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PLUG-AND-USE RENOVATION WITH ADAPTABLE LIGHTWEIGHT SYSTEMS



# D5.5 Training material for the use of LYSIS-MODEST

Version: 1.0

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## Terms, definitions, and abbreviated terms

CSV	<b>Comma-Separated Values</b>
GA	<b>Grant Agreement</b>
GUI	<b>Graphical User Interface</b>
HTTP	<b>Hypertext Transfer Protocol</b>
HTTPS	<b>Hypertext Transfer Protocol Secure</b>
IEQ	<b>Indoor Environmental Quality</b>
KPI	<b>Key Performance Indicator</b>
MODEST	<b>Multi-Objective DEcision Support Tool</b>
PnU	<b>Plug and Use</b>
SSO	<b>Single Sign-On</b>
UI	<b>User Interface</b>
WP	<b>Work Package</b>

## Executive summary

The present document (“D5.5 – *Training material for the use of LYSIS-MODEST*”) is a report including the training of the PLURAL consortium regarding the usage of the developed LYSIS-MODEST tool. In particular, here the outcomes of the following task are presented:

- T5.6 “Development of Use-Cases (end-to-end process) for the validation of the developed IT tools LYSIS-MODEST platform”

Deliverable D5.5 provides the guidelines needed for the users to harness all the capabilities of the LYSIS-MODEST tool and its user interface. The training process as well as the gathering of information and inputs on how to improve the tool from the end user’s perspective is then presented in detail including the majority of the feedback received during this effort.

Next, the basic functionality of the current version is briefly presented followed by detailed step-by-step guidelines for each part of the tool. Moreover, some changes that have already been incorporated and others planned for version 2.0 are discussed.

The document provides a comprehensive overview of the LYSIS-MODEST user interface as well as user guidelines for LYSIS-MODEST, along with changes made and planned for version 2.0.

## 1. Introduction

The need for effective and efficient monitoring tools is increasingly important and a well-designed UI monitoring tool can provide valuable insights into system performance and site monitoring, enabling the stakeholders to make informed decisions and be constantly up to date with the latest information as they derive from the pilot sites.

This deliverable outlines the training process for MODEST-LYSIS UI and monitoring tool designed to provide real-time metrics and analytics. The tool is intended to be used by end users with domain knowledge that want to have quick and constant access to monitoring of the three (3) pilot sites as well as the capability to use and handle that information in a more convenient manner.

Overall, this deliverable offers an overview of the process followed until the completion of the first version of the MODEST-LYSIS user interface. We showcase the training process with the specific meeting and/or workshops that have been followed. The initial functionality of both parts of the UI (MODEST-LYSIS) as well as the enhancements that have been planned based on the user requirements and feedback. Finally, we present some guidelines regarding the user interaction with the UI and step by step the flow of actions on behalf of the user in order to utilize the tool with more ease.

The rest of the deliverable is structured as follows:

- Section 2 introduces the training process that was followed to achieve the desired results.
- Section 3 presents the MODEST UI functionality presented to the partners at the beginning of the training process.
- Section 4 describes the enhancements already applied and the ones that are designed to take place the following months.
- Section 5 includes the user manual with detailed instructions regarding all provided features.
- Section 6 concludes the report, summarizing the main points of the training process.



## 2. Training process overview

This section presents an overview of the training process that was followed during the course of the T5.6 duration. Figure 1 offers a visualization of the roadmap and timeline regarding the meetings related to the demonstration/training of the tool.

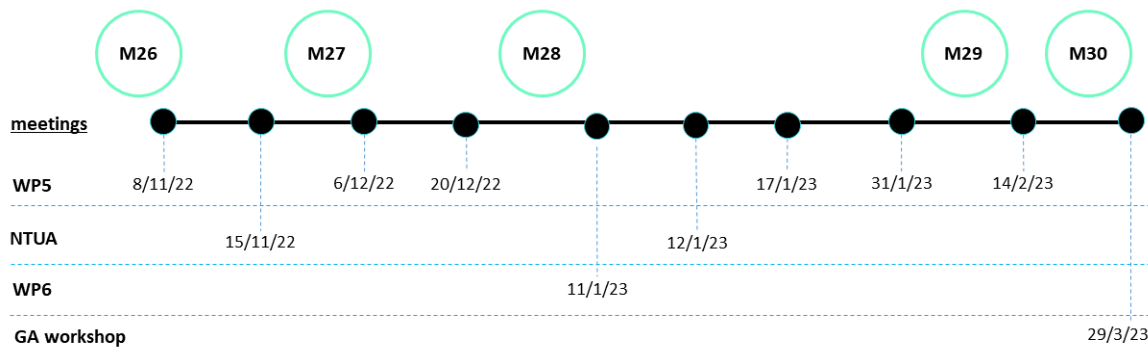


FIGURE 1: TRAINING MEETINGS ROADMAP.

The training process for this UI monitoring tool involves a series of steps, including data collection from real time demos during meetings, gathering and analysis of the user feedback as well as a live demonstration and a workshop dedicated to familiarizing the end-users with the tool. These steps are designed to ensure that the tool provides accurate and reliable data, and that users can easily interpret and act on the insights provided.

Specifically, the tool was demonstrated in several different WP5 meetings (occasions and dates of meetings, 8/11/22, 6/12/22, 20/12/22, 17/1/23, 31/1/23, 14/2/23), as well as in a single WP6 meeting (11/1/23) and two dedicated meetings with NTUA (15/11/22 and 12/1/23). Figure 2 depicts the development-related steps that took place during the above-mentioned timeline.



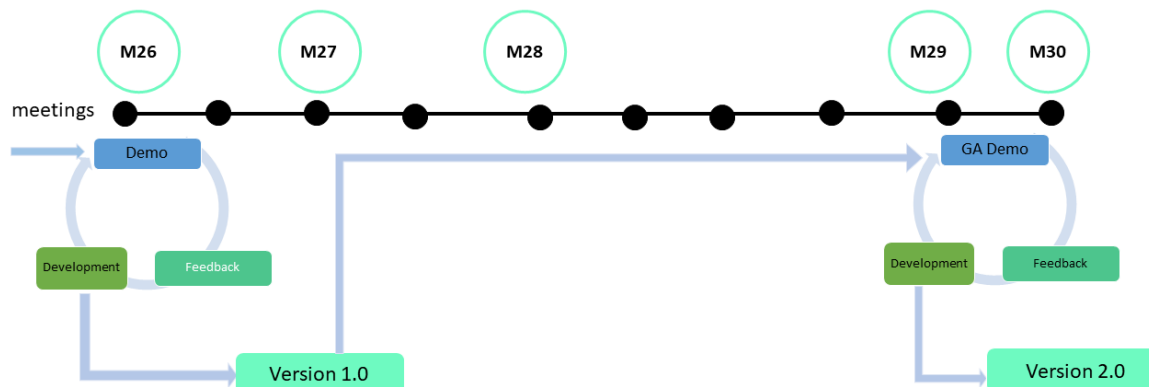


FIGURE 2: DEVELOPMENT PHASES OF DIFFERENT VERSIONS.

Most comments were related to aspects of appearance and usability of the tool. Specifically, the noted points to be incorporated in the development process of the second version of the MODEST-LYSIS user interface (MODEST-LYSIS UI v2.0) were mainly focused on making the tool more usable. From our developers’ part we offered some extensions regarding the offered functionality.


In each case both some of our suggestions but mainly the feedback that was provided by the partners and participants is what eventually led to the first version of the tool as it stands now.

Moreover, a 30-minutes workshop took place in the M30 – Progress & GA Meeting which was dedicated to showcase the functionality and usability of the tool. Some minor additions and corrections were discussed within this workshop. Most notably the consortium enquired about the units of measurements to be included in the header of the respective column within the table. One more addition is related to the number of decimal points that are to be included in each case where a decimal number appears (either in the MODEST part the KPIs’ values or in the LYSIS part the value for a specific metric as they appear in the table and charts).

In this workshop the audience (all part of the consortium) were asked to follow the link to the MODEST-LYSIS UI (<https://modest.plural.rid-intrasoft.eu/>) and work on their own as well as follow the provided instructions and the live demonstration that took place at the same time.

The workshop’s agenda was divided into three (3) main parts.

1. A presentation of the tool and the functionality, showing an overview of the MODEST-LYSIS user interface.

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2. Execution of a basic user interaction flow of the LYSIS part of the tool, working in parallel with the audience/consortium and showcasing the steps live.
3. Execution and explanation of the functionalities related mainly to the MODEST part of the tool. This again was a parallel effort involving a live demonstration and work by the partners.

Note that the workshop was recorded, and the video will be made available through the portal of the PLURAL project (<https://www.plural-renovation.eu/>).

The effort of gathering information and user input during the above-mentioned meetings was integral in order 1) to correct non-usable features in the application as well as to 2) include new features that would make the application usage more intuitive. Therefore, this process is deemed as a UX survey needed in order to derive the best possible result for the users and the serviceability of the MODEST-LYSIS UI.

The flag of the European Union, featuring twelve gold stars arranged in a circle on a blue background.	This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 958218	10
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### 3. Initial MODEST UI functionality

The current functionality of the MODEST-LYSIS UI is based on best practices regarding frontend development, in order to provide the end users with something that is quite compact and simple to use. Most importantly, the tool's role is to provide experienced users (or even better to users with domain knowledge) a manner of keeping together the data and information that are presented here. To that end the MODEST-LYSIS UI is developed to provide, from the 3 real demo sites, monitoring data that are:

- i. Fast
- ii. Concrete
- iii. Available everywhere
- iv. Available at all times
- v. Secure

The reasoning behind this tool is mainly focused on the easiness of the user to access all the required data fast and without involving access-related issues (access to DB or other monitoring tools). Specifically, the tool offers:

- i. Retrieval of data.
- ii. Handling of data.
- iii. Access to data.
- iv. A central place where data reside.
- v. Store of data on personal machines.

Additionally, the tool allows the user to sort through the collected simulation as well as real-life building monitoring data and see the configuration choices that have led to the best KPIs they have selected as sorting criteria.

The MODEST-LYSIS UI is mainly of interest for users that have domain knowledge. As such, it is not a tool targeting the general public. To that end access to the tool is restricted to the consortium partners or other stakeholders that may require access.



The tool is comprised of two main components namely **LYSIS**, which is used for live monitoring of the three (3) real demo sites (VVV, Kasava, Terrassa) and **MODEST**, which is the decision support tool.

### 3.1 LYSIS

This part of the tool is mainly focusing on live monitoring of the data received from the real demo sites namely VVV, Terrassa and Kasava.

LYSIS offers the ability to the user to view, sort, filter, and download/save the data to their local machines for later usage or as proof of concept. The process used to view a specific set of data is intuitive for the user since each action (i.e., selecting an option from the drop down) will then offer them the ability to further interact with the tool (i.e., next dropdown will appear). Essentially, each user input will open a new “field” for the user to provide their successive input until they have formed a complete Flux query (InfluxData Inc., 2021) that they will submit to retrieve the corresponding results. As the user selects a value, the next dropdown menu appears until all necessary values are selected. Once all values are selected, the submit button appears and upon clicking it, the dropdown menus disappear. This clears the query and allows the user to input a new query if needed. The query submission results in an updated page where the user can have the all the information gathered in both tabular format and with accompanying charts that visualize the retrieved data (Figure 3).

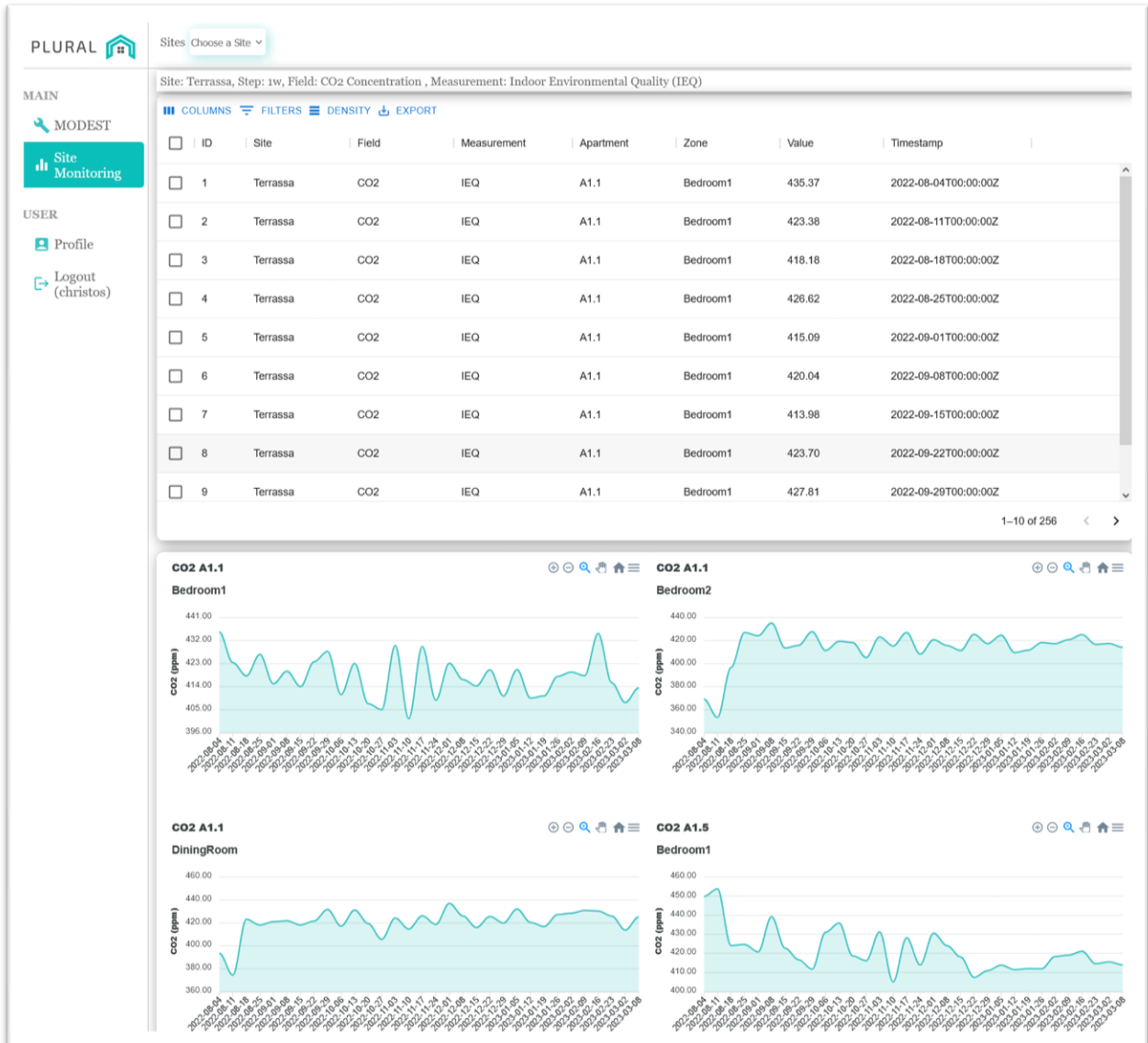
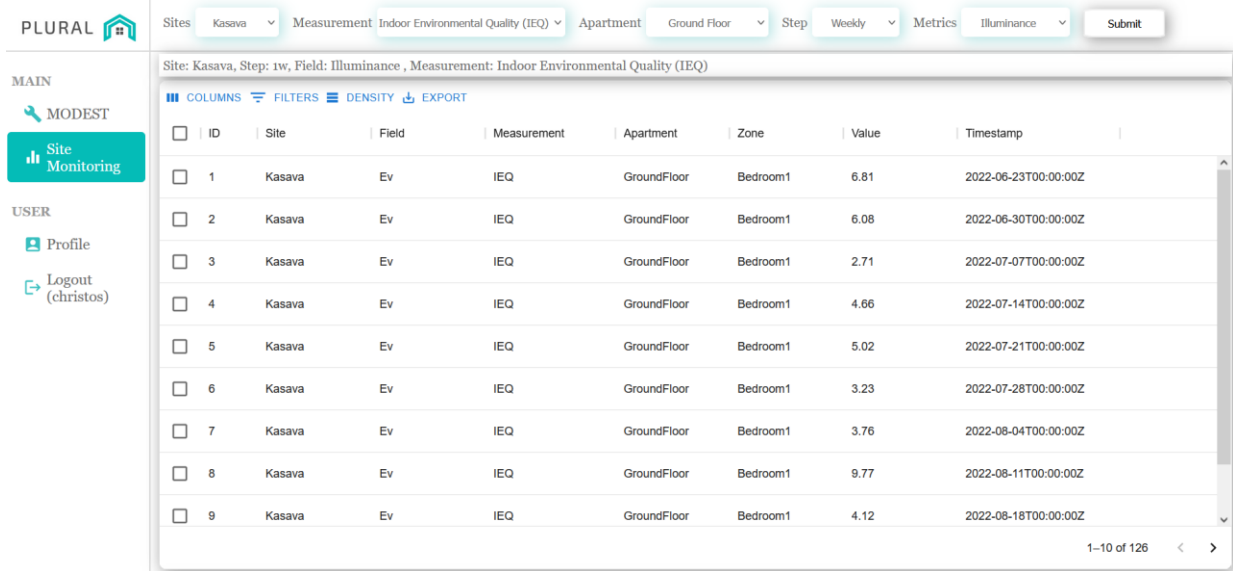


FIGURE 3: OVERVIEW OF THE MONITORING PAGE AFTER QUERY SUBMISSION WITH POPULATED TABLES AND RENDERED CHARTS.

The result is a set of data that populates the table. On that table the user can view details regarding the data, sort (single columns sorting) and filter as well as download the data in CSV format, compatible with all modern spreadsheet software tools.





Site: Kasava, Step: 1w, Field: Illuminance, Measurement: Indoor Environmental Quality (IEQ)

ID	Site	Field	Measurement	Apartment	Zone	Value	Timestamp
1	Kasava	Ev	IEQ	GroundFloor	Bedroom1	6.81	2022-06-23T00:00:00Z
2	Kasava	Ev	IEQ	GroundFloor	Bedroom1	6.08	2022-06-30T00:00:00Z
3	Kasava	Ev	IEQ	GroundFloor	Bedroom1	2.71	2022-07-07T00:00:00Z
4	Kasava	Ev	IEQ	GroundFloor	Bedroom1	4.66	2022-07-14T00:00:00Z
5	Kasava	Ev	IEQ	GroundFloor	Bedroom1	5.02	2022-07-21T00:00:00Z
6	Kasava	Ev	IEQ	GroundFloor	Bedroom1	3.23	2022-07-28T00:00:00Z
7	Kasava	Ev	IEQ	GroundFloor	Bedroom1	3.76	2022-08-04T00:00:00Z
8	Kasava	Ev	IEQ	GroundFloor	Bedroom1	9.77	2022-08-11T00:00:00Z
9	Kasava	Ev	IEQ	GroundFloor	Bedroom1	4.12	2022-08-18T00:00:00Z

FIGURE 4: EXAMPLE OF TABLE POPULATED WITH DATA.

In addition, a set of charts is created corresponding to value(s) through time (based also on the time step the user has defined). The charts are automatically created, and each chart corresponds to a specific apartment area or zone within the building. The charts can be downloaded as images (SVG, PNG format) and can also be zoomed in and out for the convenience of the user. Figure 5 highlights the specific areas of interest on the charts providing the respective functionality.

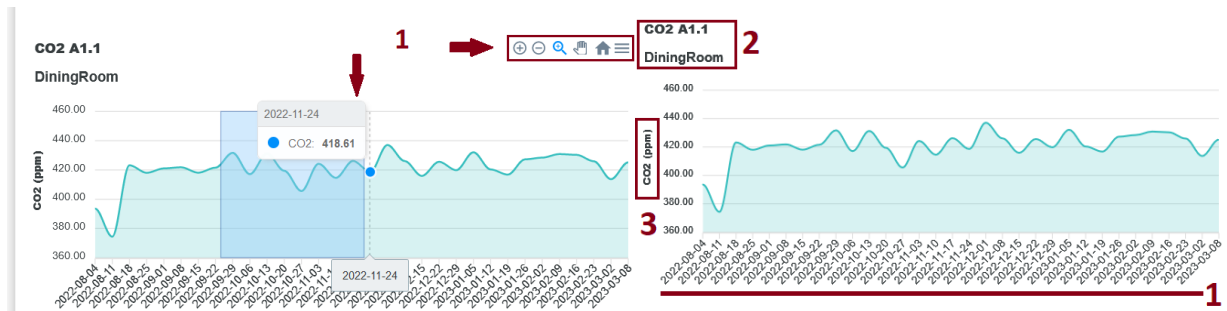


FIGURE 5: OVERVIEW OF RENDERED CHARTS. (LEFT) ZOOM-IN/-OUT, SCROLL, DOWNLOAD PNG, SVG. (RIGHT) METRIC (I.E., CO2), APARTEMENT, AREA WITHIN APARTEMENT, UNIT OF MEASUREMENT.



### 3.2 MODEST

The second major part of the UI tool is the MODEST UI visualization. MODEST stands for “Multi Objective Decision Support Tool” which is a Decision Support Tool that allows users to sort through the collected simulation as well as real-life building monitoring data and see the configuration choices that have led to the best KPIs the user has selected as sorting criteria.

For the convenience of the user the searching is divided into 3 main categories in order to find the required information faster. The user can search and view results and data that correspond to the 1) totality of the currently available data but also 2) based on the site in question (currently Terrassa and Kasava) as well as 3) based on the PnU kit (currently HybridWall and ConExWall).

The above data, when retrieved, is presented in a table from where the user can perform various actions on them like sort, filter etc. MODEST offers the ability to short by multiple columns and apply simultaneously multi-sorting and multi-filtering to derive the best set of PnU configurations and KPI results based on the needs of the end user (Figure 6 and Figure 7). Furthermore, the user can view or hide specific columns related to PnU configuration fields or KPIs (Figure 8) and download the data in question for personal usage on their local machine.

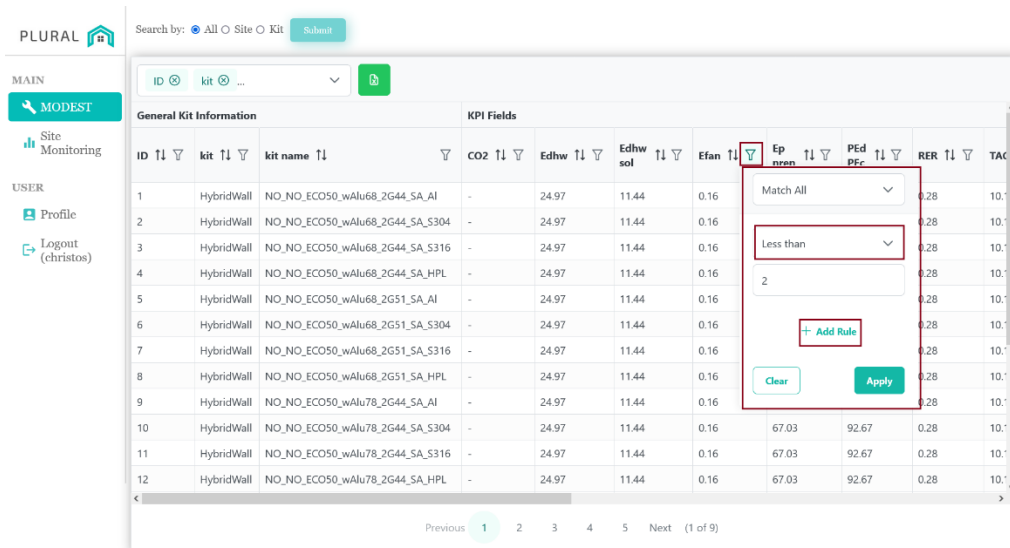
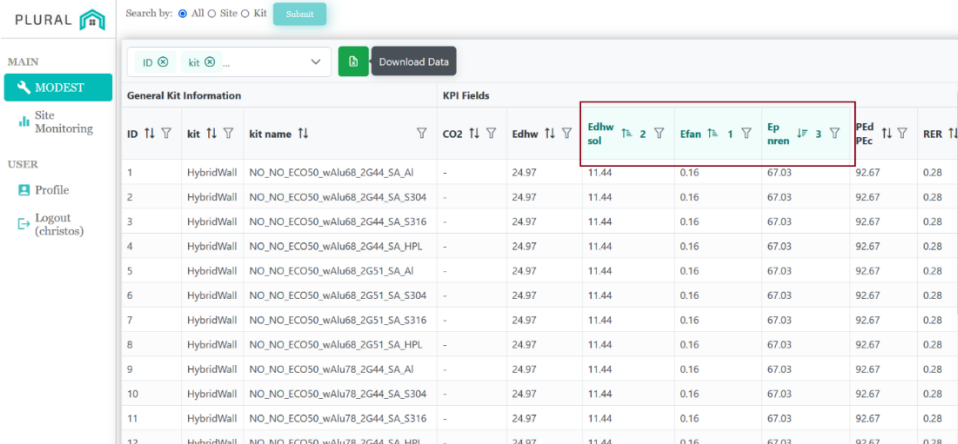


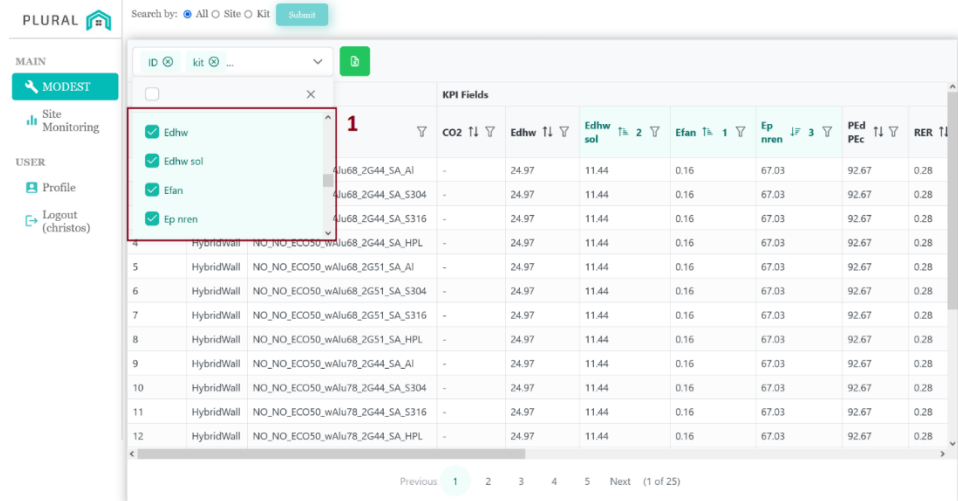
FIGURE 6: MULTI-COLUMN FILTERING FUNCTIONALITY ON SORTED/UNSORTED DATA.





ID	kit	kit name	CO2	Edhw	Edhw sol	Efan	Ep nren	PEd Pec	RER
1	HybridWall	NO_NO_ECOS0_wAlu68_2G44_SA_AI	-	24.97	11.44	0.16	67.03	92.67	0.28
2	HybridWall	NO_NO_ECOS0_wAlu68_2G44_SA_S304	-	24.97	11.44	0.16	67.03	92.67	0.28
3	HybridWall	NO_NO_ECOS0_wAlu68_2G44_SA_S316	-	24.97	11.44	0.16	67.03	92.67	0.28
4	HybridWall	NO_NO_ECOS0_wAlu68_2G44_SA_HPL	-	24.97	11.44	0.16	67.03	92.67	0.28
5	HybridWall	NO_NO_ECOS0_wAlu68_2G51_SA_AI	-	24.97	11.44	0.16	67.03	92.67	0.28
6	HybridWall	NO_NO_ECOS0_wAlu68_2G51_SA_S304	-	24.97	11.44	0.16	67.03	92.67	0.28
7	HybridWall	NO_NO_ECOS0_wAlu68_2G51_SA_S316	-	24.97	11.44	0.16	67.03	92.67	0.28
8	HybridWall	NO_NO_ECOS0_wAlu68_2G51_SA_HPL	-	24.97	11.44	0.16	67.03	92.67	0.28
9	HybridWall	NO_NO_ECOS0_wAlu78_2G44_SA_AI	-	24.97	11.44	0.16	67.03	92.67	0.28
10	HybridWall	NO_NO_ECOS0_wAlu78_2G44_SA_S304	-	24.97	11.44	0.16	67.03	92.67	0.28
11	HybridWall	NO_NO_ECOS0_wAlu78_2G44_SA_S316	-	24.97	11.44	0.16	67.03	92.67	0.28
12	HybridWall	NO_NO_ECOS0_wAlu78_2G44_SA_HPL	-	24.97	11.44	0.16	67.03	92.67	0.28

FIGURE 7: CONCURRENT SORTING OF MULTIPLE COLUMNS ON FILTERED/UNFILTERED DATA FOR DERIVING DESIRED RESULTS.



ID	kit	kit name	CO2	Edhw	Edhw sol	Efan	Ep nren	PEd Pec	RER
4	HybridWall	NO_NO_ECOS0_wAlu68_2G44_SA_HPL	-	24.97	11.44	0.16	67.03	92.67	0.28
5	HybridWall	NO_NO_ECOS0_wAlu68_2G51_SA_AI	-	24.97	11.44	0.16	67.03	92.67	0.28
6	HybridWall	NO_NO_ECOS0_wAlu68_2G51_SA_S304	-	24.97	11.44	0.16	67.03	92.67	0.28
7	HybridWall	NO_NO_ECOS0_wAlu68_2G51_SA_S316	-	24.97	11.44	0.16	67.03	92.67	0.28
8	HybridWall	NO_NO_ECOS0_wAlu68_2G51_SA_HPL	-	24.97	11.44	0.16	67.03	92.67	0.28
9	HybridWall	NO_NO_ECOS0_wAlu78_2G44_SA_AI	-	24.97	11.44	0.16	67.03	92.67	0.28
10	HybridWall	NO_NO_ECOS0_wAlu78_2G44_SA_S304	-	24.97	11.44	0.16	67.03	92.67	0.28
11	HybridWall	NO_NO_ECOS0_wAlu78_2G44_SA_S316	-	24.97	11.44	0.16	67.03	92.67	0.28
12	HybridWall	NO_NO_ECOS0_wAlu78_2G44_SA_HPL	-	24.97	11.44	0.16	67.03	92.67	0.28

FIGURE 8: VIEW/HIDE FUNCTIONALITY OF SPECIFIC COLUMNS REGARDING PnU KITS AND KPIS.

The user can hover over each header column to get a more detailed explanation of what each field represents as well as the corresponding units for each column. Finally, it is possible to view the PnU configuration for each row/PnU kit by clicking on the row of interest. In this case, as showed in Figure 9, a pop-up window will appear informing in detail the users on the chosen PnU kit configurations.



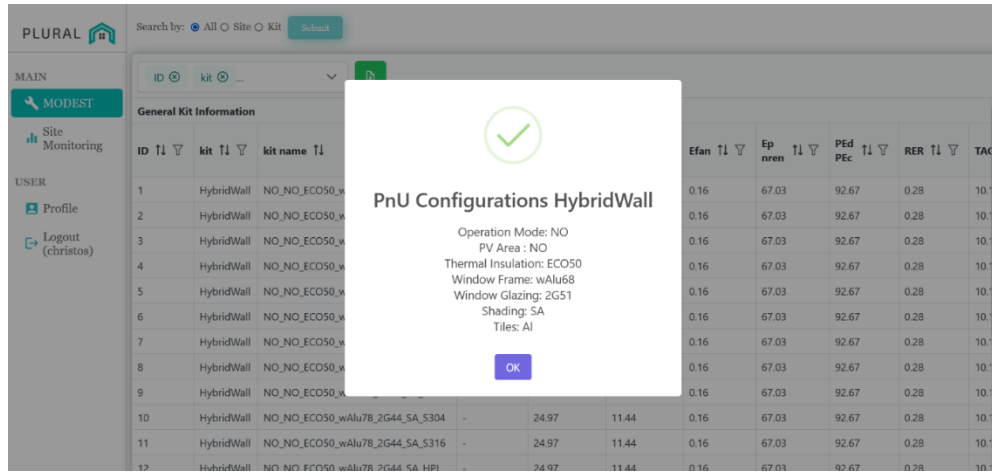


FIGURE 9: PnU KIT CONFIGURATION DETAILS BY SELECTING A SPECIFIC ROW.



## 4. MODEST UI Enhancements

### 4.1 Already applied enhancements

Based on the demo and displays that have already taken place within the consortium there are some enhancements that have already been implemented in order to improve the MODEST-LYSIS functionality and usability.

Namely the enhancements applied from the previous steps concern mainly:

- The appearance of the tables.
- The tables functionality specifically on the LYSIS part of the Tool, those enhancements concern:
  - The ability to download the data and to sort through each column separately and filter each column separately.
- Fixed decimal points for all values that have more than two (2) decimal points.
- Enhanced the rendered charts in order to include zoom-in/-out, ability to download the charts in PNG, SVG formats, presentation of specific metric and unit measurement.
- Removed the charts when we are considering a timestep that is less or equal to that of an (1) hour, which caused the browsers to respond slowly or be unresponsive due to the huge number of points that should be rendered by each chart that appears.

### 4.2 Planned enhancements

The enhancements that have already been planned in order to make the MODEST – LYSIS tool easier to use, more friendly and intuitive are related mainly to the “filtering” of results or better yet the request made to the tool for precise results based on the needs of the end user.

To that end we are planning a two-manner way of searching through the data for the appropriate values and/or configurations. Both enhancements concern the MODEST part of the tool.

The **first manner** revolves around specifying the PnU kit in order to derive the corresponding KPIs. Essentially, the user will be able to get the results that correspond to specific KPIs based on the, identified by them (end-users), PnU configurations.

This will be done using an interactive 3D representation of a PnU kit. The user will be able to click on the 3D model specifically on parts of the model that correspond to PnU kit parts and choose the value that they want to include to their preferred PnU configuration.

This will result in a query that will provide to the user only the data that fulfill their requirements, these data will then populate the table and can of course further be controlled filtered, sorted etc. as the user wishes.



FIGURE 10: EXAMPLE AND INITIAL DESIGN OF PnU KIT-BASED SEARCHING FUNCTIONALITY.

The **second manner** of searching will be performed by searching for preferred PnU configurations that are able to achieve certain (specified by the user) KPIs. The user will be able to define a threshold of values or a specific value that they would like to include as far as the KPI's are concerned. This will result in presenting to the user only the PnU kit(s) that are able to provide those KPI values and correctly correspond to their query. After that in the same manner the user will have the ability to control the results as they wish through the populated table.

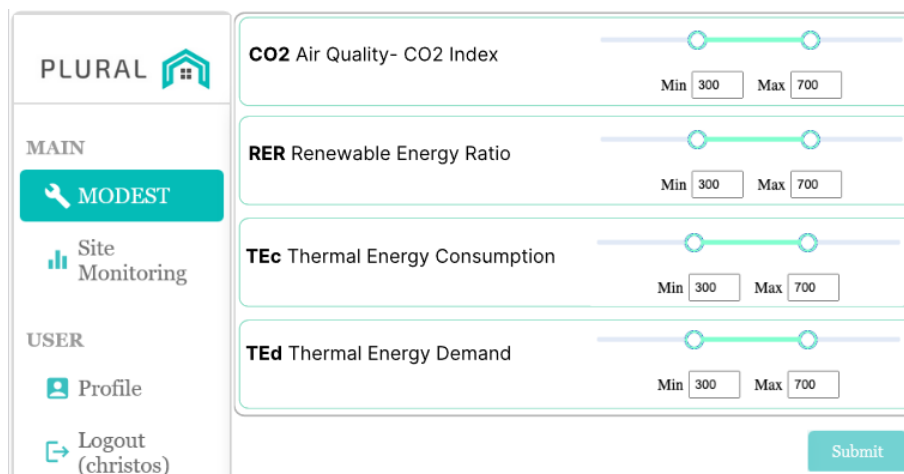


FIGURE 11: KPI-BASED SEARCHING FUNCTIONALITY.

## 5. User manual of MODEST-LYSIS UI

This is the user manual concerning the 1<sup>st</sup> complete version of the MODEST-LYSIS UI tool. The tool consists of two main parts that do not directly correlate. Since the functionality of each part does not impact the other, the guidelines presented here will examine each part separately.

### Initial Login

The initial login of the user is happening by using Keycloak a SSO solution that has been incorporated within the front-end tool to allow access to specific users (Team Keycloak, 2019). The users and their access are managed by INTRA and the provision of passwords and usernames can be completed after request to the developers' team involved in this project.




FIGURE 12: LOGIN PAGE OF MODEST-LYSIS UI WITH SSO IMPLEMENTATION (KEYCLOAK).

### 5.1 LYSIS

The LYSIS part of the tool offers visualization of data retrieved in real time from the demo sites in question (VVV, Kasava, Terrassa).

1. The user logs in the tool.
2. The user gains access to the platform and has to successfully submit a query to retrieve the required data and populate the tables and charts. This includes the following 6 steps.

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3. **Step 1:** The user can press the first dropdown menu that appears on the left of their screen. This will present to them 3 options to choose the demo sites in question, which is also evident from the label accompanying the dropdown (Figure 13).

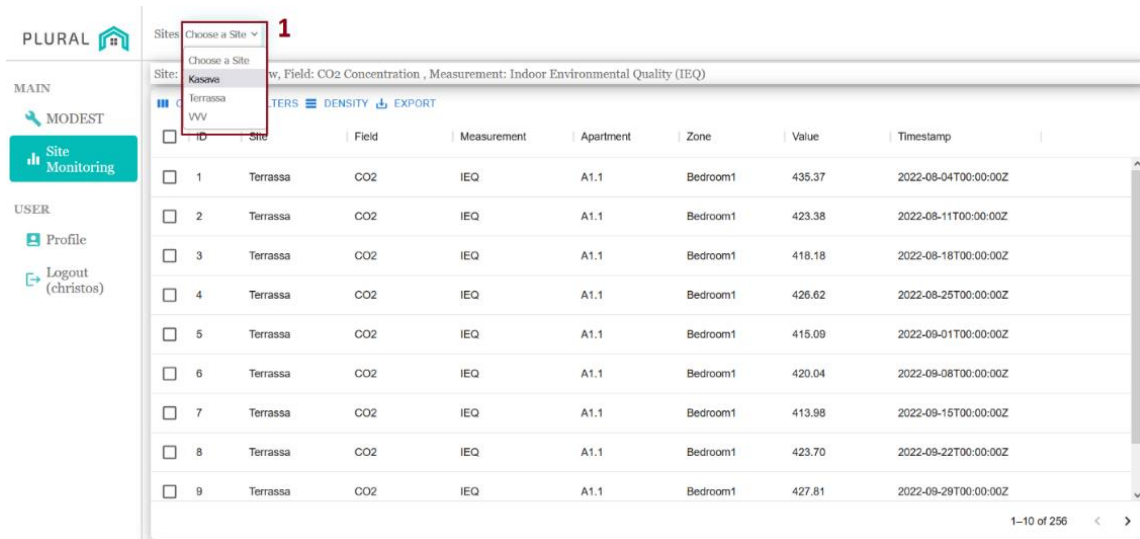


FIGURE 13: STEP 1 OF USER INTERACTION – DEMO SITE SELECTION.

4. **Step 2:** Drop down appears accompanied by a label “Measurements” (Figure 14).
- This prompts the user to choose from 3 available choices namely:
    - **Energy Consumption:** Concerning measurements related to the energy consumption of the site selected in the previous step.
    - **Indoor Environmental Quality (IEQ):** Concerning metrics related to the indoor environmental quality of the site selected in the previous step.
    - **Weather:** Concerning external weather conditions of the site selected in the previous step.
  - For each one of the above a different set of corresponding metrics will appear as a choice in the last step before submission.

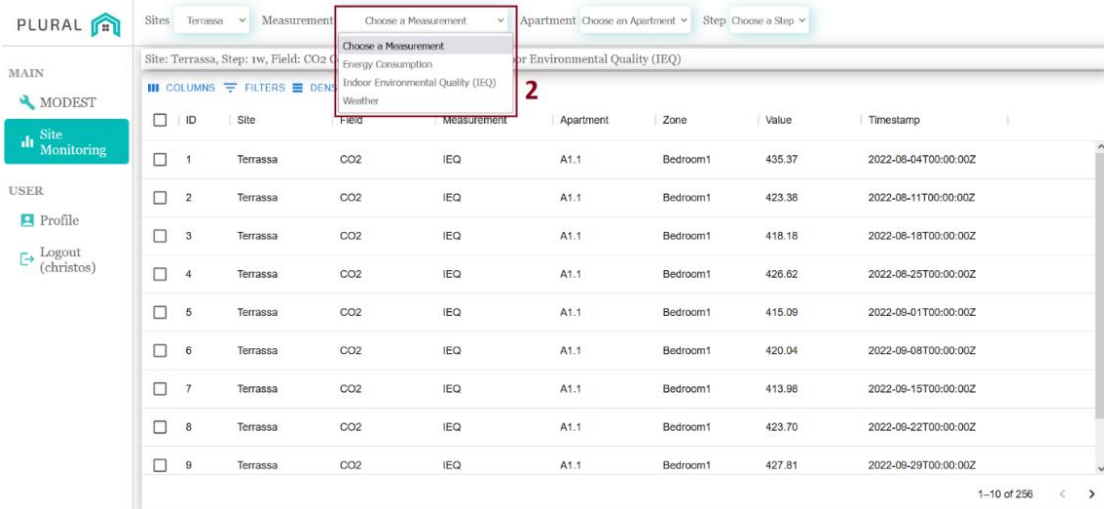


FIGURE 14: STEP 2 OF THE USER INTERACTION – MEASUREMENT SELECTION.

5. **Step 3:** Drop down accompanied by a label “Apartment” which is only applicable in case the user has selected the “Indoor Environmental Quality (IEQ)” in **step 2** (Figure 15). This is due to the fact that the IEQ concerns measurements taken from specific areas within a building while the Energy consumption and Weather concerns measurements correspond to the whole building.
  - Here the user can choose an apartment or a floor (this depends on the specific site that they have previously selected in **step 1** since not all sites have the same topology and as a result the same data).

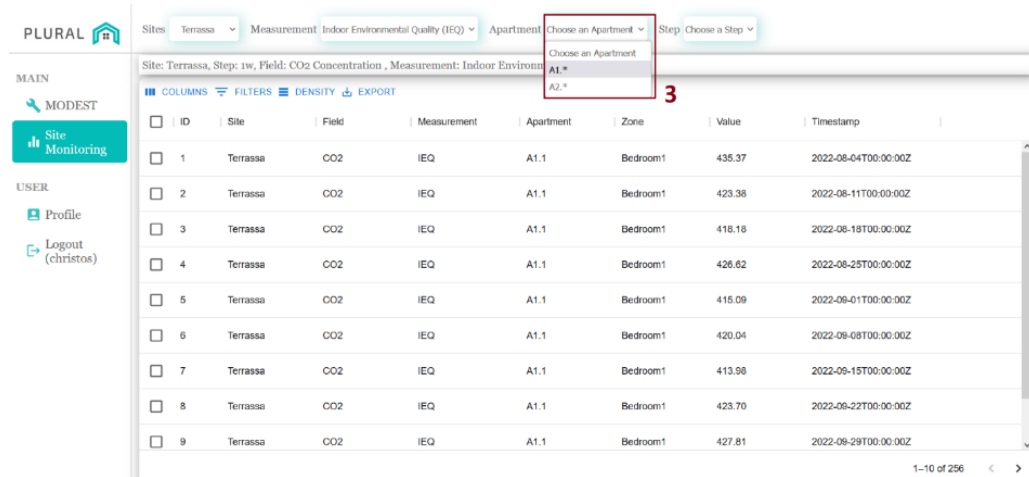


FIGURE 15: STEP 3 OF THE USER INTERACTION – APARTMENT SELECTION.

6. **Step 4:** Drop down menu accompanied by the label “Step” (Figure 16). This signifies the interval between each data point received, during the whole duration of the monitoring (i.e., an hourly step will result to information that concern data taken hourly; one point for each hour during the whole duration of monitoring).
- The options available are:
    - Monthly.
    - Weekly.
    - Daily.
    - Hourly.
    - Every 15 minutes.



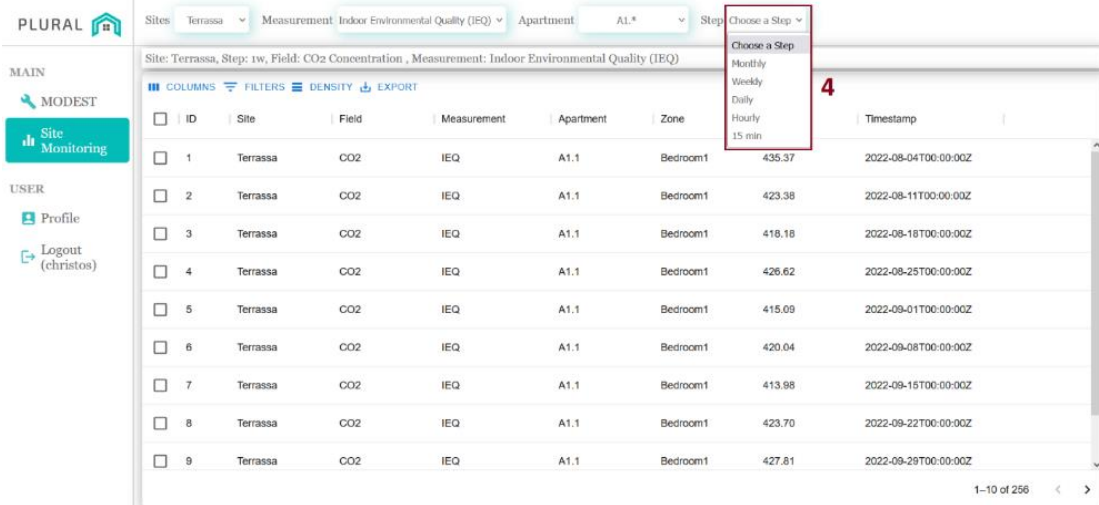


FIGURE 16: STEP 4 OF THE USER INTERACTION – STEP SELECTION.

7. **Step 5:** Drop down menu accompanied by the label “Metrics” (Figure 17). This is the last option that the user chooses, which completes the Flux query that will be later on submitted.
- This relates directly to **step 2** where the user chooses the Measurement in question but also relates to step 1 where the user chooses the site in question.
  - For different site-measurements combinations the “metrics” drop down will provide the user with different choices.

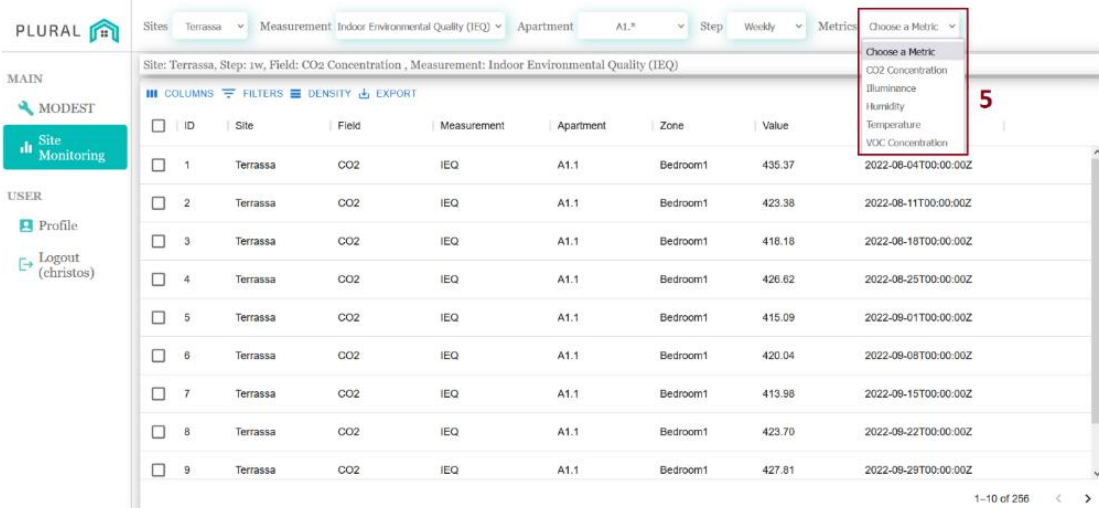


FIGURE 17: STEP 5 OF THE USER INTERACTION – METRIC SELECTION.



8. **Step 6:** Submit the query by pressing the “Submit” button (Figure 18). This will form a Flux query that will be used to fetch the results from the InfluxDB instance that has been set up for the retrieval of the monitoring data.

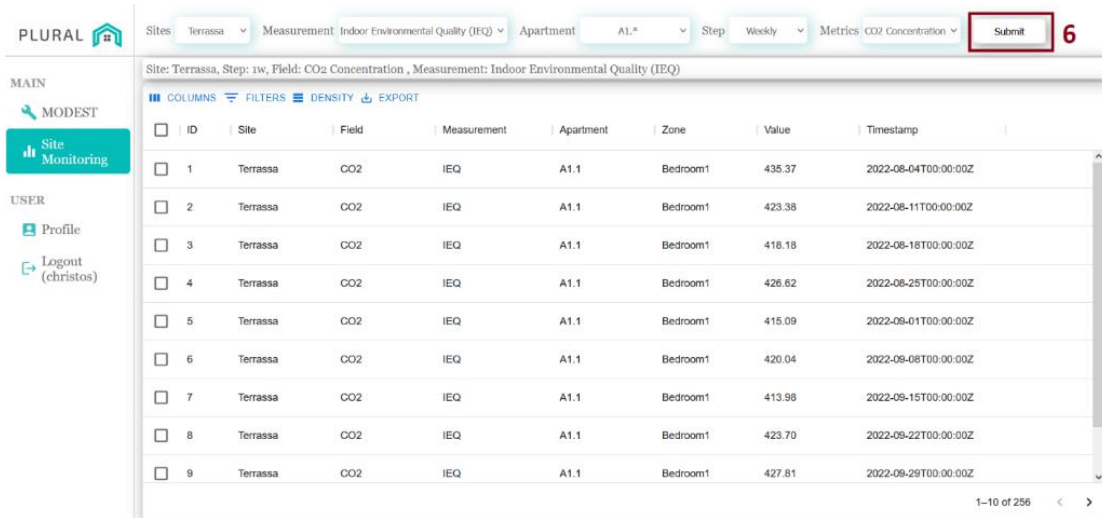


FIGURE 18: STEP 6 OF THE USER INTERACTION – FLUX QUERY SUBMISSION.

**Result:**

The tables will be populated with the results concerning the query that was just submitted. Moreover, as shown in Figure 19, several charts will appear underneath notifying the user for the progress of the chosen metric (**step 6**) through time, using the time intervals (**step 4**) for the specific site (**step 1**) and a different chart will be visible for each room/zone of the apartment (**step 3**) (i.e., ground floor, dining room).

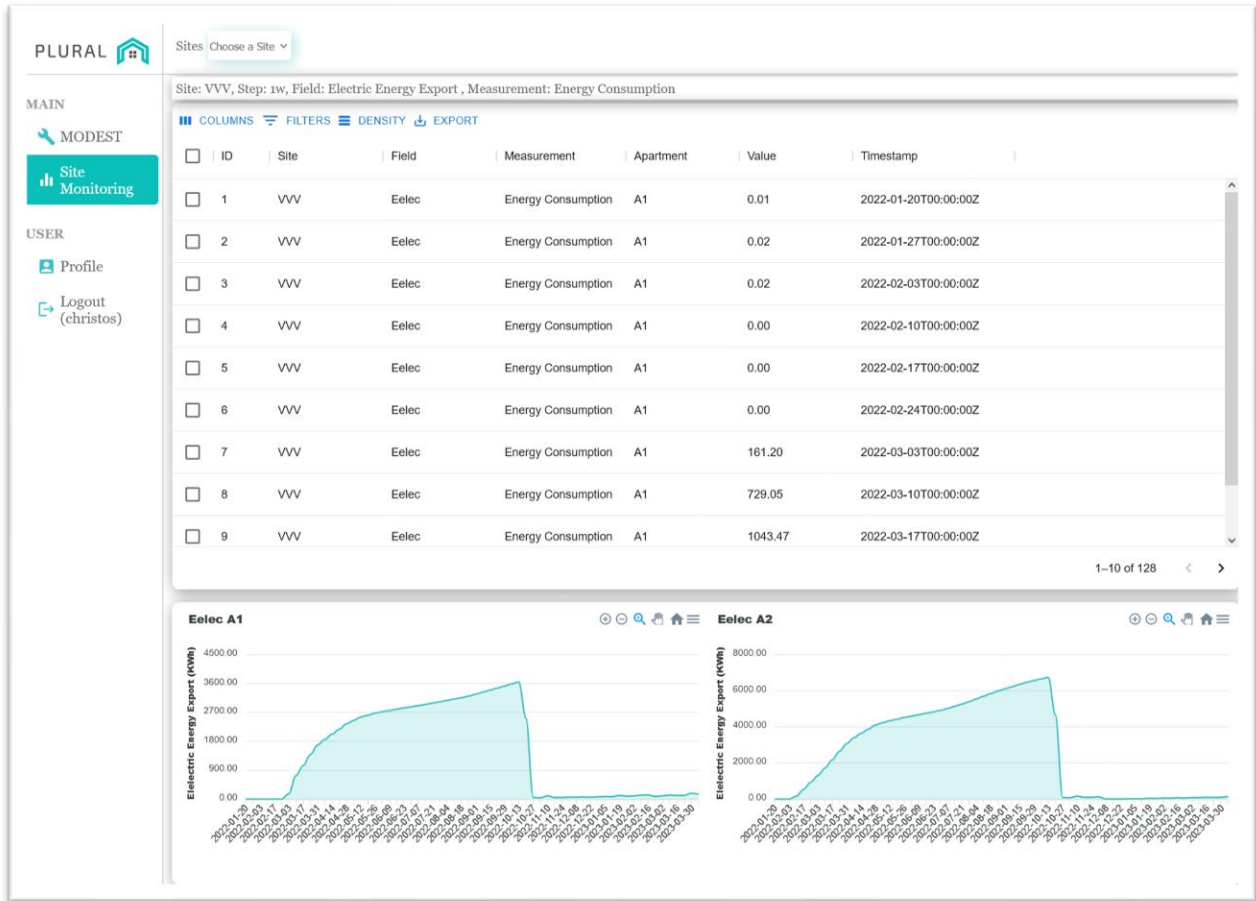


FIGURE 19: EXAMPLE OF LYSIS OVERVIEW AFTER A SUCCESSFUL QUERY SUBMISSION.

## Table

The table that is directly populated and provides information to the user regarding:

1. **The site:** signifying one of the three (3) sites for which the data corresponds to.
2. **The measurement:** signifying the measurement the user chosen for the specific site.
3. **The metric or field (in descriptive format):** signifying the metric the user has chosen and which corresponds to the specific site.
4. **The appartement (if applicable):** signifying a specific apartment or area in the site in question.
5. **The zone (if applicable):** signifying a specific room within the specified site and/or apartment.



6. **The value of the metric:** the actual value corresponding to the specific metric in a given point of time.
7. **The timestamp:** the timestamp which corresponds to the step and value of a specific metric and signifies the exact time the value was captured.

### Functionality & capabilities

The user has the ability to perform extensive handling of the data that reside in the newly created table.

Namely the user has the ability to:

1. Short the data based on a single shorting column.
2. Hide/Show columns based on their needs.
3. Filter a column, single filtering for single column each time.
4. Download and store in CSV format to their local machine (either specified rows or the whole dataset).

### Charts

The charts that appear beneath the table use the data from the table to be populated and formed. In fact, they act as a visual representation of the retrieved data (e.g., see Figure 20). The charts include information regarding the metric that they present as well as the area or room and zone that the specific metrics were captured. Finally for each specific area, zone or room a separate chart appears for easiest monitoring.

To that end the user has the ability to:

1. View and zoom-in/-out the data.
2. Download the chart in SVG or PNG format.

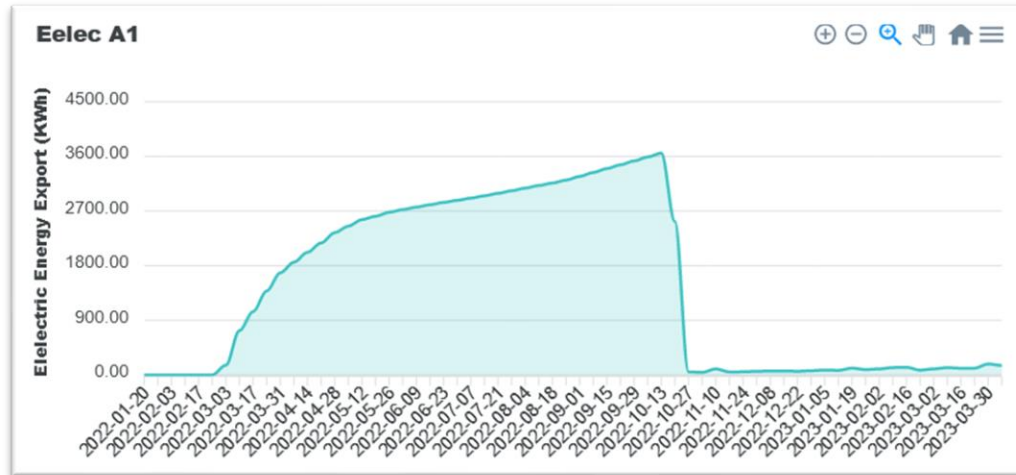


FIGURE 20: EXAMPLE CHART FOR VVV CONCERNING ENERGY CONSUMPTION AND ELECTRIC ENERGY EXPORT.

## 5.2 MODEST

MODEST is a tool that assists users in making decisions by analyzing both simulated and real-time data from building monitoring. It identifies the configuration choices that have resulted in the best key performance indicators (KPIs) selected by the user for sorting.

1. To access the MODEST part of the UI the user has to click on the first choice of the sidebar, as shown in Figure 21.

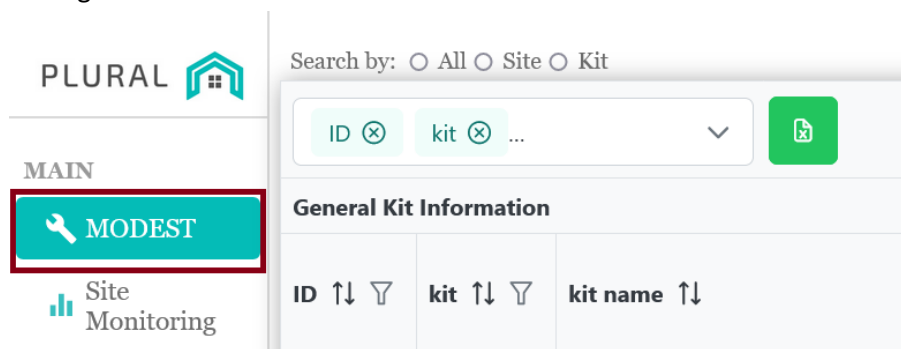



FIGURE 21: SIDEBAR, HIGHLIGHTING THE BUTTON TO ACCESS THE MODEST TOOL.

2. Then, the user is presented with the initial page of the MODEST tool (Figure 22).

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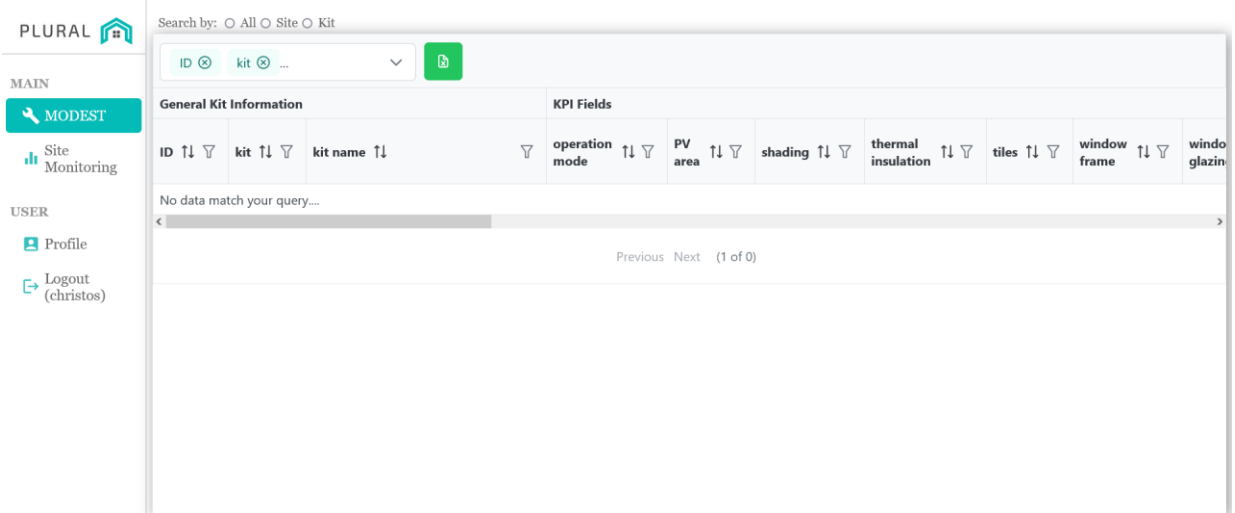


FIGURE 22: OVERVIEW OF THE INITIAL PAGE OF THE MODEST TOOL.

3. A “Search by:” option appears, as shown in Figure 23. This provides three (3) different manners of searching for results to the user.
  - a. Search by All: Displays all available PnU kits to the user (Figure 24).
  - b. Search by Site: Displays PnU kits that are used in each site (Figure 25).
  - c. Search by Kit: Displays specific PnU kit (Figure 26).

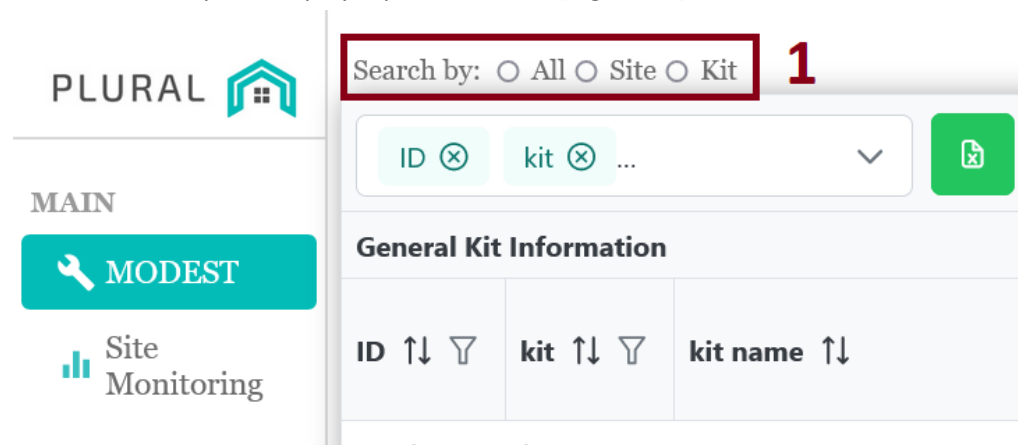


FIGURE 23: OVERVIEW OF THE “SEARCH BY” OPTION OFFERED TO THE USER.

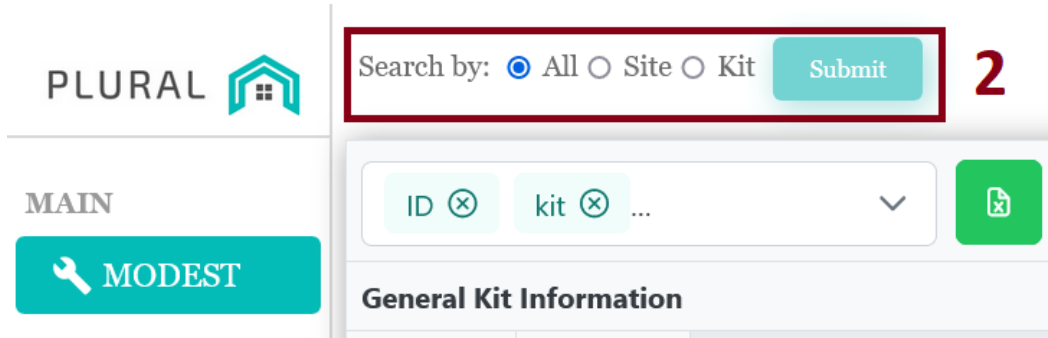


FIGURE 24: EXAMPLE OF “SEARCH BY: ALL” OPTION.

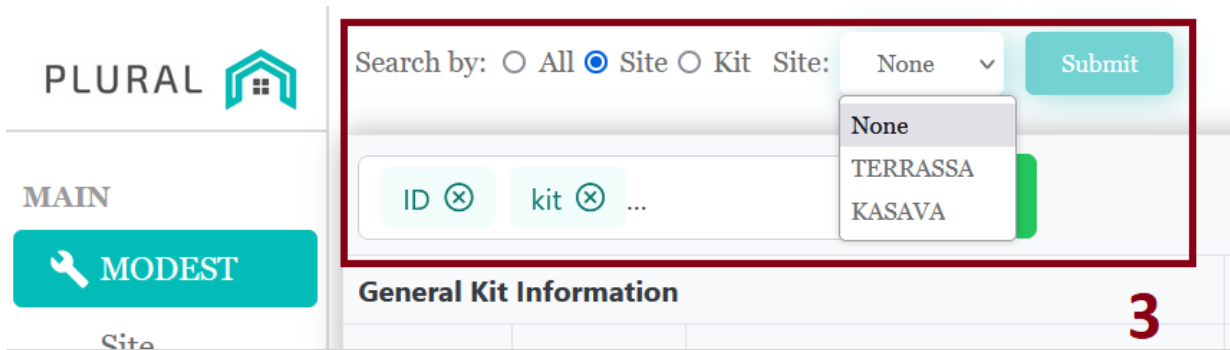


FIGURE 25: EXAMPLE OF “SEARCH BY: KIT” OPTION.

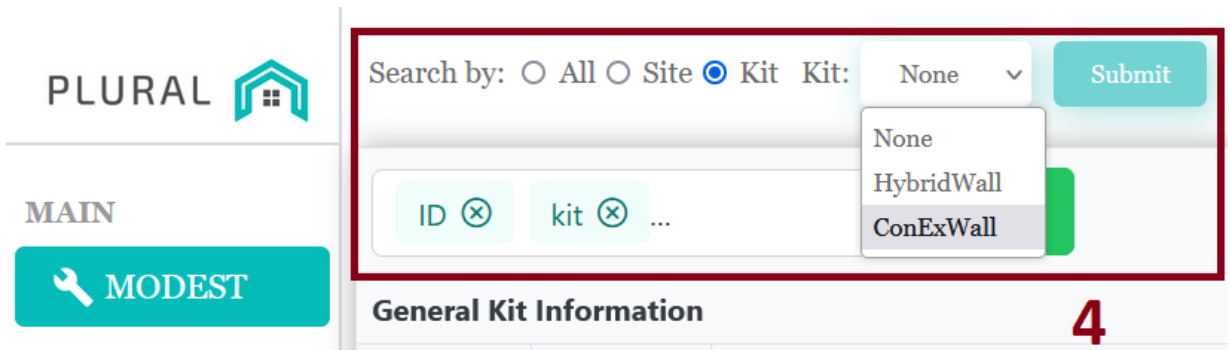



FIGURE 26: EXAMPLE OF “SEARCH BY: KIT” OPTION.

The user selects one of the above ways of searching and clicks submit. This will fetch all the PnU configurations available or those corresponding to the specific search and populate the table (Figure 27).

PLURAL 

Search by:  All  Site  Kit Kit: ConExWall

ID  ...

General Kit Information			PnU Configurations				KPI Fields		
ID	kit	kit name	insulation thickness	PV area	configuration site	Wall U value	CO2	Edhw	Edisol
481	ConExWall	KAS_019_24	100	24	KAS	0.19	-	8.07	0
482	ConExWall	KAS_019_30	100	30	KAS	0.19	-	7.83	0
483	ConExWall	KAS_019_36	100	36	KAS	0.19	-	7.39	0
484	ConExWall	KAS_019_42	100	42	KAS	0.19	-	7.32	0
485	ConExWall	KAS_019_48	100	48	KAS	0.19	-	7.12	0
486	ConExWall	KAS_017_24	140	24	KAS	0.17	-	8	0
487	ConExWall	KAS_017_30	140	30	KAS	0.17	-	7.71	0
488	ConExWall	KAS_017_36	140	36	KAS	0.17	-	7.36	0
489	ConExWall	KAS_017_42	140	42	KAS	0.17	-	7.2	0
490	ConExWall	KAS_017_48	140	48	KAS	0.17	-	7.08	0
491	ConExWall	KAS_015_24	180	24	KAS	0.15	-	7.93	0
492	ConExWall	KAS_015_30	180	30	KAS	0.15	-	7.62	0

Previous 1 Next (1 of 1)

FIGURE 27: OVERVIEW OF RESULTS AFTER SUBMISSION.



## 6. Conclusions

In conclusion, the MODEST-LYSIS UI and monitoring tool is designed to provide end users with quick and easy access to real-time metrics and analytics for the demo sites, enabling them to make informed decisions and improve user experience. The training process for this tool is comprehensive, covering data collection, analysis, visualization, and user feedback to ensure that the tool provides accurate and reliable data, and that users can easily interpret and act on the provided insights. Through live demonstrations, workshops, and guidance on user interaction with the UI, this deliverable provides a complete overview of the MODEST-LYSIS UI and monitoring tool, including its initial functionality and the planned enhancements based on user feedback. Ultimately, the deliverable serves as a valuable resource for end users with domain knowledge looking to utilize the MODEST-LYSIS UI and monitoring tool to improve their user interface and business success.





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Dissem. lvl: Public

## 7. References

Team Keycloak. (2019). *Keycloak*. <https://www.keycloak.org/>

InfluxData Inc. (2021). *Query data with Flux | InfluxDB Cloud Documentation*.

<https://docs.influxdata.com/influxdb/cloud/query-data/flux/>