

EKO Q: Quick Start Guide

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What is EKO Q

Welcome to EKO Q, the web service by EKO Instruments to enable you to analyze irradiance measurement data from EKO pyranometers and other solar irradiance measurement sensors!

EKO Q is designed to help you manage, store, visualize, and above all better understand your irradiance data. It provides insights into quality of your measurement data and diagnostics of your measurement setup. Key topics of interest of the analysis are:

- Data availability and soundness
- Sensor installation issues
- Data acquisition settings mistakes
- Shading of sensor
- Sensor maintenance issues

- Deviation from sensor specifications
- Agreement between multiple sensors
- Agreement with alternative sources of irradiance data

EKO Q performs fully automated analysis and delivers a report with key conclusions and details. Extra data visualization and intermediate results are provided to assist an expert analysis.

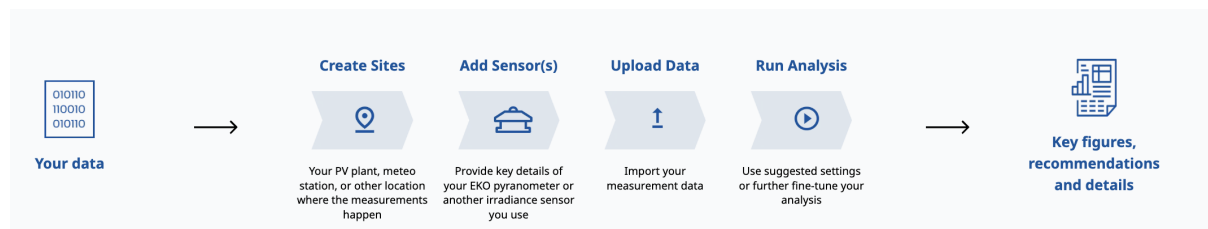
EKO recommends to always perform EKO Q analysis when you look for expert opinion, before contacting EKO support, and any time you need extra insights on your measurement data.

EKO Q continuously evolves to provide wider and deeper analysis and valuable insights into the irradiance measurement data.

Warning! Automated analysis may not detect all issues or misinterpret issues and features of your data. EKO recommend to always see expert analyst assistance before taking important decisions based on the analysis.

Workflow overview

Using EKO Q is easy. When you have collected solar irradiance data in a form of tabular csv/txt/dat or xlsx file, do the following steps.



1. **Configure site** and set up key parameters such as geographical coordinates.
2. **Configure irradiance sensor** and provide its key details such as sensor model and orientation.
3. **Upload the data file.** Use embedded data onboarding tool if case of custom file formats.
4. **Look at the data.** Use embedded visualization capabilities to quickly check for any easy-to-see issues.
5. **Configure and run analysis.** Use one of the available analysis options.
6. **Download the Analysis Report** once the analysis is done, with key insights on your data and automated recommendations based on them.

Quick Start Guide

Follow these simple steps to create user account, configure your system, upload your measurement data and get your first Irradiance Data Quality report with EKO Q.

Refer to mode detailed help if necessary.

Sign up and log in

EKO Q uses e-mail and password authentication. Please follow the on-screen instructions to create your account. Keep your password safe and change it regularly. Contact **EKO Q support** immediately if you detected any suspicious activity.

The image displays two side-by-side screenshots of the EKO Q web application interface, separated by a vertical line. A red arrow points from the 'Sign up' link in the left screenshot to the sign-up form in the right screenshot.

Left Screenshot (Login Page):

- Header: EKO logo, About us, Contact.
- Section: **Welcome** Please fill your details to access your account.
- Form: Email Address (text input), Password (text input).
- Buttons: **Sign In** (blue), [Sign up](#) (blue link, highlighted with a red box).
- Footer: @EKO2024 | Legal mentions.

Right Screenshot (Sign-up Page):

- Section: **Welcome** Please fill your details to access your account.
- Form: Firstname (text input), Lastname (text input), Company Name (text input), Country (dropdown menu), Email Address (text input), Phone Number (text input), Password (text input), Confirm Password (text input).
- Buttons: **Sign up** (blue).

Follow the instructions in your email to activate your account.


Configure your account

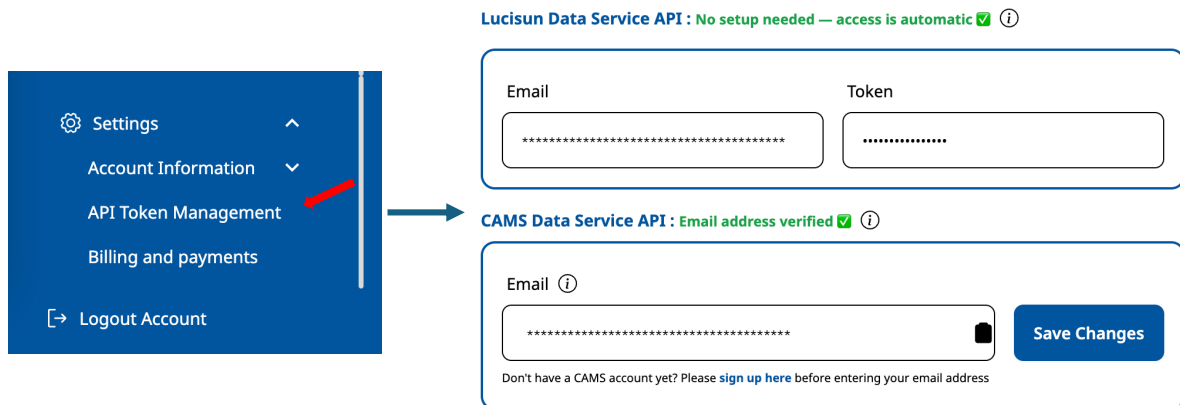
At the first use a pop-up will ask you to fill in necessary details. Follow on-screen instructions to fill the details.

Setup access to external data sources

The EKO Q uses external satellite-based irradiance data, clear sky model irradiance data, and weather information from external data services.

To allow EKO Q access the data sources on your behalf, provide valid authentication tokens. Once configured you can choose which one to use for each analysis, respecting the associated terms of use and data coverage.

Open **API Token Management** under **Settings** menu in bottom-left corner. See basic information about satellite data coverage of each data source in time and space by clicking the *i* button ().



The screenshot shows the EKO Q settings interface. On the left is a blue navigation menu with the following options: Settings (with a gear icon and an upward arrow), Account Information (with a downward arrow), API Token Management (highlighted with a red arrow), Billing and payments, and a Logout Account button (with an external link icon). An arrow points from the 'API Token Management' option to the right-hand configuration area.

The configuration area is divided into two sections:

- LuciSun Data Service API:** This section has a status message: "No setup needed — access is automatic" (with a green checkmark and an information icon). It contains two input fields: "Email" (with a masked value of 15 asterisks) and "Token" (with a masked value of 10 asterisks).
- CAMS Data Service API:** This section has a status message: "Email address verified" (with a green checkmark and an information icon). It contains an "Email" label with an information icon, a text input field with a masked value of 15 asterisks, a "Save Changes" button, and a small trash icon. Below the input field, a note states: "Don't have a CAMS account yet? Please [sign up here](#) before entering your email address".

Refer to Access to Correlative data section in detailed help for more details.

LuciSun Irradiance data

LuciSun Data Services provide satellite irradiance data and physical clear sky model data via embedded integration. Your email works as unique identifier, and all required security measures are being taken automatically.

CAMS Irradiance data

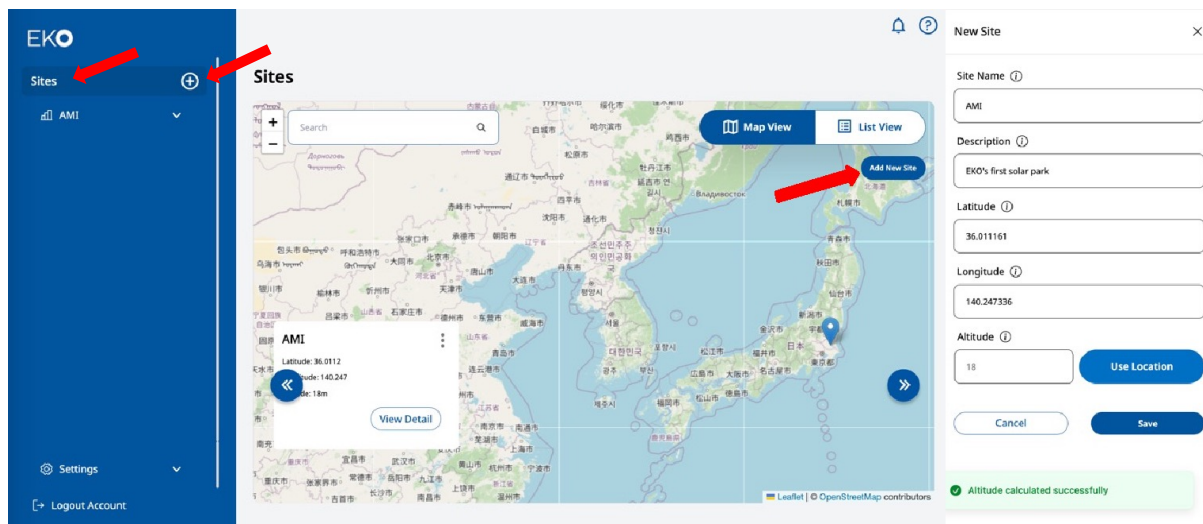
EKO Q accesses satellite irradiance data and physical clear sky model data provided by [Atmosphere Monitoring Service](#) by Copernicus Programme via embedded integration on your behalf. Please register with [soda-pro.com](#) website and provide the e-mail in the Email field.

See more options available in Access to correlative data section in detailed help.

Configure site

Site in EKO Q refers to the location where measurements take place, such as a photovoltaic (PV) plant, meteorological station, or another measurement setup. Sites help organize measurement data and ease further analysis.


Create a site by clicking “**Add New Site**” in the top right corner on the main page or on the Add button (⊕) in the navigation panel. Provide required information. Use hints provided with the *i* (i) symbol or refer to Configure Sites section in detailed help for details.

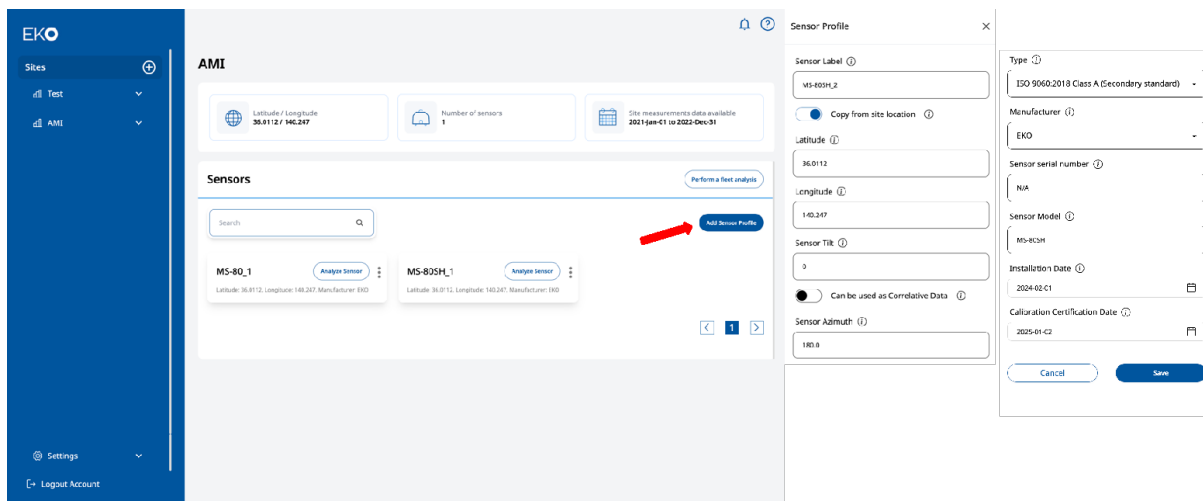



You can edit site details any time in the **Sites** page by clicking the menu () button. Navigate your sites using navigation panel in the left, site tiles, or breadcrumbs line.

Configure sensor

Sensors in EKO Q are configured within sites and represent measurement instruments with appropriate parameters and measurement data associated with them. (*Sensors may also represent virtual instruments such as modelled dataset.*)

To create a sensor, navigate to the site where it is installed, click **“Add Sensor”**, and provide the required information. Use hints provided with the *i* () symbol. Refer to Configure Sensors section in detailed help for details.




You can edit sensor details any time in the list of sensors at the site by clicking the menu () button.


Upload sensor data


Once you configured a sensor, navigate to the sensor using left panel or using “**Analyze Sensor**” button on the sensor’s tile to upload the corresponding measurement data.


Select your data file, specify time zone used, and upload the data.

AMI > MS-80_1

 Latitude / Longitude
36.0112 / 140.247

 Type of Sensor
ISO 9060:2018 Class A
(Secondary standard)

 Sensor Plane details
Azimuth 0° / Tilt 0°

 Measurements data
available
2021-Jan-01 to 2022-Dec-31

1 Data import


2 Data Overview

3 Configure Analysis

4 Analysis

Import Sensors Data

Provide the file for the selected sensor ⓘ

 Upload File

Ami_MS-80_1_Time_local.csv

Select Data Timezone

Local

Upload

✔ File uploaded successfully

For the smoothest upload process, it is recommended to provide a csv file with two columns:

1. **Timestamp.** First column, optionally named “timestamp” containing timestamp in one of the common formats, such as “2024-12-31 08:00:00”
2. **Irradiance.** Second column names with your sensor name (in the example above it is “MS-80SH_2”) containing irradiance data in W/m² in simple fractional format such as “580.01”

Example of a supported format:

	[sensor label]
14/08/2023 15:00	950.5
14/08/2023 15:30	845.1

If your file has less straightforward formatting, the interactive Data Onboarding Tool will pop up to help. Provide details of your file structure to import your data correctly.

1 Data import

2 Data Overview

3 Configure Analysis

4 Analysis

0	1
0	Time localPoA East
1	2021-01-01 00:00:00-2.226
2	2021-01-01 00:05:00-2.423
3	2021-01-01 00:10:00-2.632
4	2021-01-01 00:15:00-2.73
5	2021-01-01 00:20:00-2.334
6	2021-01-01 00:25:00-2.224
7	2021-01-01 00:30:00-2.2
8	2021-01-01 00:35:00-2.208
9	2021-01-01 00:40:00-2.179

Data Import Parameters

Delimiter ⓘ

Pick an option

Decimal Separator ⓘ

Dot (.)

Imported Data Timezone ⓘ

UTC

Header Rows To Skip ⓘ




0

Footer Rows To Skip ⓘ

0

Preview sensor data

Once you successfully imported irradiance measurement data, look at it using **Data Preview** tab. Get immediate insights by just looking at the plots and numbers provided. Gaps in the data, large spurs, large time shifts, wrong units of measure, and certain misalignments are typically easy to visually spot here.

You can see history of your data imports and summary of automated merging of the multiple imports. You can assess, edit or delete the imports separately using the action buttons on the right (  ).

1 Data import

2 Data Overview





3 Configure Analysis

4 Analysis

Overview

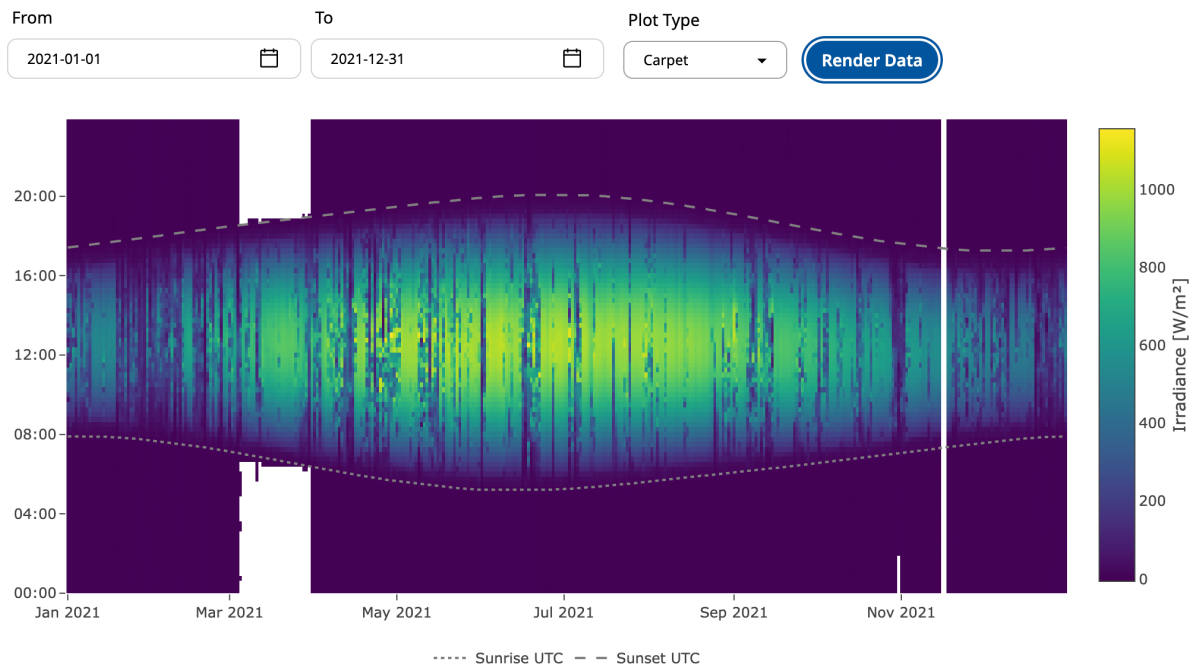
Aggregated data

Imported data

Name	Start	End	Name	Unit Check	Start	End	Creation date	TZ	
Avg_GHI - Data 1	01/01/21	31/12/21	Avg_GHI - Import 669		01/01/21	31/12/21	17/02/25 08:51	local	  

Refer to Visualize your data section in Detailed help for more details on functionality of the **Data Preview** tab.

Use Carpet plot to visualize the entire data on one plot.




Use Time Series plot to visualize Irradiance data and visually compare multiple datasets.

Data Visualization



Use automated Configuration check along with visual inspection.

Configuration Check

Click the Check button () on the right to get an automated check of key configuration parameters such as units of measure and time zone. The configuration checks are critically important for the quality analysis of your irradiance data.


Aggregated data

Name	Start	End
MS-80SH 15a - Data 1	01/01/24	30/06/24

Imported data

Name	Start	End	Creation date	TZ
MS-80SH 15a - Import 765	01/01/24	30/06/24	07/05/25 13:08	UTC



To ensure best analysis results, make sure the checks pass prior to running the main analyses. If the tests fail, please edit the imports using Edit button () to correct the time zone or reimport the data after correcting it externally.

Keep in mind: the cleaner the input data is the more valuable insights you get.

For more details on Configuration Check refer to Configuration Check section in detailed help.

Setup correlative data

The EKO Q uses alternative irradiance data and other meteorological data such as satellite, clear sky model, and weather information from external data services or provided by the user.

Configure access to external satellite data

You can use satellite-based irradiance data from external data services, configure access to them as described in [Setup access to external data sources](#) section.

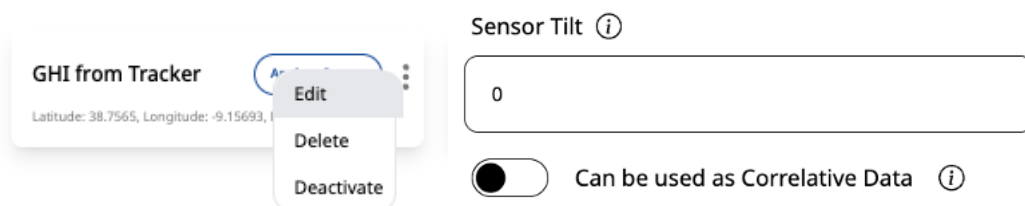
Configure reference GHI sensor

You can use a reliable sensor at the same site as reference sensor, similarly to how you use external correlative data.

Caution! Only use sensor data as correlative when you trust the sensor to produce reliable data. Among other factors, ensure that the sensor complies with the following:

- The sensor has been correctly installed in horizontal plane to measure GHI irradiance.
- The sensor has been cleaned regularly.
- The sensor data is imported with correct units of measure.
- The sensor data is imported with correct time zone.
- The sensor data passes the [Single sensor analysis](#) as GHI sensor, using LuciSun or CAMS correlative data and reports no major issues.

To enable using the sensor's data as correlative, enable “**Can be used as Correlative Data**” switch in the configuration panel of the sensor.



Upload your own correlative data

If you have a reliable correlative data as a CSV-like file, you can upload it as another sensor and follow the steps described in [Configure reference GHI sensor](#) .

For more details on correlative data options refer to Correlative data options and Access to Correlative data sections in Detailed help.


Contact EKO Q support if you want to integrate another source of reliable irradiance data or you are facing other problems with accessing correlative data.

Configure analysis

EKO Q offers different types of analysis listed below. The analyses provide different point of view on your data while sharing common idea and structure.

1. **Single Sensor Analysis.** Analyze the GHI or GTI irradiance data using model correlative data such as satellite data. See [Configure Single Sensor Analysis](#).
2. **Sensor-to-Reference Analysis.** Analyze the GHI or GTI irradiance data using GHI data measured with a reliable GHI reference sensor on the same site. For this analysis you need data from two sensors configured on the site. You can also use this type of analysis with your own GHI correlative data. See [Configure Sensor-to-Reference Analysis](#).
3. **Fleet Analysis.** Analyze GHI or GTI data provided by multiple similar sensors on the site and see how they perform as a group. For this analysis you need three or more sensors on the site that measure global irradiance with the same orientation. See [Configure Fleet Analysis](#).

Once the analysis is configured click **Update Analysis** and proceed to **Analysis** tab to

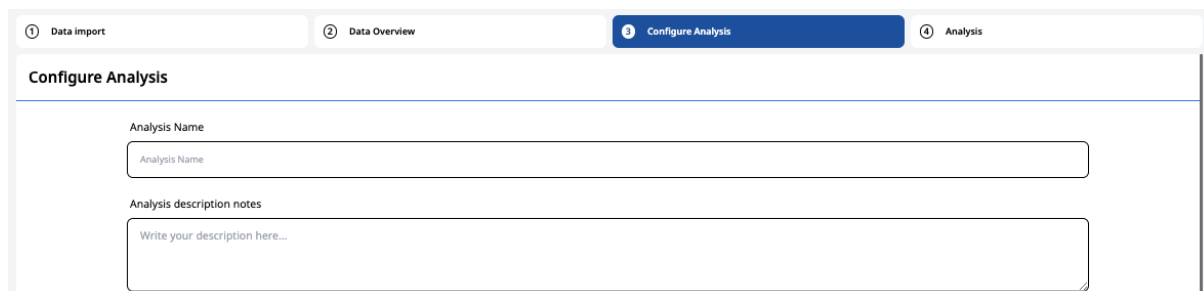
run the analysis using **Run** () button.

You can continue using EKO Q while the analysis runs.

Configure Single Sensor Analysis

Navigate to the page of the sensor that you want to analyze.

EKO recommends to visually control your data using the visualization tools described in [Preview sensor data](#) section. Once you are confident that the data is imported correctly, proceed to **Configure Analysis** tab.



1 Data import 2 Data Overview 3 Configure Analysis 4 Analysis

Configure Analysis

Analysis Name
Analysis Name

Analysis description notes
Write your description here...

Analysis Start Date

2021-01-01



Analysis End Date

2021-12-31



Provide short **Analysis Name** and description. EKO recommends using short unique analysis names to simplify management of multiple analyses later.

Fill all the required fields. EKO recommends skipping **Advanced Configuration** until you are familiar with EKO Q and all the detailed settings.

Correlative Data is key to this type of analysis. Choose it well. EKO recommends trying two or more sources of correlative data and compare results of analysis before drawing conclusions.

LUC data and CAMS data are recommended by default. If these options are disabled, configure the respective API tokens as described in [Setup access to correlative data](#) section. “Automatic” options allows EKO Q to choose one of the available sources based on sensor location and period of analysis.

Correlative Data

Site sensors data



Data Source

Select data Source

✓ Automatic (recommended)

CAMS

LUC

PVGIS

Specify time period of analysis. Longer periods may take longer to analyze, while too short a period may miss on important trends. Typical recommended period duration is 6 to 12 months.

Analysis Start Date

2021-01-01




Analysis End Date

2021-12-31



Update Analysis

Run the analysis

Proceed to **Analysis Output** tab. Locate your analysis and click **Run** () button.

1 Data import
2 Data Overview
3 Configure Analysis
4 Analysis

Analysis

Sort

Filter

Most recent

All

Analysis Name	Correlative Data	Sensors Analyzed	Analysis Type	Creation Date	Outputs	Actions
First Sensor-to-Sensor analysis	Site sensors	PoA East	Individual Sensor	2025-06-01	ⓘ	▶ 🗑
First Single Sensor analysis	CAMS	PoA East	Individual Sensor	2025-06-01	ⓘ	▶ 🗑

You can continue using EKO Q while the analysis runs.

Configure Sensor-to-Reference Analysis

Sensor-to-Reference analysis is based on comparing the sensor's data to the GHI data measured by another sensor which you can trust. Typically it is a well maintained higher class sensor or a high class irradiance measurement system such as [EKO STR](#) system.

You can typically expect better agreement of the GHI or GTI measurements with a reliable GHI sensor on the same site than with a model irradiance data. It provides better accuracy and resolution to detect subtle issues in the measurement data.

For better results, always use both Single Sensor and Sensor-to-Reference analyses if available.

You can also use Sensor-to-Reference with your own GHI correlative data. See [Upload your own correlative data](#).

Prepare reference sensor

Configure the reference sensor that you trust as described in [Configure reference GHI sensor](#). This sensor must represent GHI measurements, and the quality of the data must be out of doubt. Consider running single-sensor analysis with this sensor and fix any issues reported.

Configure the analysis

Once the reference sensor is ready, follow the steps described in [Configure Single Sensor Analysis](#) with the following changes:

1. Navigate to the sensor you wish to analyze.
2. Visually control the data as described in [Preview sensor data](#) section.
3. Proceed to **Configure Analysis**
4. Enable **Site sensors data** and select the reference sensor you prepared

Correlative Data

Select Site Sensors Data

☒ GHI from Tracker
 ☐ GHI from Tracker corrupt

Site sensors data ☒

5. Complete the configuration and save.

Run the analysis

Proceed to **Analysis Output** tab. Locate your analysis and click **Run** (▶) button.

① Data import

② Data Overview

③ Configure Analysis

④ Analysis

Analysis

Sort

Filter

Most recent

All

Analysis Name	Correlative Data	Sensors Analyzed	Analysis Type	Creation Date	Outputs	Actions
First Sensor-to-Sensor analysis	Site sensors	PoA East	Individual Sensor	2025-06-01	①	▶ 🗑
First Single Sensor analysis	CAMS	PoA East	Individual Sensor	2025-06-01	①	▶ 🗑

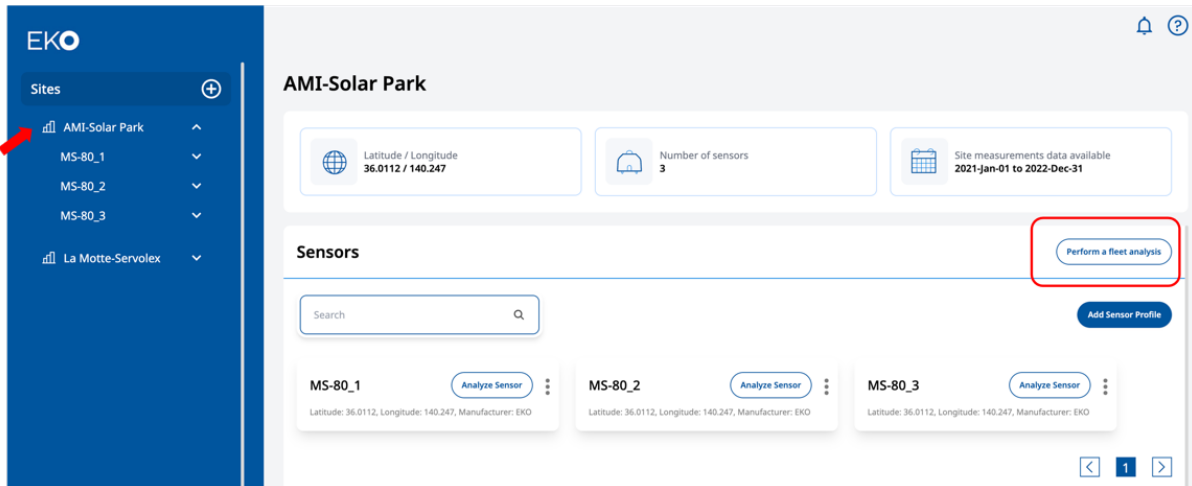
You can continue using EKO Q while the analysis runs.

Configure Fleet Analysis

Fleet Analysis performs quality checks on multiple sensors within the site. The analysis combines main tests on each sensor individually using correlative data such as provided by LuciSun, and specifically focuses on mutual agreement between irradiance data measured with the multiple sensors.

Always perform Fleet Analysis when three or more sensors with the same orientation are configured at the site.

1. **Navigate to the site** and click the **Perform Fleet Analysis** button on the right.
Note, the button is only enabled when 3 or more sensors configured on the site.

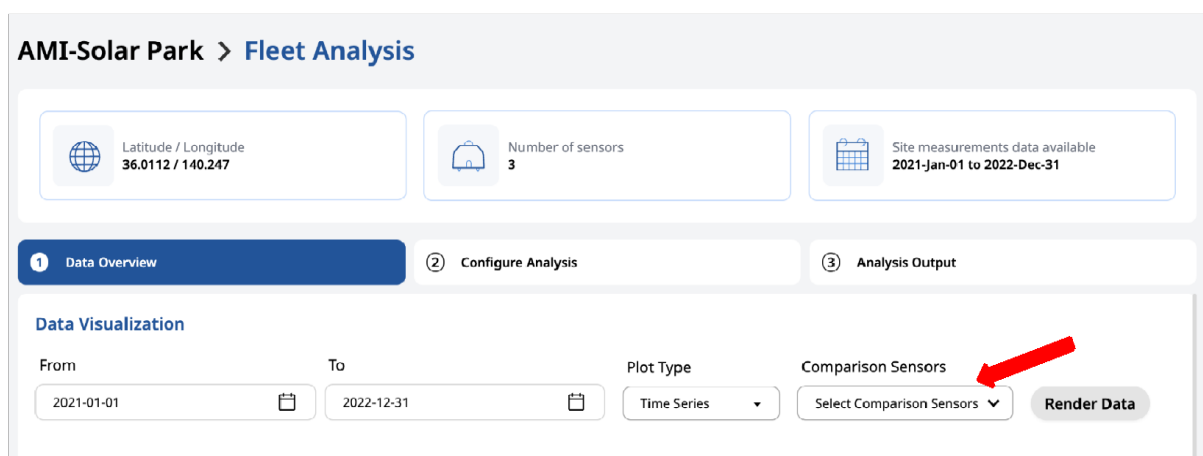


2. Preview sensor data.

Similar to individual sensor analyses, preview the data for your fleet using **Data Overview** tab. Use the functionality of this tab to visualize the sensor data and make sure it meets your expectations before running the analysis.

Select sensor to visualize using **Comparison Sensors** list and click **Render Data** button next to it.

Switch between **Plot Types** available and see your data from different points of view.



3. Configure fleet analysis parameters.

Proceed to the **Configure Analysis** tab.

Provide **Analysis Name** and **Description Notes** (optional).

Optionally specify correlative data source to use. See [Setup access to correlative data](#) section to enable access to different options of correlative data.

Select the sensors to analyze using **Sensors Analysis** list.

Specify period of analysis and click **Update Analysis**.

Configure Analysis

Analysis Name

Analysis description notes


Data Source

Automatic (recommended) ▼


Sensors Analysis

Select Sensors ▼

Analysis Start Date

Analysis End Date

Update Analysis

4. Proceed to **Analysis Output** tab.

Locate your analysis and click **Run** (▶) button.

① Data Overview

② Configure Analysis

③ Analysis Output




Analysis

Sort

Most recent ▼

Filter

All ▼

Analysis Name	Correlative Data	Sensors Analyzed	Analysis Type	Creation Date	Outputs	Actions
My First Fleet Analysis	CAMS	Multiple Sensors	Fleet	2025-02-23		 




You can continue using EKO Q while the analysis runs.

See analysis report

Once the analysis is done, the results are available as a print-ready report in PDF format.

Navigate to the Analysis tab with all the configured reports and press the “Download” button in the “Outputs” column:

Analysis

						Sort	Filter
						Most recent ▾	All ▾
Analysis Name	Correlative Data	Sensors Analyzed	Analysis Type	Creation Date	Outputs	Actions	
MS80 vs Tracker GHI	Site sensors	MS-80 GHI 15_min avg	Individual Sensor	2025-02-20	  PDF		

Note: For single-sensor analyses, navigate to the sensor's page. For fleet analyses using multiple sensors on a site, navigate to the Fleet Analysis section on the Site's page.

The content and layout of the reports vary depending on the type of the analyses, analyses settings and capabilities available for your location and sensors. The report contains brief necessary explanations. At the same time, we encourage you to read the Read the Report section of the Detailed help carefully for the best value.