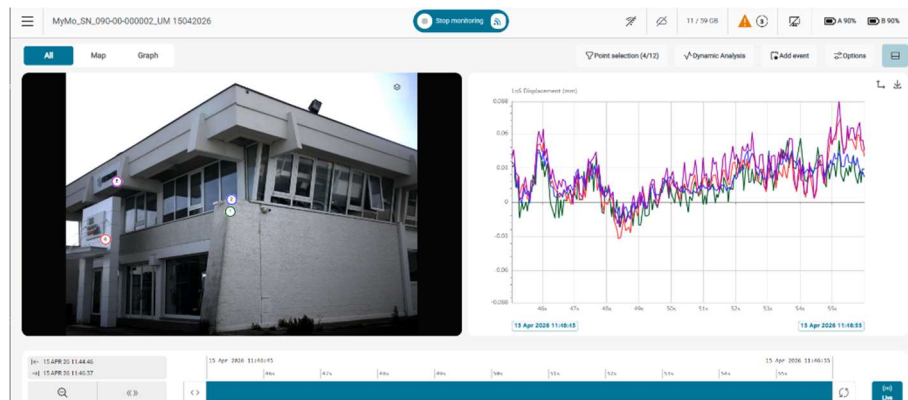
8.4 How to...customize the view of a monitoring session

In this section User will learn the actions that can be implemented during a monitoring session to change the view of the monitoring data.

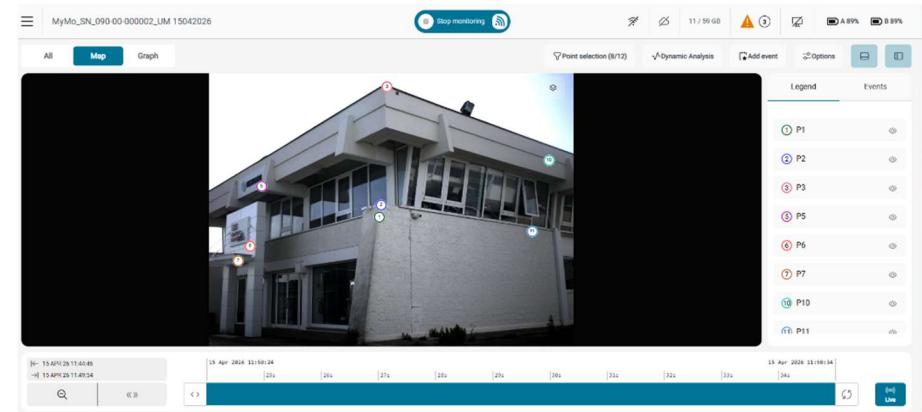
8.4.1 How to change the main view (Graph or Map)

Users can change the main view by selecting one of the following options:

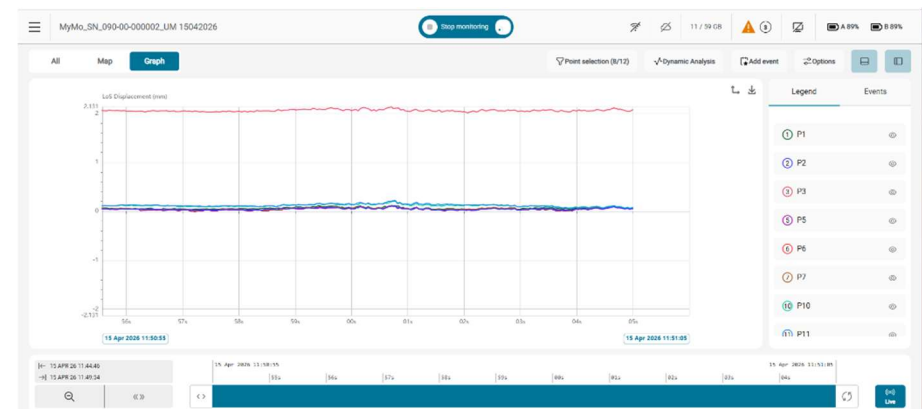
1. Select **All** for the Survey area map (left below) and the displacement or Velocity (right below) to be displayed at the same time,



2. Select **Map** only for the Survey area map to be displayed,



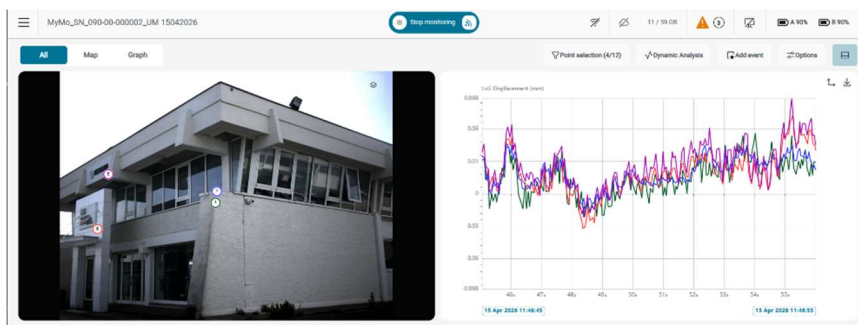
3. Select **Graph** only for the Graphic of displacement or Velocity to be displayed.



8.4.2 How to select the point(s) to be displayed on Graph

To specify the monitoring point(s) to be shown on graph,

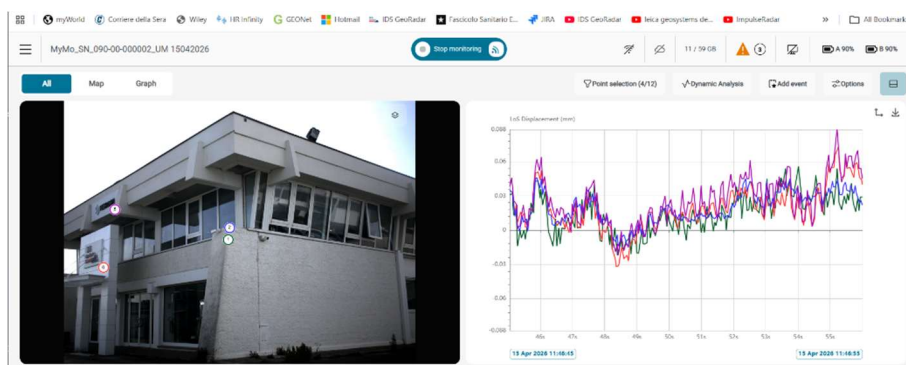
1. press the  Point selection (4/12) icon,
2. then select the specific point(s) added on Map, to be visualized,



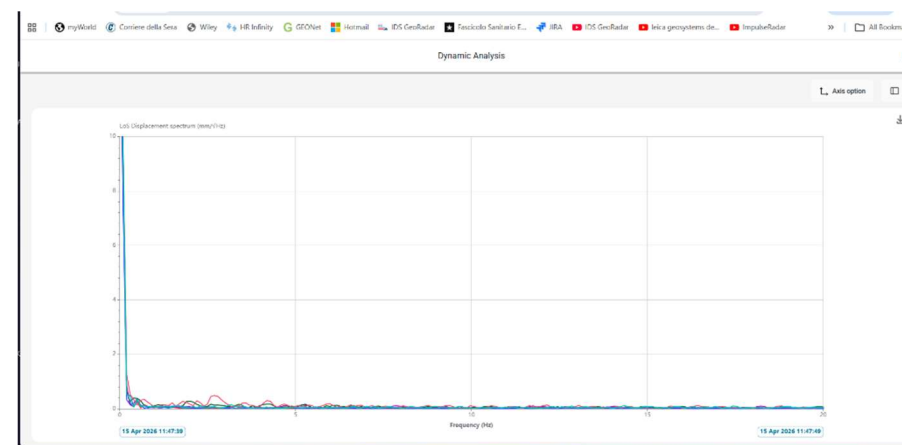
8.4.3 How to visualize the Resonant frequency (ONLY for DYNAMIC MODE) of specific point(s)

During a monitoring session in Dynamic mode, users can visualize *Displacement* or *Frequency of oscillation* of specific point(s) of the structure.

To do so, press the  Dynamic Analysis icon in the monitoring window below,



And the graph below shall pop up,



8.4.4 How to add an event

During a monitoring session, it is possible that an external and temporary event interfere with the monitoring session (e.g.: a vehicle passing, a temporary source of external noise...). In this case:

1. Press on the  Add event icon,
2. Then add the description of the event,

Add an Event name

Vehicle passing 15/20

Cancel Apply

3. Press Apply.

8.4.5 How to switch the graph view from Displacement to Velocity

1. To switch the data view from Displacement to Velocity, select the



icon,

2. Then select Displacement or Velocity (displacement is the default),

Data options

Data type

Displacement Velocity

Projection

Line of Sight Vertical Horizontal

Units

mm

Number of decimal digits

3

Cancel Apply

3. Select if the data should be visualized in LoS or along the Vertical or Horizontal direction,
4. Select the Measure Units,
5. Select the number of decimal units after comma,
6. Press Apply.

8.4.6 How to change Axis settings

1. Press on the ,
2. In Automatic mode, Minimum and maximum values of the Axis shall be set Automatically,
3. In Manual Mode, User should select these values,

Axis settings

Y axis limit

Automatic

Manual

Y Axis Minimum Value

+/- -1.00

Y Axis Maximum Value

+/- 1.00

Cancel

Apply

8.4.7 How to export data

1. Press on the icon, and the window below shall appear,

Session Data Export

Time interval

From 15.04.2026 - 11.44.46 To 15.04.2026 - 11.59.54 **Set entire session**

Data to export

☒ Displacement ☒ Event ☒ Point cloud ☒ Images ☐ Diagnostic ☐ Log

☒ LoS Displacement
☐ Vertical Displacement
☐ Horizontal Displacement

Start the export

2. Select the Time Interval for the data to be exported,

Session Data Export

Time interval

From 15.04.2026 - 11.44.46

To 15.04.2026 - 11.59.54

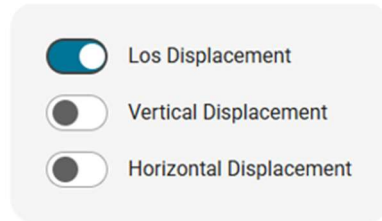
Set entire session

3. Select the data to be exported,

Data to export

☒ Displacement ☒ Event ☒ Point cloud ☒ Images ☐ Diagnostic ☐ Log

- Indicate along which direction data should be exported,



- Press **Start the export** to finalize the operation.

8.4.8 How to change data view in Real Time

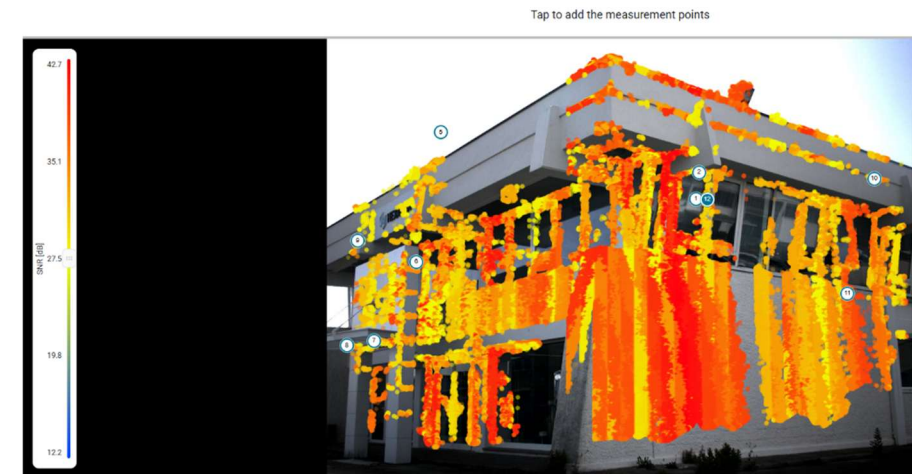
The lower part of the *Graphic Unit Interface* (GUI) of MyMo Field App, indicates the time interval of data showing in real time during the current monitoring session,



- Press **Live** icon for the data to be shown in real time during session and update continuously,
- Press to zoom the time window shown on Graph,
- Act on the to shift the time window shown on Graph,
- Press icon to refresh the time window shown on Graph,
- Act on the window to visualize a custom time interval.

8.4.9 How to change Radar Point Cloud view based on SNR

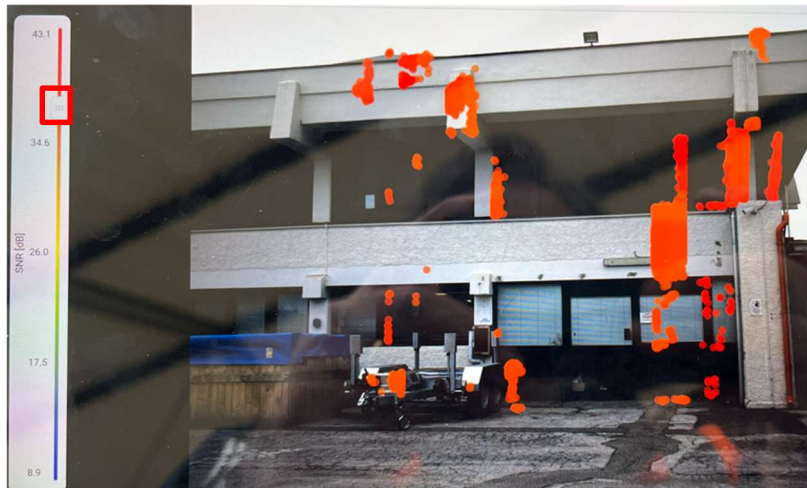
During a Monitoring Session, MyMo radar data are visualized over the photo of the survey scenario.



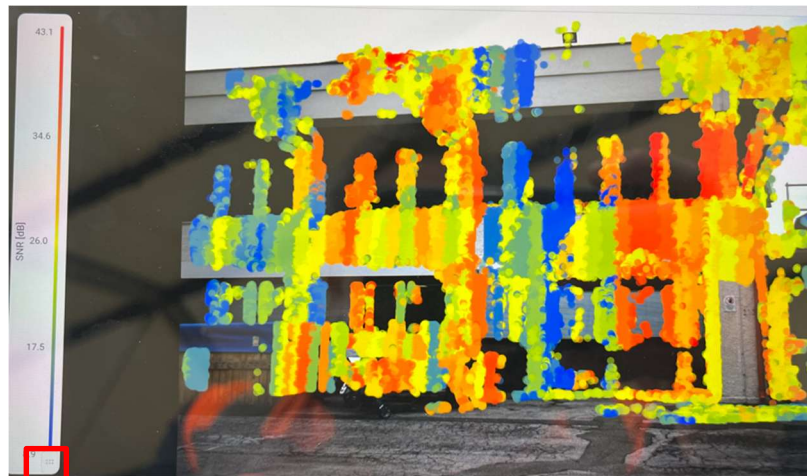
On the left side, there is a color bar indicating the Signal-to-noise-Ratio (SNR).



1. Act on the slider  of the color bar, to change the view of the MyMo radar data point visualized on the Point Cloud.
2. The example below, illustrates how the point cloud appears when the SNR threshold is set to “high” values,

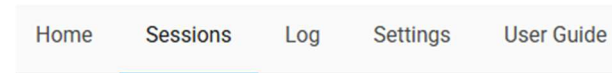


3. In the example below, instead, how the point cloud appears, for the same session, when the SNR threshold is set to “lower” values,

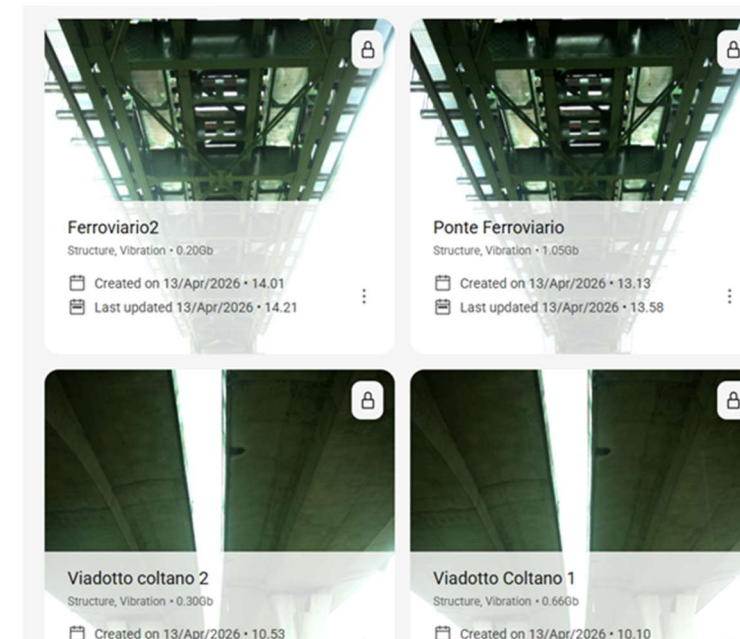


8.4.10 How to open a Monitoring Session

1. Select the Session Tab from the Main view of MyMo Field App,

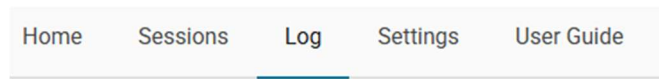


2. The list of Monitoring sessions shall be visualized. Press on one of the Project in the Project list, and the monitoring session shall open,

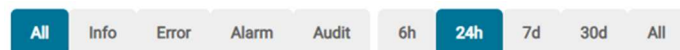


8.4.11 How to download Logs

1. Select the Log Tab from the Main view of MyMo Field App,



2. The list of log types and time duration shall be visualized

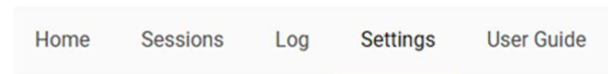


Time	Class	Subject	Description
------	-------	---------	-------------

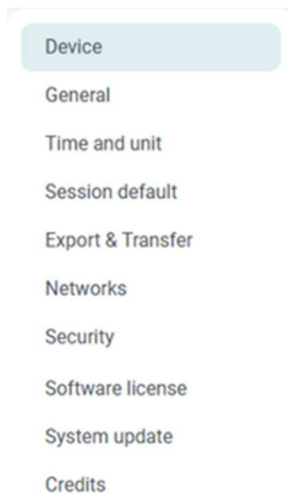
3. Press on the  icon to download the Logs selected.

8.4.12 How to change settings

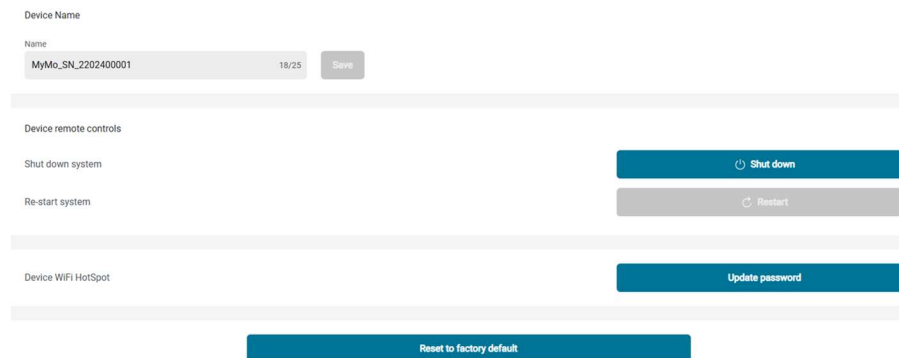
1. Select the Settings Tab from the Main view of MyMo Field App,



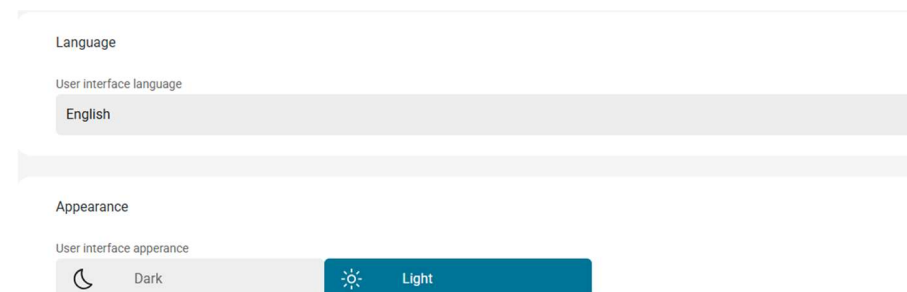
2. And the list below shall be visualized

3. In the **Device** space, User can

- a. Change device Name,
- b. Re-Start or shut down the system from Remote,
- c. Up-Date the WiFi Password,
- d. Reset the system to Factory status.

4. In the **General** space, User can,

- a. Change the Language.
- b. Change the screen appearance (Dark or Light).

5. In the **Time and unit** Space, User can,

- a. Change default time zone.
- b. Change time format (12h am/pm or 24h).
- c. Change Measurements Units (Metric or Imperial).

The screenshot shows two sections of the configuration interface. The first section, titled 'Time settings', contains a 'Time Zone' dropdown menu set to 'UTC+02:00 Europe/Rome' and a 'Time Format' section with two buttons: '24h' (which is highlighted in blue) and '12h AM/PM'. The second section, titled 'Measurement Unit', contains a 'Unit system' section with two buttons: 'International' (highlighted in blue) and 'Imperial'.

6. In the **Session default** space, User can,

- a. Enable/Disable the automatic session naming.

The screenshot shows the 'Session default name' configuration interface. It includes a title 'Session default name', a subtitle 'Configure session default name when creating new session', and two buttons: 'Enabled' (highlighted in blue) and 'Disabled'. Below this is an 'Example' section with an information icon, stating: 'By enabling the default session name the session name will be structured as follow DeviceName_SessionName_YYMMDD_HHMM'.

7. In the **Export & Transfer** space, User can,

- a. Define the format file to transfer via Safe File Transfer Protocol (SFTP).
- b. Define the SFTP configuration to transfer data remotely.

The screenshot shows the 'Export & Transfer' configuration interface with two sections: 'File Format' and 'FTP Configuration', both represented by empty rectangular boxes.

8. In the **Networks** space, User can,

- a. Verify the WiFi Network connected.
- b. Verify the Mobile network Connected.
- c. Verify The Ethernet network connected.
- d. Enable/Disable the MyMo WiFi.

The screenshot shows the 'Networks' configuration interface. It has three main sections: 'Mobile Network' with a status bar showing 'Sim inserted, not connected' and a settings gear icon; 'Cable networks' with a status bar showing 'No Ethernet network connected' and a settings gear icon; and 'MyMo WiFi network' with a toggle switch labeled 'MyMo local WiFi network' that is currently turned on (blue).

9. In the **Security** space User can,

- Update the MyMo access code,
- Enable the Two Factor Authentication (see Par. 7How to get started *MyMo Field App*).

Access Code

Update access code

Two factor authentication

☐ Timed One Time password authentication (TOTP)

10. In the **Software license** space, User can,

- Verify the SW License EID.
- Verify the license type, installed.
- Verify the license expiration date.
- Verify the support plane expiration date (if applicable).

Software license configuration

Entitlement ID

00113-06246-00041-66564-680DB

Remove

License information

License Type	Expiration date
Time_Limited	07.05.2026 - 02.00.00
Option	
FULL FEATURE	
Support plan expiration date	
07.05.2026 - 02.00.00	

11. In the **System update** space, User can,

- Verify the SW version installed,
- Update the SW version.

Software version information

0.0.43.77

✓ System is updated

12. In the **Credits** space, User can,

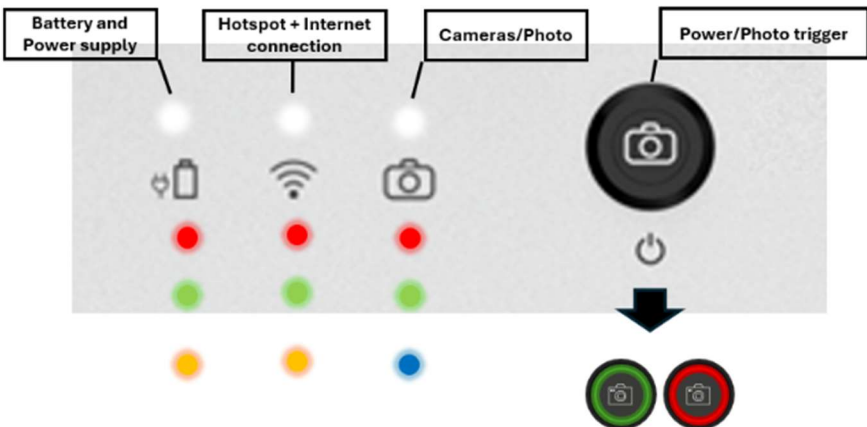
- Verify the list of libraries of third-party SW's

8.5 How to...read MyMo LED color coding

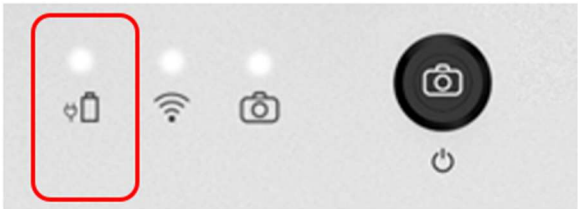
The rear part of MyMo radar sensor includes, besides PWR and LAN connectors, three LED and the Power/Photo button (red square below).



LED's and the button can have different colors that indicate a specific status of MyMo.

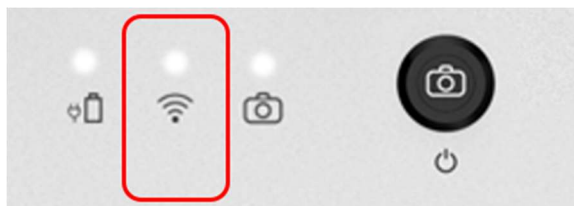


8.5.1 Battery and Power Supply LED



CONDITION	LED COLOR
Working with batteries above 30%	 Solid Green
AC connected (Battery charging)	 Blinking green
Battery 30% If the battery is below 30%	 Solid orange
Battery Low If the battery is below 10%	 Solid red
AC connected but NO batteries inserted	 Solid Orange
If the device is off, and the AC is connected batteries are charging	 Blinking green

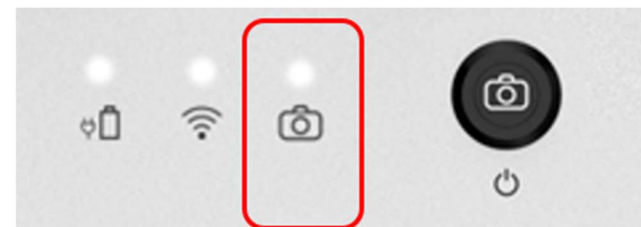
8.5.2 Hotspot and Internet connection LED



Hot Spot (1)	Internet (2)	LED COLOR
Available	Not connected	 Blinking green
Available	Connected	 Solid green
Not available	Not available	 Solid red
Not available	Available	 Blinking orange

1. **Hot Spot:** used to connect MyMo to the tablet/PC
2. **Internet:** to connect MyMo to the Internet

8.5.3 Camera/photo LED



CONDITION	LED COLOR
Camera Ready to shoot (correctly oriented respect to target)	 Blinking green
Camera not correctly oriented/ Move to next position	 Blinking blue
Photo correctly taken	 Solid Green for 3 seconds
Photo Shot error	 Solid Red for 3 seconds

NOTICE:



1. Camera LED is active only during the photo shooting sequence.
2. Shot sequence is completed after 6th photo.
3. If after the shooting, RED led appears, the shoot was not good and might compromise the monitoring coverage

9. CARE AND TRANSPORT

9.1 Cleaning Information

Before cleaning any of the external parts of the apparatus, make sure that all cables and wires have been unplugged, including the power supply cable. If a damp cloth is used, make sure it is not wet, to avoid any damage to the electrical components of the equipment. Wait until the equipment is totally dry before reconnecting the cables.

**CAUTION: DAMAGE TO ELECTRICAL COMPONENTS**

If a damp cloth is used for cleaning the system or part of it, make sure that this is not wet, to avoid any damage to the electrical components of the equipment

PRECAUTION: Before cleaning any of the external parts of the apparatus, make sure that all cables and wires have been unplugged, including the power supply cable.

MyMo should be cleaned periodically using a damp cloth.



NOTICE: If the system is severely dirty or clogged by dust, connectors and lenses (cameras) may not work properly.

Precautions:

After a field work, check the conditions of the system and clean it if necessary.

Do not use solvents or abrasive detergents.

**CAUTION: DAMAGE TO ELECTRICAL COMPONENTS**

Consider only cleaning products appropriate for electronic components.

PRECAUTION: Verify if the cleaning products are compliant with electronic devices.

Do not apply liquid directly to the electrical contacts of the various connectors.

If a specific spray is used to clean the PC monitor, make sure it is not flammable; in any case, do not spray it directly on the screen, instead, spray it onto the cleaning cloth.

**CAUTION: DAMAGE TO ELECTRICAL COMPONENTS**

Flammable spray could damage the electronic devices, as controller laptop.

PRECAUTION: Verify if the cleaning products are compliant with electronic devices.

9.2 Battery Removal Information

Remove batteries from the product and the charger before storing.

- After storage recharge batteries before using.
- Protect batteries from damp and wetness. Wet or damp batteries must be dried before storing or use.
- A storage temperature range of -20°C to $+50^{\circ}\text{C}$ / -4°F to $+122^{\circ}\text{F}$ in a dry environment is recommended to minimize self-discharging of the battery.
- At the recommended storage temperature range, batteries containing a 40% to 50% charge can be stored for up to one year. After this storage period the batteries must be recharged.

As for the Laptop Batteries please, do refer to the PC manufacturer user's manual.

9.3 Periodical Check

The Operator should periodically check the status of the system, including external shells, cameras lenses, cables, and any (potentially) consumable part. The system must not be used in case of any malfunctioning or broken part, as this may cause other parts to be damaged and/or malfunction consequently.



NOTICE: All the cables and connectors should be verified at each use of the system

Precautions:

In case of any damage of cables or connectors, immediately inform IDS GeoRadar to follow up on removal and replacement.



NOTICE: All the connectors on the system and the accessories, must be plugged at any time either by the corresponding cable plug, or by the connector cap, when not in use. This is to prevent dust or water ingress, that may damage the connector itself and its functionality.

Precautions:

Verify the connectors status before running a survey.



CAUTION: MECHANICAL DAMAGE OF THE SYSTEM

Transporting and/or shipping the system outside its original packaging or by using other shipping boxes may cause the system, or part of it, to be damaged.

PRECAUTION: The system should always be transported and/or shipped by using the hard case with which the system is delivered.

9.4 Proper system use

Always use the system as indicated in this manual, by following instructions.

When not in use, the system should always be transported and/or shipped by using the case with which the system is delivered. Transporting and/or shipping the system outside this packaging or by using other shipping boxes may cause the system, or part of it, to be damaged.

10. IDS GEORADAR SUPPORT

10.1 myWorld

IDS GeoRadar is part of **Hexagon Geosystems** division, having **Leica Geosystems** as parent company. **myWorld** platform of **Leica Geosystems** offers a wide range of services, information, and training material. With direct access to **myWorld**, the User can access all relevant services. The availability of services depends on the instrument model.

SERVICE	DESCRIPTION
myProducts	Add all IDS GeoRadar products that you and your company own and explore your world of Leica Geosystems. View detailed information on your products and update your products with the latest software and keep up to date with the latest documentation.
myService	View the current service status and full-service history of your products in IDS GeoRadar service centres including detailed information on the services performed on your system.
mySupport	Create new support requests for your products that will be answered by your local Support Team. View the complete history of your support requests and view detailed information on each request in case you want to refer to previous support requests.
myLearning	Welcome to the home of Leica Geosystems online learning! There are numerous online courses – available to all customers with products that have valid CCPs (Customer Care Packages).
myTrustedServices	Add your subscriptions and manage users for Leica Geosystems Trusted Services, the secure software services, that assist you to optimise your workflow and increase your efficiency.
mySmartNet	HxGN SmartNet is the GNSS correction service built on the world's largest reference station network, enabling GNSS-capable devices to quickly determine precise positions in the range of one-to-two-centimetre accuracy. The service is provided 24/7 by a highly available infrastructure and professional support team with more than 10 years of experience reliably delivering the service.
myDownloads	Downloads of software, manuals, tools, training material and news for IDS GeoRadar products.

10.2 How to manage return for Service

On occasions, your system may need to be returned to the factory for repairs. These events, depending on circumstances, may be handled under maintenance or warranty conditions.

IDS GeoRadar, implements an internal ticket system to handle the repair of its Products worldwide. In this respect, for the global IDS Customer Support to be able to troubleshoot in case of need, it is necessary to identify the system first hence, it is mandatory providing information including Serial number and Product Number of the system or part of it that needs repair. This information may be found on a label placed on top of the system (e.g.: inside the battery housing, on top of the antenna, on the side of the rudder, on top of the SCU, etc...). An example of this label is illustrated in Fig. 8.

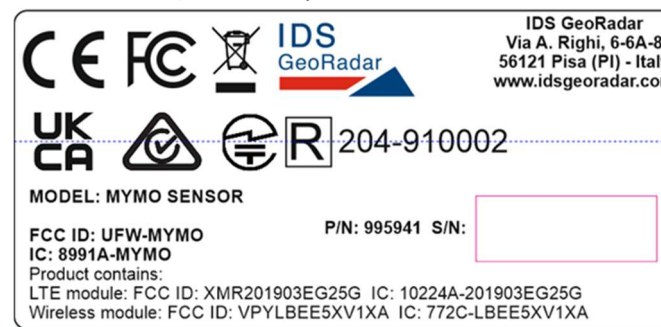


Fig. 8 Example of an IDS GeoRadar system label

In any event, the workflow to follow up on a support request is:

1. Contact, by using the local Support mailing list, your local representative of IDS Customer Support, or enter a support case into the **mySupport** page of **myWorld**, Indicating the following:
 - a. Type of System or part of it (defined by Product Number or Article number, that is PN 1023280 in Fig. 8)
 - b. Serial Number (SN 010-25-123456, in Fig. 8)
 - c. Type of issue

2. The local Representative of IDS Georadar Customer Support or the Central IDS Georadar Customer Support shall follow up on the case by a first level, remote troubleshooting to assess the system and the possible issue.
3. If a further, direct assessment of the system is necessary, the system shall be returned for analysis. Based on this, a repair under warranty or maintenance conditions, may be carried out. Depending on cases and the type of possible repair, return may be towards the local Representative of IDS or to the IDS GeoRadar main factory.
4. Prior return of the goods, wait for the IDS Georadar logistic office to provide a reference number for the return case and shipping instructions.
5. As the system reaches IDS Georadar repair premises, this is analyzed to find the root cause of the issue, and repaired **ONLY** after signed approval of the quotation, in case where the warranty does not apply. The status of the repair may be checked onto the *mySupport* page of *myWorld*.
6. At the end of the repair, the system is shipped back to the shipping address indicated at the beginning of the procedure, and this is conducted based on contractual agreements.



NOTICE: The above, is meant solely as a broad indication of the workflow for the return of a system for repair.

Precautions:

Please, refer to the Contractual Terms and Conditions for more detailed information.

APPENDIX A DISCLAIMER

1. General

- i. The present Disclaimer applies to all products designed, produced and distributed by IDS GeoRadar S.r.l., its Subsidiaries, Affiliated and authorized Distributors (the “Products”). IDS GeoRadar S.r.l. reserves full ownership and intellectual property rights of any “Information” contained in this Disclaimer including Trade Marks and Graphics. No part of this Disclaimer may be used or reproduced in any forms without the prior written agreement of IDS GeoRadar S.r.l.
- ii. In the event that any provision of this Disclaimer may be invalid, unlawful or incapable of being enforced by a rule of law, all other provisions shall, nonetheless, remain in full force and effect. Failure to either enforce or exercise any right, privilege, or legal remedy at any time, any provision contained in this Disclaimer, shall not be deemed a waiver of such provisions or right, remedy, or privilege.
- iii. This Disclaimer shall be interpreted, governed, construed and enforced in accordance with the laws of Italy. User/Buyer hereby consents to the exclusive jurisdiction of Pisa.

2. Initial Precautions for Setting-up and Use of the Products.

- i. The User/Buyer, for setting-up and using the Products, shall consult the official documentation provided by IDS GeoRadar S.r.l. for the Products (“Reference Documentation”) and carefully ascertain the compliance with national laws and requirements, which may limit or even forbid their use.
- ii. For Products which shall operate by circulation in Public Areas/Roads, with or without moving traffic, Buyer/User shall verify the approval of local authority and/or site’s owner according to their specific procedures. IDS GeoRadar S.r.l. shall not be liable for any direct, indirect, special, incidental or consequential damages or injuries, including without limitation, lost revenues or lost profits,

resulting by un-authorized use of the Products in Public Areas/Roads.

iii. Buyer/User further warrants:

- that these Products are not being used, in the design, development, production or use of chemical, biological, nuclear ballistic weapons. Buyer/ User will defend, indemnify and hold IDS GeoRadar S.r.l. harmless against any liability (including attorney’s fees) for non-compliance with the terms of this article.
- That, if IDS GeoRadar S.r.l. requires that Buyer/User shall carry out a training with reference to some Product categories, no operation or use of the Products shall be started before its designated Operator/s has got the User Certificate, as defined by IDS GeoRadar S.r.l. specific procedure which the Buyer confirms to know and accept.

iv. For Products which include specific “Operational” software with automatic data processing and analysis “Tools”, e.g. the IBIS Products, MyMo, and Hydra Products, User shall be aware that the results provided by these “Tools” may be not error free. User that completely relies on the outcomes provided by these Tools only, does it at his own risk.

v. In no event IDS GeoRadar S.r.l. shall be liable for special, direct, indirect, incidental, exemplary, punitive or consequential damages including, but not limited to, loss of profits or revenue, caused by the use of the Products, either separately or in combination with other products or relied upon the results provided by the above “Tools”.

3. Disclaimer for the “Use” of the Products.

- i. The User shall follow the instructions provided by IDS GeoRadar S.r.l. in its official “Reference Documentation” for the Product, in particular the User’s Technical Manual which contains all the specific steps and recommendations for a correct setting-up and use of the Product.

- ii. In no event IDS GeoRadar S.r.l. shall be liable for special, direct, indirect, incidental, exemplary, punitive or consequential damages including, but not limited to, loss of profits or revenue, caused by the missed or incomplete observance of the instructions and prescriptions for the use of the Products, either separately or in combination with other products, including but not limited to the following main aspects:

- a. Use of IDS GeoRadar S.r.l. Products outside its limitation of use, without proper and adequate scientific/technical knowledge or without specific training.
- b. Use of results/outcomes of the measurements performed by the Product aimed to safety aspects without using adequate control procedures and assessment by skilled personnel.
- c. Opening of the Equipment (for HW Products) without express written authorization of IDS GeoRadar S.r.l.;
- d. Unauthorized changes and additions to the Products.
- e. Use of the Products connected to suspected non-working equipment or with equipment (mainly PC) having characteristics not in compliance with the required specifications of IDS GeoRadar S.r.l. not expressly authorized by IDS GeoRadar S.r.l.;
- f. Poor or faulty operation of the electrical and telecommunication networks not directly managed by IDS GeoRadar S.r.l. or its delegates.
- g. Poor or faulty operation Software/Hardware of the third parties connected with IDS GeoRadar S.r.l. Equipment.
- h. Poor or faulty operation of the Products due to Software Virus which infected the Products after their delivery.
- i. Use of the Products which have encountered suspected manumissions, accidents, electrostatic shocks, flashes, fire,

earthquake, flooding or other natural disasters or unexpected events.

- j. Use or storage of the Products outside the limits of the “Operational Temperature Range” specified by IDS GeoRadar S.r.l.

4. Monitoring Products.

- i. IBIS, MyMo, and Hydra Products (the Monitoring Products”) use a leading-edge technology for monitoring slope movements and has proven as an effective tool for the early detection of critical movements, possibly leading to slope failures. Especially in situations where people and machinery are located or working in proximity of unstable slopes, the technology used by Monitoring Products, in addition to other suitable monitoring technologies, maximizes the probability of detecting early signs of slope failures, thus permitting the prompt evacuation of people and assets at risk.
- ii. Monitoring Products have been designed and developed to cope with very harsh environments. Should the system may become temporary unavailable due to an unexpected hardware failure, monitoring data will not be available until the instrument is repaired
- iii. Monitoring Products are a monitoring instrument that works like other monitoring instruments and cannot cause or prevent a collapse to happen. As a monitoring instrument, it helps professionals in providing measurements of movements of the monitored area, which according to the geological context can be interpreted as a sign of a potential collapse. Generally, the radar is also operated in conjunction with other monitoring instruments to have the largest information and for complementing pros and cons of each technology. The interpretation of data provided by the multiplicity of monitoring sensors has then the purpose of detecting movements that can be interpreted as precursors of a collapse.
- iv. Monitoring Products include specific “Operational” software with data processing which may give outcomes/results for helping User in the monitoring of “the stability conditions” of a specific area. We remind however that the setting of the alarm thresholds is uniquely

an expert User's responsibility and that this setting must be done according to the accurate knowledge of the particular geological context.

- v. Nevertheless, (even though the radar technology employed by Monitoring Products, is deemed among the most reliable for the monitoring of instable slopes) IDS GeoRadar S.r.l. has the obligation to remind the Users that the technology used by Monitoring Products transmits and receives an electromagnetic signal that by its nature is influenced by many factors such as: the parameters introduced by the User/s, the distance, the ground material, the surface roughness and the electromagnetic wave incidence, which may distort its outcomes, thus giving rise to false or missing alarms.
- vi. In particular the following aspects must be considered when working with Monitoring Products:
 - Due to the very short time of activation and minimum deformation before a sudden rockfall event, it may be not always possible to generate proper alerts prior to the collapse.
 - Even if the technology used provides state-of-the-art performance in terms of spatial resolution and accuracy of measurement, movements affecting portions of the slope below the radar resolution could go beyond the minimum detectable movement.
 - Although the radar can measure differential displacements (between two successive acquisitions) with sub-millimeter precision it must be reminded that errors in the displacement measurement cumulate with the observation time and its effective value is dependent on many factors, such as reflectivity of the monitored surface, atmospheric variations etc.
 - The technology used measures the displacement along the line of sight only. The number of radars to be installed and their locations must be then carefully chosen to reduce the presence of uncovered or not properly covered areas (e.g.

movement vectors occurring perpendicularly or close to a perpendicular to the line of sight).

- Monitoring Products measure the relative line of sight displacement between the radar and the monitored surface. In case the radar is installed on an unstable location, the movement of the radar setup could be interpreted as deformation of the monitored surface.
- The accuracy of the Monitoring Products in deformation measurement is dependent on the strength of the signal reflected back by the variable ground surface; performance cannot be uniform on the entire monitored scenario; e.g. some areas may not produce a signal strong enough to enable a proper early detection of collapses. Particularly, the radar signal can be affected by the presence of vegetation on the slope.
- Movement of portions of terrain which are (or are close to) perpendicularly oriented with respect to the radar line of sight, could be underestimated or, even, undetected.
- The propagation of electromagnetic signals generated by the radar, is affected by atmospheric conditions along the travel path. IDS GeoRadar Radar technology incorporates state-of-the-art algorithms for the correction of those atmospheric-induced variations. However, modeling of real phenomena (like atmospheric variations) always leads to an approximation of real-world physics, which in some circumstances may introduce spurious data, thus limiting the radar performance.
- Due to the complex physics of electromagnetic wave propagation some slope scenarios could generate multiple reflections of radar waves which cannot be totally predicted or detected. In these circumstances a proper evaluation by radar expert may be necessary to assess the origin of the interference. Furthermore, the proper alarming on impending slope failures relies on the selection of hazard

thresholds, which must be done by skilled and properly trained operators. The selection of the thresholds is solely an User's responsibility and must be based on geotechnical considerations, risk evaluation, in-situ operational procedures and, possibly, on the past records of the slope's movement. As such, the procedure is not inherently able to predict new, unprecedented movement behaviors that could happen in the future and that can result in missing alarms. Therefore, when Monitoring Products are used in critical monitoring for safety purposes, like real time monitoring of unstable slopes, User must be aware that the assessment of the stability conditions of the observed targets must be tasked to skilled and certified operator/s able to understand data supplied by either Monitoring Products or other equipment employed to such purpose; only operators officially trained and regularly updated by IDS GeoRadar S.r.l. (holding an "User Certificate" thereof) are allowed to use Monitoring Products. IDS GeoRadar S.r.l. assumes no liability for any direct, indirect special, incidental or consequential damages or injuries caused by such reliance or for the use of Monitoring Products by Users not holding an "User Certificate" issued by IDS GeoRadar S.r.l. Any Buyer or User that completely relies on information obtained from the automated data processing/analysis tools only does so at his own risk and, in the event that Monitoring Products have been purchases by User, possible damages caused to Monitoring Products during operations performed by not-certified operators are not covered by the applicable Warranty Terms in force.

- Machinery, such as trucks, shovel etc., standing along the radar line of sight will mask portions of the scenario or produce spurious effects that may generate false alarms. Monitoring Products performance for those zones in those situations could be partly or totally affected, so that detection of movements may be reduced or even impossible.

APPENDIX B TECHNICAL SPECIFICATIONS

Parameter	
Max Measurement Distance	400 meters
LOS Displacement Accuracy	0.1 mm *
Acquisition Rate	Up to 400Hz (Dynamic mode)
	15 seconds (Static mode)
Spatial Resolution	0.2m x 1.8m at 100m
	0.4m x 3.6m at 200m
	0.8m x 7.2m at 400m
Field of View	30° horizontal x 30° vertical
Batteries Autonomy	5 hours, hot swap
Power supply	220 / 110 V AC
Power Consumption	28W
Dimensions	32 cm x 27 cm x 11 cm
Weight	4.3 kg
Environmental resistance	IP 65
Operating Temperature	-20°C / +50°C (+40°C with direct sunlight)
Certifications	CE, MIC

* Instrumental accuracy measured under stable atmospheric conditions on a stable target with SNR > 30 dB

Tab. 1 – Radar Sensor Technical Specifications

APPENDIX C CONTACTS

The IDS GeoRadar Support team is available to answer any question about:

- general enquiries
- request of advertising material
- technical issues
- As well as listening to your suggestions too.

Please, feel free to contact us at:



IDS GeoRadar S.r.l.

via Augusto Righi, 6/6A/8
Ospedaletto - 56121
Pisa, Italy



(39) 050 8934 122



support.mining@idsgeoradar.com

support.geo@idsgeoradar.com