Universal Enclosure / ClimaSys

ProClima Web Software

User Guide

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www.se.com

Schneider Electric

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As part of a group of responsible, inclusive companies, we are updating our communications that contain non-inclusive terminology. Until we complete this process, however, our content may still contain standardized industry terms that may be deemed inappropriate by our customers.

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Safety Information

Important Information

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of this symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates a hazardous situation which, if not avoided, **will result in** death or serious injury.

⚠ WARNING

WARNING indicates a hazardous situation which, if not avoided, **could result in** death or serious injury.

⚠ CAUTION

CAUTION indicates a hazardous situation which, if not avoided, **could result** in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained by qualified personnel only. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

About the Book

Document Scope

This guide explains how to use the ProClima Web Software.

Validity Note

This guide applies to ProClima Web Software version 9.0 or greater.
For every new version, a specific release note is available inside the ProClima Web Software release note section. This release note will describe all the changes made between one version and the next.

Online Information

The information contained in this guide is likely to be updated at any time. Schneider Electric strongly recommends that you have the most recent and up-to-date version available on www.se.com/ww/en/download.

The technical characteristics of the devices described in this guide also appear online. To access the information online, go to the Schneider Electric home page at www.se.com.

Related Documents

Title of documentation	Reference number
Universal Enclosure General Catalogue	UEMKCAT012EN
Control Panel Technical Guide	CPTG001_EN

You can download these technical publications and other technical information from our website at www.se.com/ww/en/download.

Introduction

Purpose

ProClima Web Software provides the user with an optimized thermal management solution for:

- Automation and control panels,
- Motor Control Center panels (generally with Variable Speed Drives).

ProClima Web Software takes into account variables such as temperature, humidity, sun radiation, and indoor or outdoor settings, in a nominal environment (without any dust, sand, or corrosion). If the actual conditions involve a risk of dust, sand, or corrosion, please adapt the proposed thermal solution. You can refer to the Control Panel Technical Guide CPTG001_EN and do not hesitate to contact your regular Schneider Electric sales point of contact.

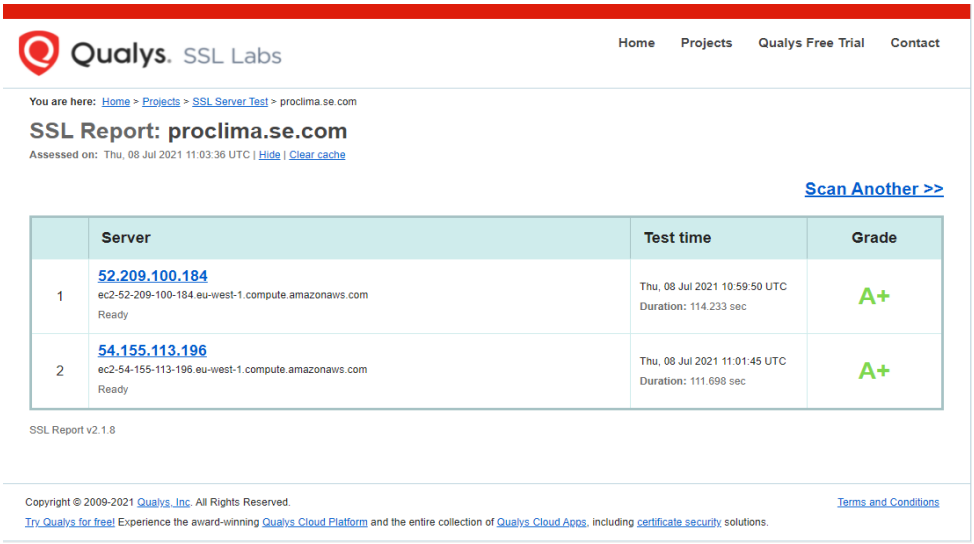
The ProClima Web Software:

- Draws up a heat balance and defines the optimized ventilation, control, heating and cooling system to match your installed equipment temperature and humidity nominal characteristics.
- Optimizes your thermal management solution to minimize under- or over-sizing of designs.

The ProClima Web Software is recommended for panel architecture without any segregation of the compartments. The heat which is taken into account is calculated for volume. This is especially adapted for automation and control, and Motor Control Center applications.

Benefits

- Web software with regular and constant online updates
- Intuitive navigation available in all browser languages
- Reports are available in English, French, Spanish, German, Polish, Russian and Italian
- Cybersecurity level: A+



- Energy efficiency criteria used
- Analyze different thermal options in one enclosure
- CAD files available for enclosures, cooling units and heat exchangers devices
- Enclosures drawings illustrate the design of your installation
- A dimensional checklist is drawn up to help ensure the solution is compatible with your enclosure size
- Download useful technical documentation
- Get a complete final thermal report and add your own company logo to it

Applications

- Indoor and outdoor installations
- Infrastructures
- Automotive industries
- Original Equipment Manufacturers (OEMs)

Architectures

- Automation and control industry
- Electrical distribution (Generally on Motor Control Center panels with Variable Speed Drives)

ProClima Web Software Installation

System Requirements

- No specific requirements
- Available on PC, laptop, smartphone, and tablet
- Printer
- Internet connection
- Any browser can be used, but Google Chrome is recommended.

Access and Registration

Access

- Web address: https://proclima.se.com/

Registration

- Global Schneider Electric login (IDentity Management System) has to be used
- If not previously completed, simply follow the registration path that will appear automatically

Software Update

The ProClima Web Software will be automatically updated online every new version release.

Create a Project

The Home page the default page used to create a new project.

To create a new project, you have to complete the following windows:

- Project Data: enter the general information of the project
- Enclosure: select the desired enclosure
- Temperature: enter the temperature data
- Dissipated power: enter the dissipated power generated by the electronic devices
- Thermal solution: select the thermal solution for your enclosure
- Results: output of the results obtained
- Reports: reports generated

NOTICE

INCORRECT RESULTS

Use ProClima Web Software for panel architecture without any segregation of the compartment.

Failure to follow these instructions can result in incorrect results.

THERMAL CONDITIONS

ProClima Web Software takes into account variables such as Temperature, Humidity, Sun radiation, and Indoor or outdoor settings, in a nominal environment (without any dust, sand, nor corrosion). If the actual conditions involve a risk of dust, sand, or corrosion, please adapt the proposed Thermal solution. You can refer to the Thermal management Technical Guide: CPTG001_EN
and please do not hesitate to contact your regular Schneider sales point of contact.

Project Data

In the **Project Data** window, the user can specify the information about the project.

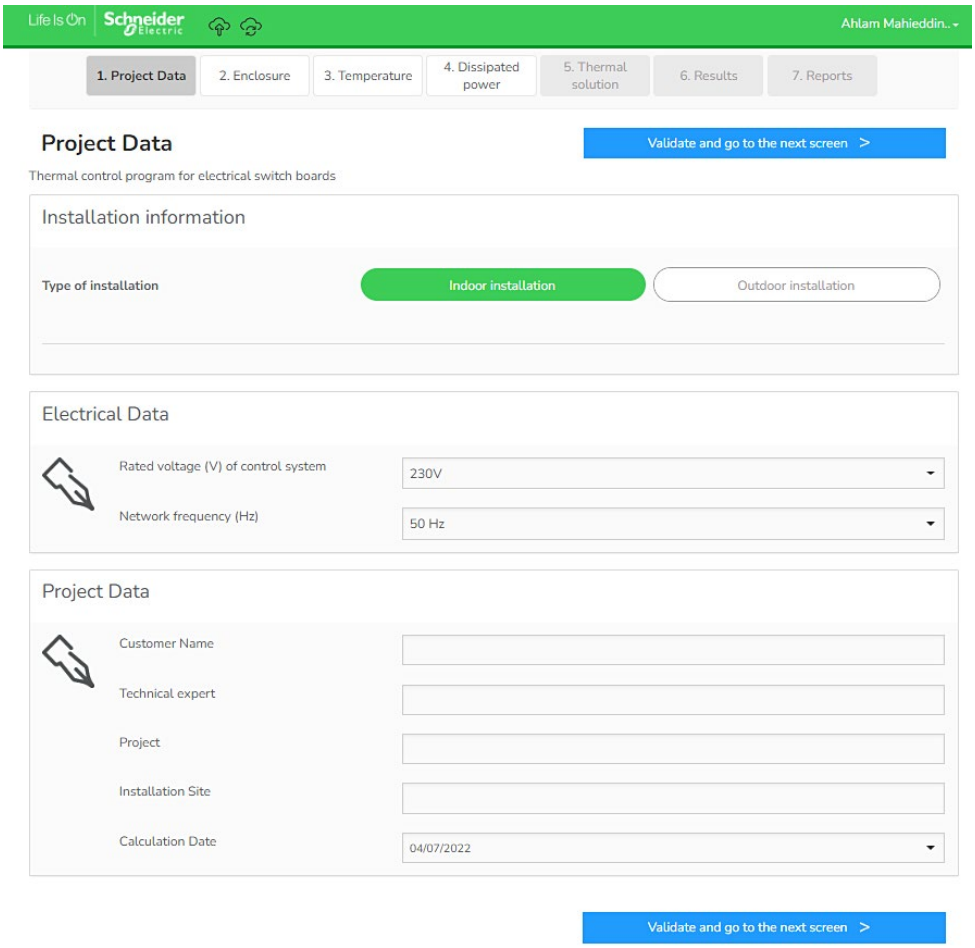
It is necessary to indicate if the project will be placed in indoor or outdoor in the **Type of installation** section. This will affect the variables and calculations, by proposing only outdoor Thermal solutions in case outdoor Type of installation is selected.

Please note the following exception: in case of outdoor **Type of installation** is selected, and if in the Enclosure window (see next pages), indoor Schneider Electric enclosure is selected, added to the outdoor Thermal solution, ProClima Web Software may also propose some indoor Thermal solution. It's the user responsibility to ensure that the real installation of an indoor enclosure equipped with an indoor Thermal solution will be suitable for an outdoor type of installation.

The user has to specify the rated voltage of the cooling system installed/desired as well as the network frequency (this changes depending on the country) in the **Electrical data** section.

In the **Project Data** section, the user can specify the name of the customer, the project name, the location and date, but this part is not compulsory.

This information will appear in the final report that ProClima Web Software will generate.



Enclosure

In the **Enclosure** window, the users have to specify the kind of enclosure that they want to use in order to perform the thermal calculation.

ProClima Web Software offers a database with all the models and sizes of Schneider Electric enclosures which are classified in two families, Thalassa (polyester enclosures) and Spacial (steel enclosures).

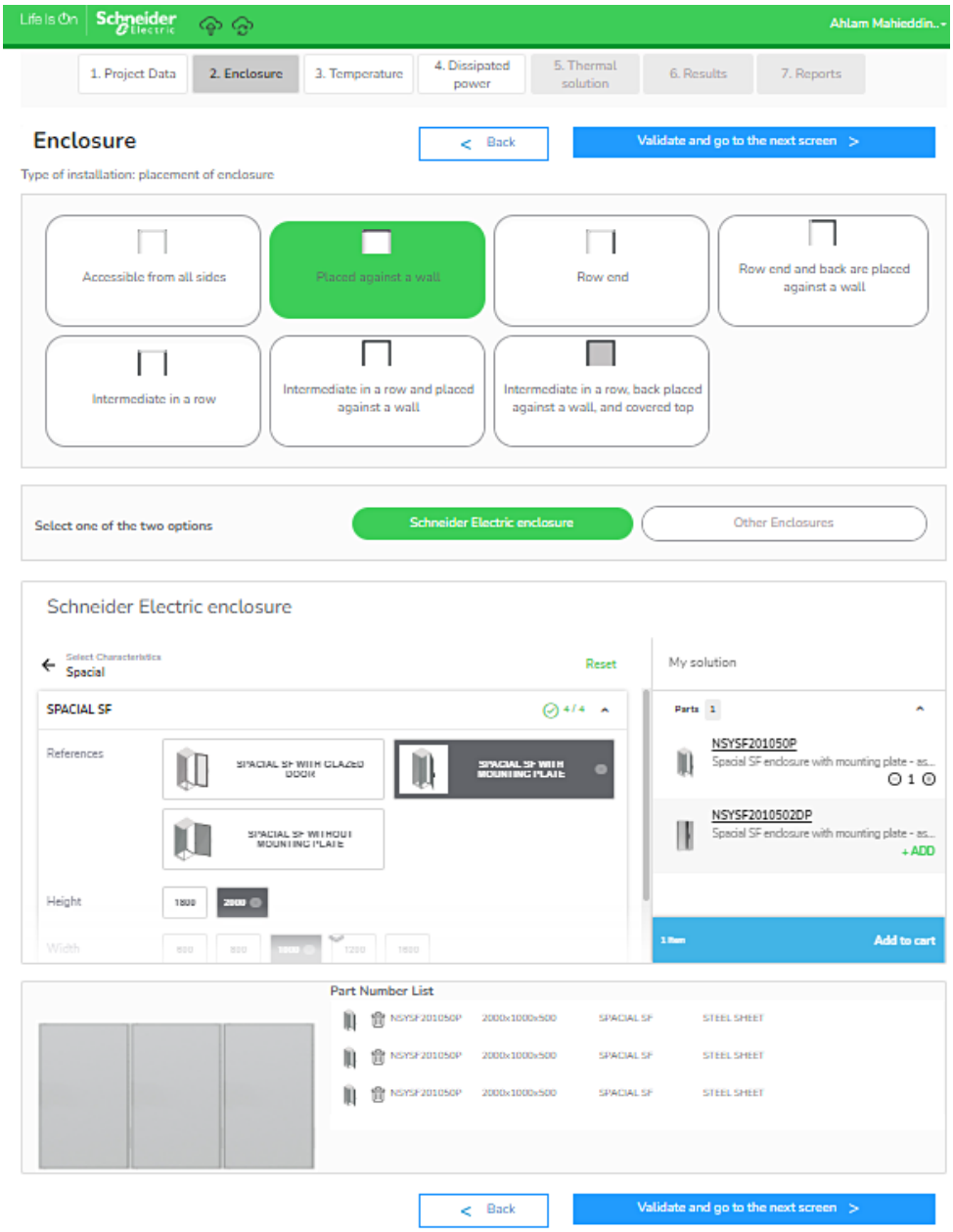
The software also allows the user to define other enclosures by entering additional information manually, such as the dimensions and the material of the enclosure, in the **Other Enclosures** section.

The next step consists in choosing the position of the enclosure in relation to the room walls depending on its mode of installation in the **Type of installation: placement of enclosure** section at the top of the window.

Once the specifications have been completed, the user should add the selected enclosure to the **Selected enclosures basket** clicking on the **Add to cart** button.

Every reference quantity can be increased or decreased by clicking on the ⊖ and ⊕ buttons.

NOTE: in case of a quantity greater than one, ProClima Web Software only considers the overall volume in the thermal calculation (as if there were, no compartment between all the enclosures).



In this example, we have one panel with three enclosures.
Here, ProClima Web Software considers it as one single volume. One project has to be created for every volume.

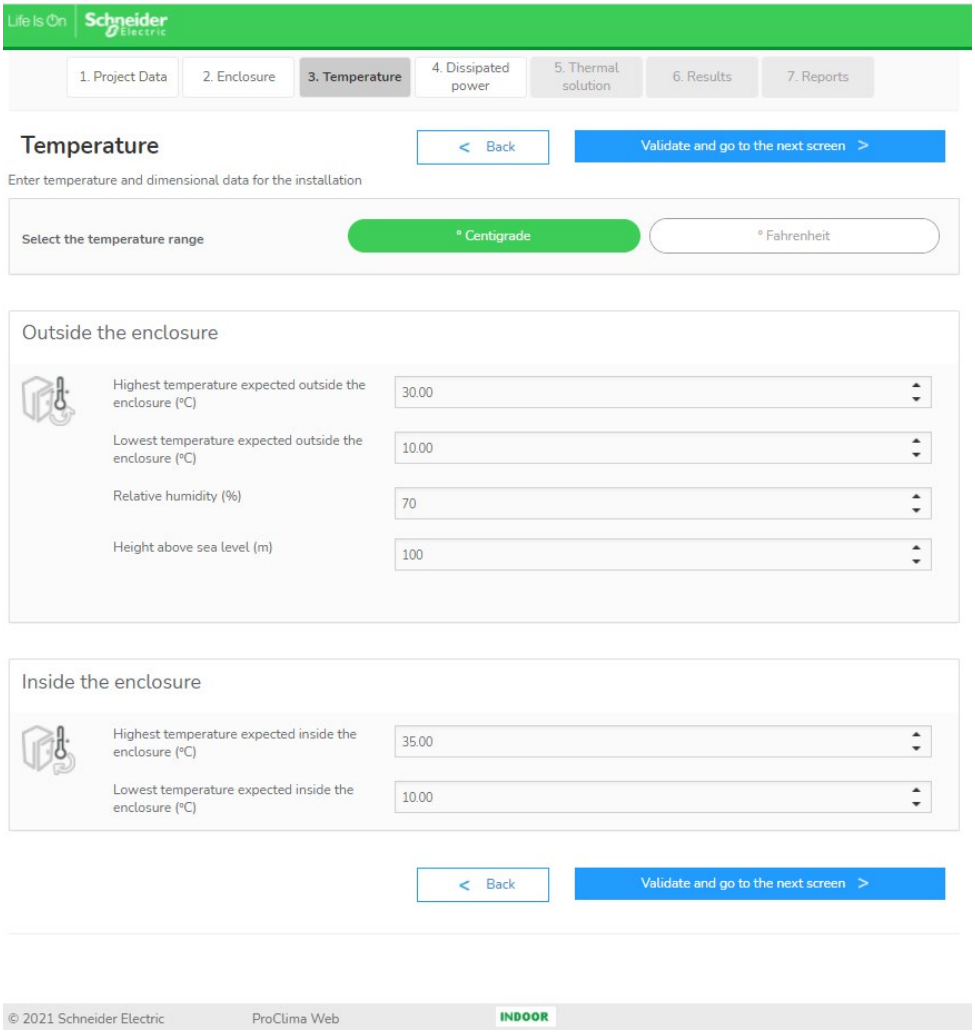
Temperature

In the **Temperature** window, the user has to enter the temperature data.

There are three modes for entering the data:

Manual

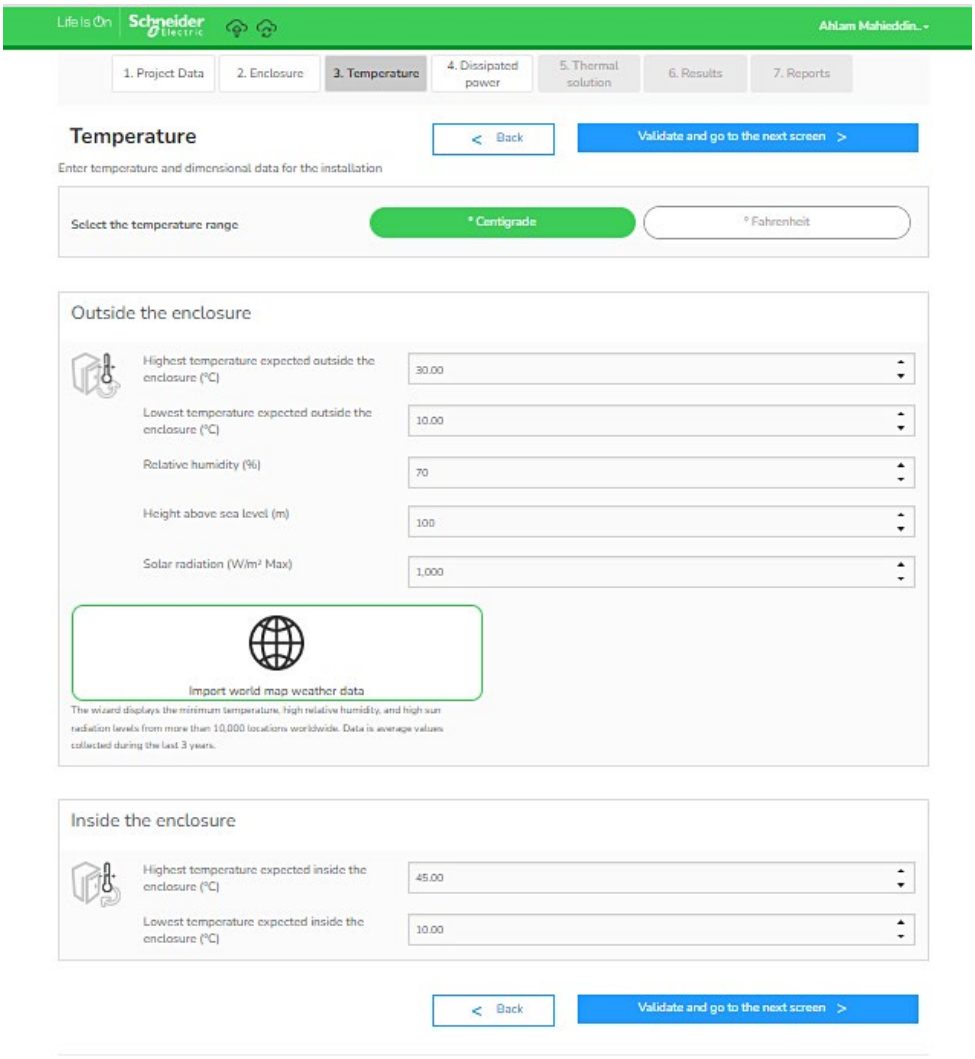
The user can specify the maximum and minimum temperatures, and humidity outside the enclosure in addition to the height above sea level and the maximum and minimum temperatures expected inside the enclosure.



Import thermal data from the World map (only for outdoor projects)

If the user has selected that the enclosure will be placed in an outdoor area in the **Project Data** window, in the **Temperature** window it will appear the option to import the thermal data from the World map weather data.

ProClima Web Software has a wide global database with more than 10,000 weather stations all over the world which provides temperature, humidity and elevation data when the user selects the weather station that is closest to the location of the enclosure through the Google maps application.

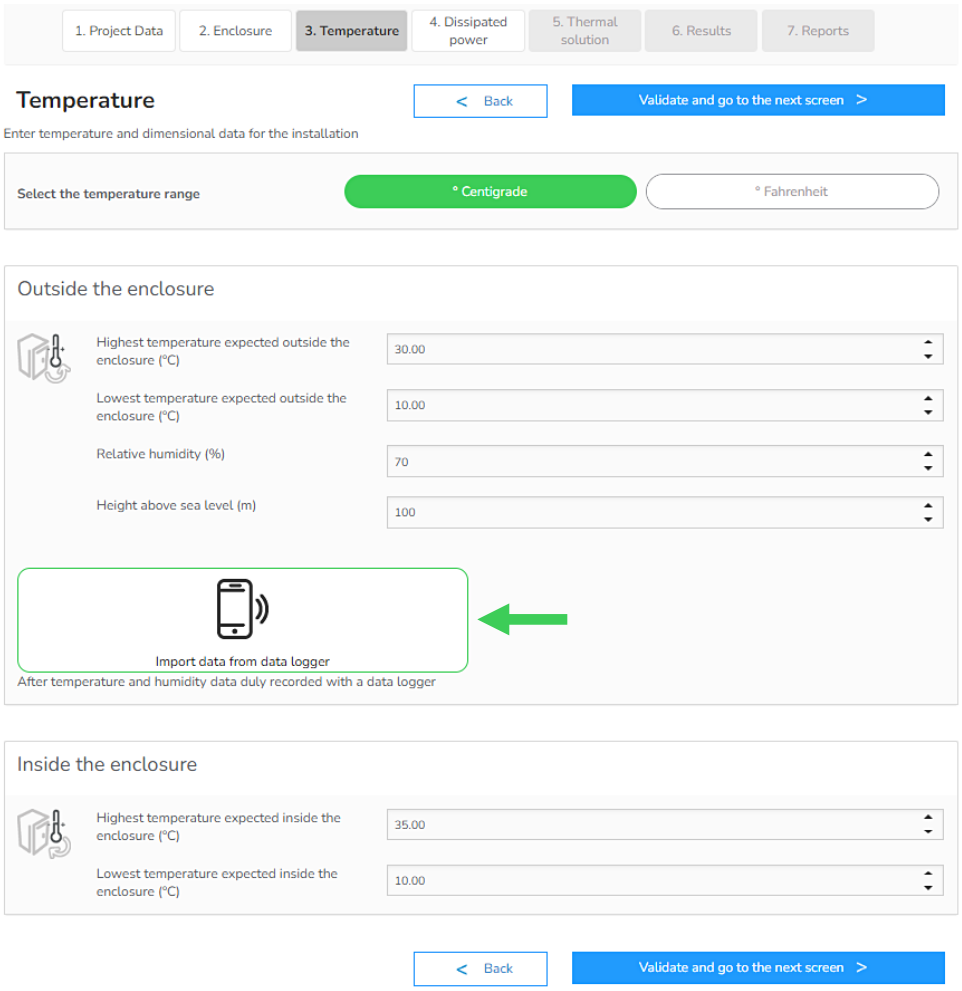


Import thermal data from a datalogger

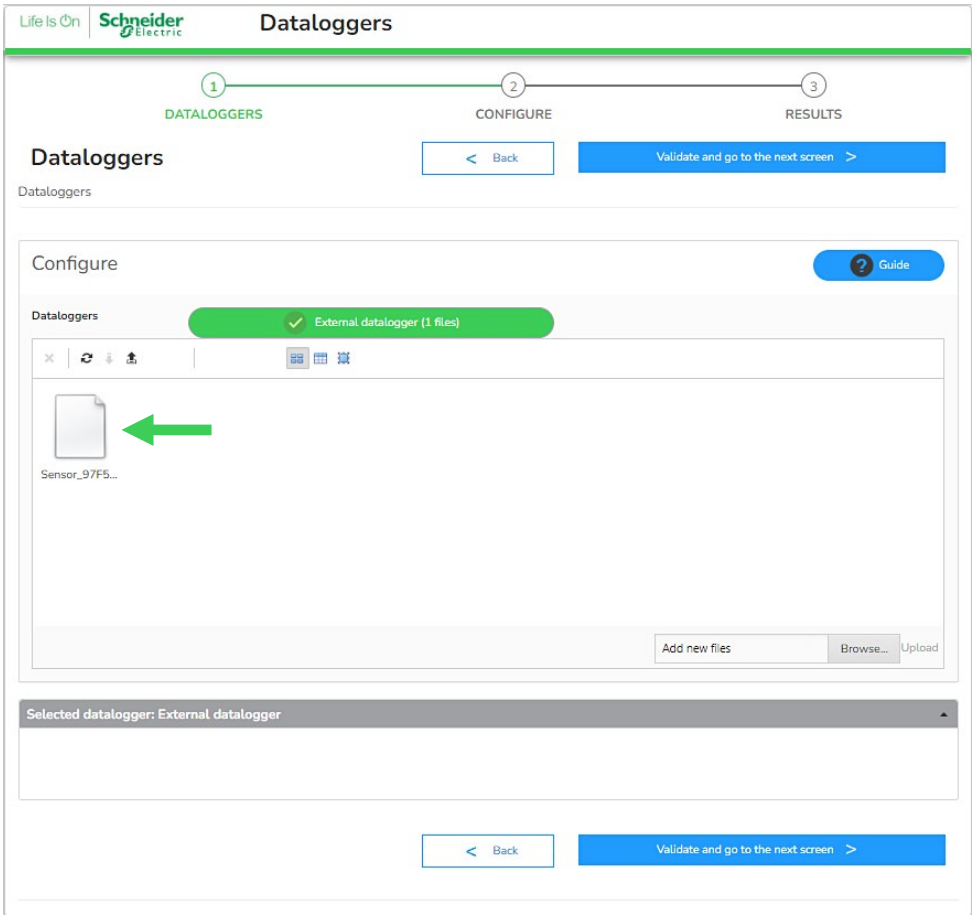
This function is applicable to any datalogger sold on the market (provided that the datalogger file has the correct format as described below).

The datalogger should be situated outside the enclosure during data registration

- **Click on the datalogger button**



- **Import file by drag & drop, or by selecting the file**



Datalogger files must be a CSV file.

Two formats are allowed.

First format allowed:

First line is the description of the columns in the file

Data is separated by ,

Data is inside “”

Four items of data in every row: time, temperature, humidity, notes

Format of the time is: year/month/day hour:minute:second

Character for decimals is,

Example of this format file:

time, temperature "(C)", "humidity", "note"

2022/04/06 09:38:42,"27,63","34,3",""

2022/04/06 09:48:42,"22,56","32,1",""

Second format allowed:

First line is the description of the columns in the file

Data is separated by,

Three items of data in every row: time, temperature, humidity

Format of the time is: year-month-day hour:minute:second

Character for decimals is.

Example of this format file:

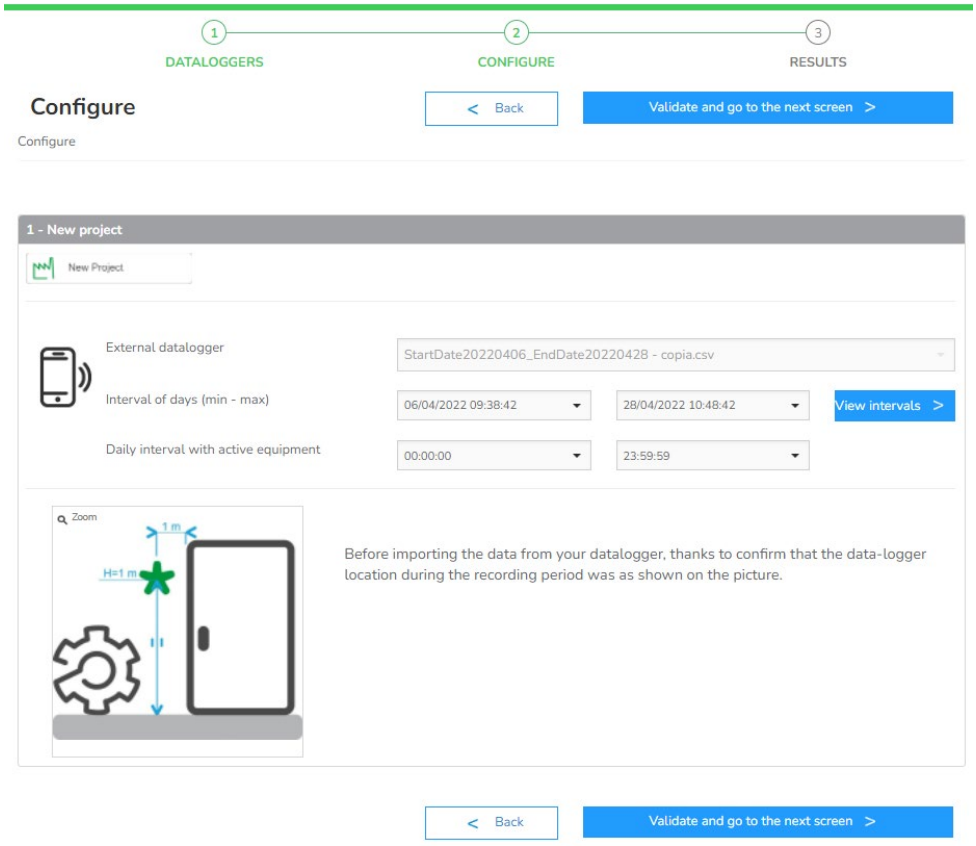
Time, Temperature_Celsius, Humidity,

2021-07-16 15:43:00,26,54.5

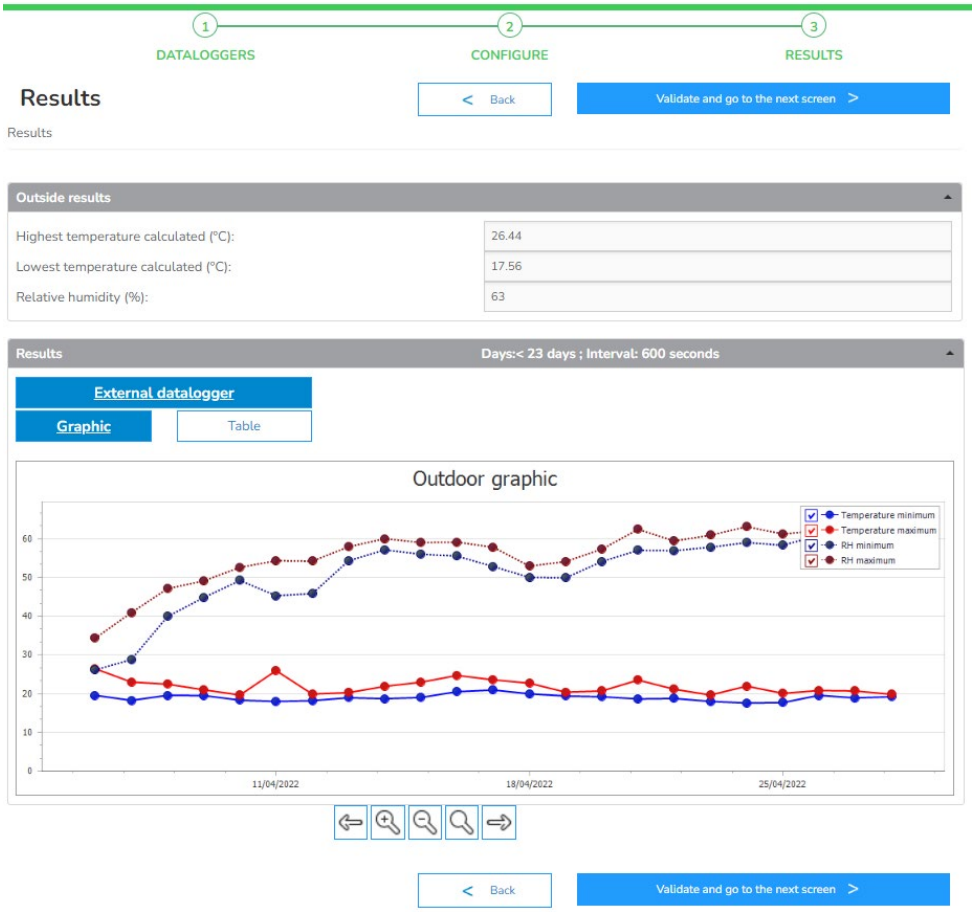
2021-07-16 15:44:00,26.1,54.9

- **Select intervals option**

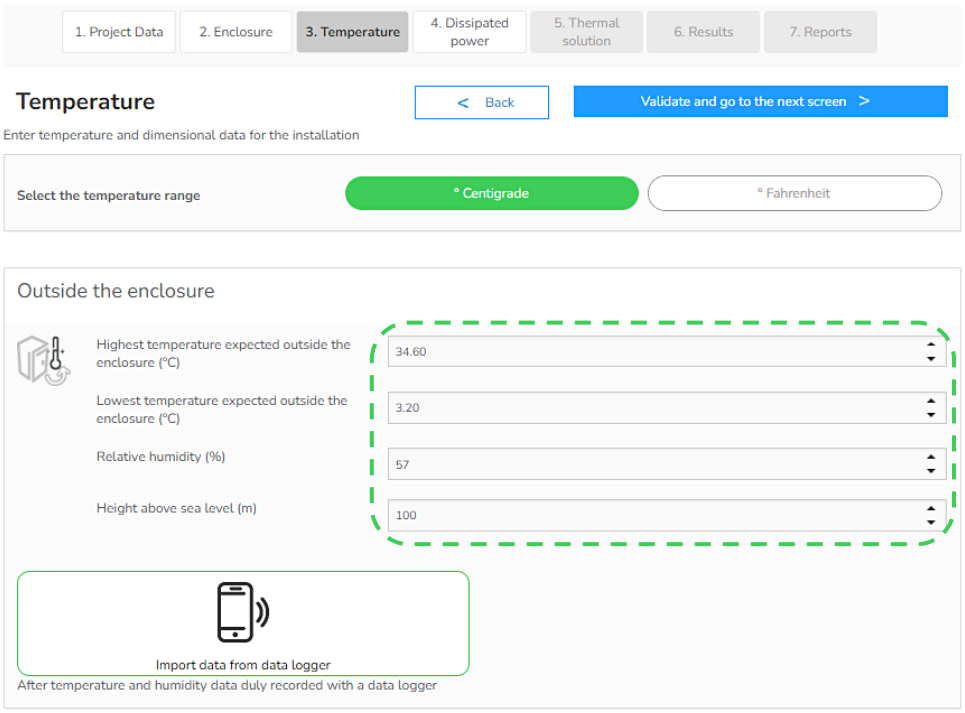
If the file has several data intervals, the users have the option to select only some intervals, based on their own choice.



- **Check data and validate to save data to the project**



- **New data from imported file**



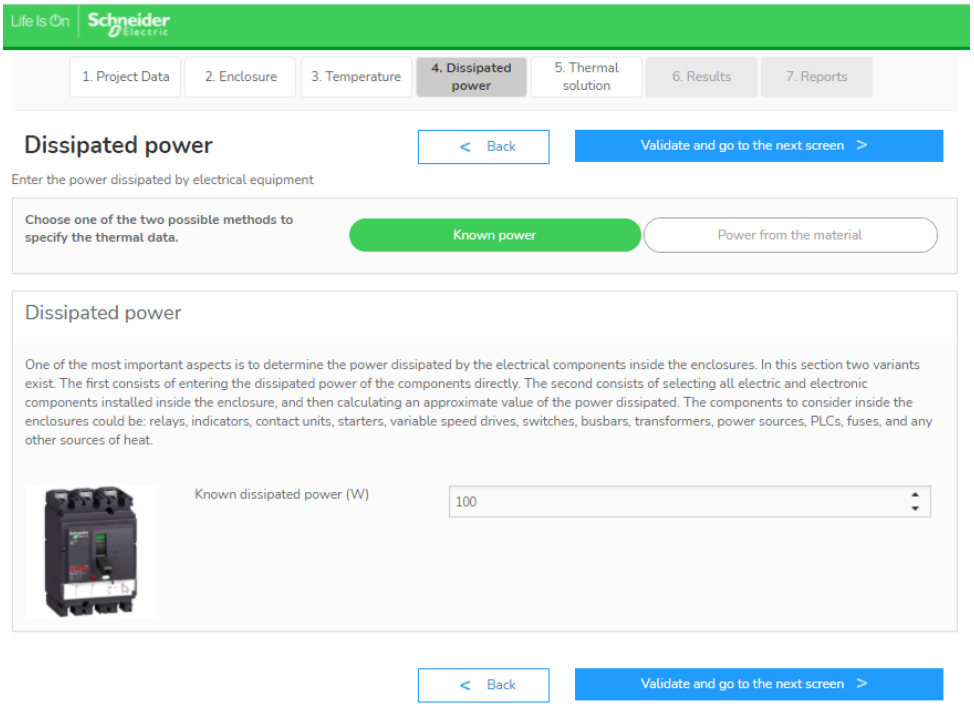
Dissipated Power

The thermal balance, which consists in comparing the released power of the electric and electronic devices and the power released by the walls of the enclosure, allows us to calculate the temperature on the inside of the enclosure without a thermal solution installed, and to determine whether its installation is necessary considering the external and internal temperatures.

The dissipated power can be obtained from three methods:

Known power

This is entered directly as the dissipated power known by the user (per thermal volume calculated with one or several enclosures).



Power from the material calculation

If the users know which electric and electronic components will be placed inside the project's enclosures, they can obtain their dissipated power by selecting them in the Schneider Electric database provided.

From the list of components specified by the user, the software will calculate the dissipated power.

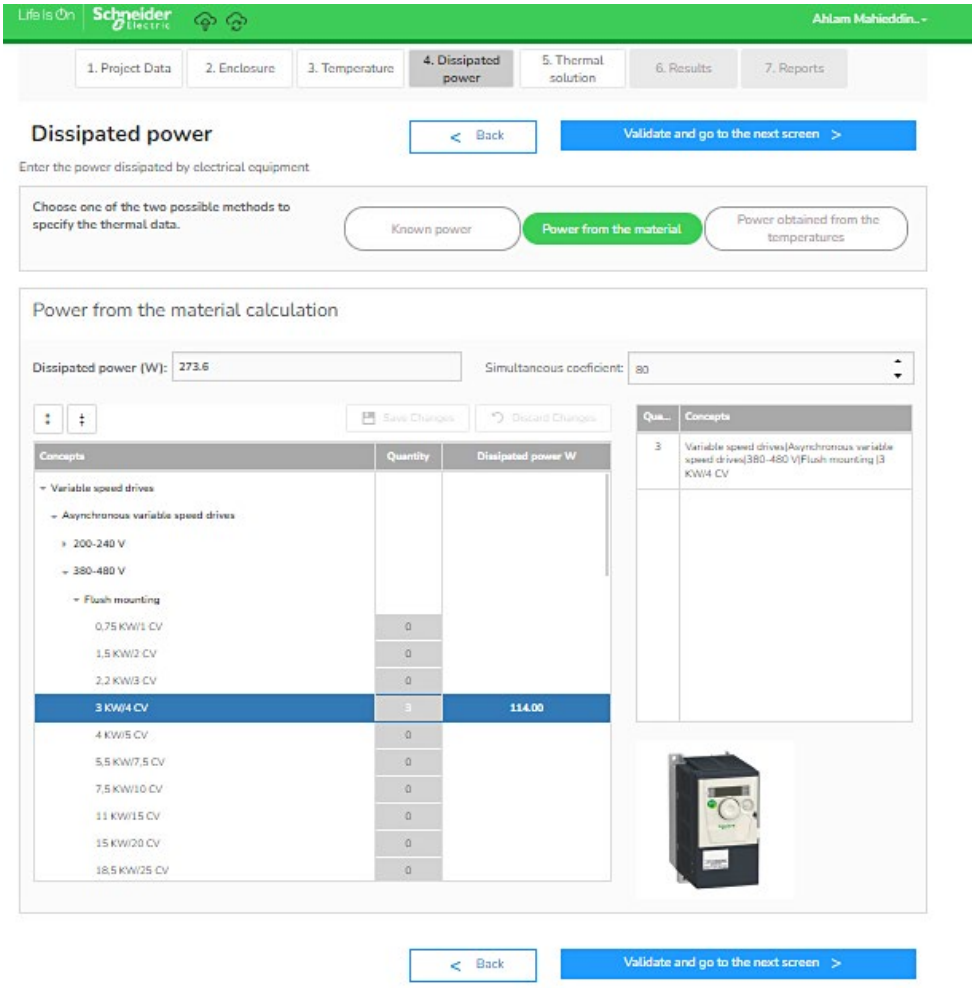
The components included in the database are:

- Variable speed drives
- Circuit breakers
- Contactors
- Starters
- Busbars
- Fuses
- Transformers
- Power supplies
- Programmable controllers
- Relays
- Indicators
- Other heat sources

In the left side of the window, the Schneider Electric electric/electronic devices database is displayed.

After having selected the device, the user needs to specify the device quantity in the quantity column. Once done, and before moving to next step, the user has to save the device configuration by clicking on the **Save Changes** button.

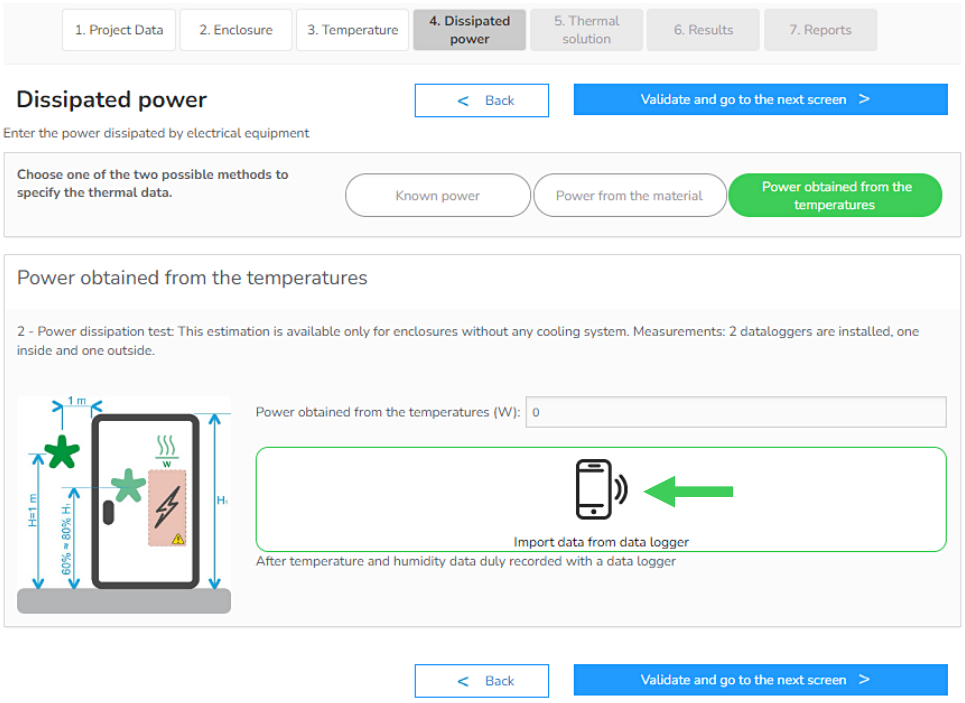
When the user selects a device in the other heat sources, added to the device quantity, the dissipated power also has to be specified.



Power calculated with imported thermal data from dataloggers

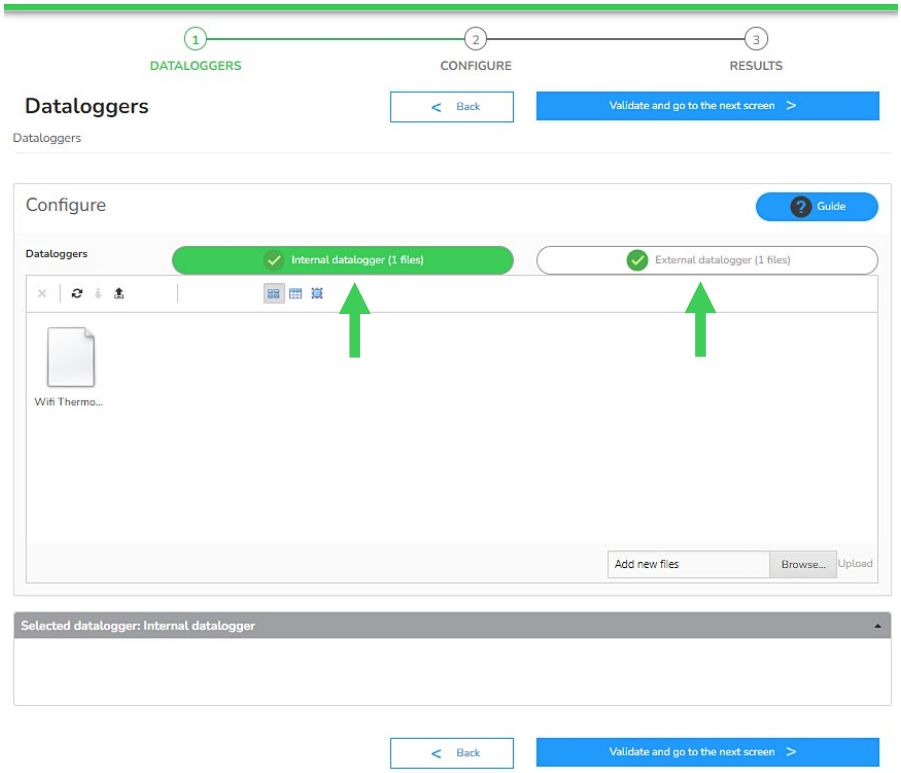
This function is applicable to any dataloggers sold on the market (provided that the datalogger file has the correct format as described below).

For this function, two dataloggers have to be used (one outside the enclosure and one inside the enclosure).

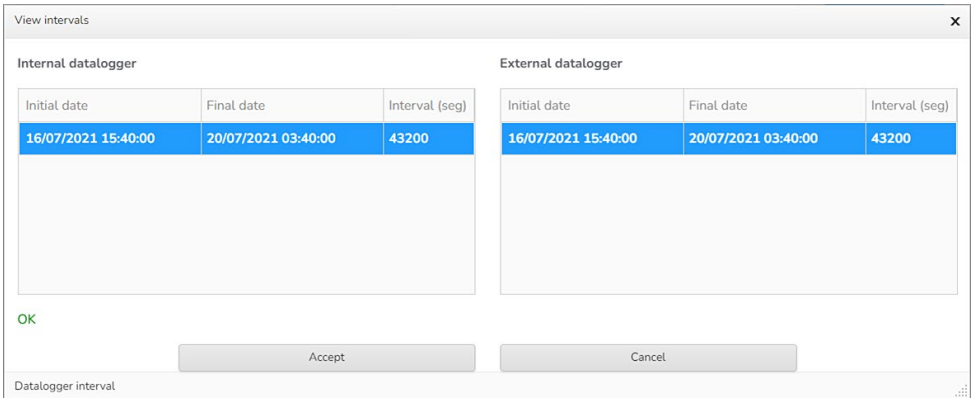


- **Import file by drag & drop, or by selecting the file**

Import one file for the internal datalogger, and the other file for the external datalogger. Datalogger files must be a CSV file. Two formats are allowed, as explained in the chapter Import thermal data from a datalogger.

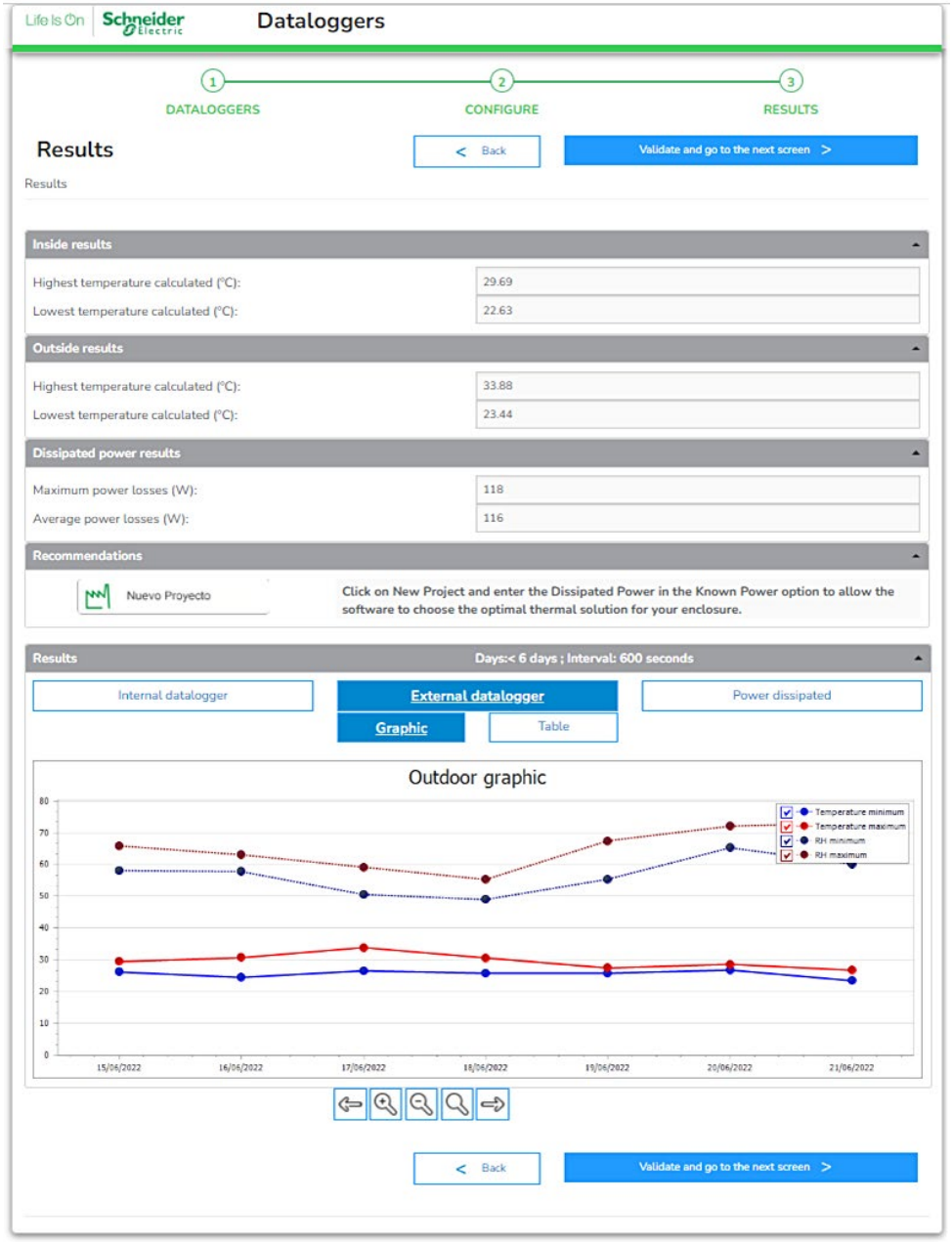


- **Select intervals if needed**

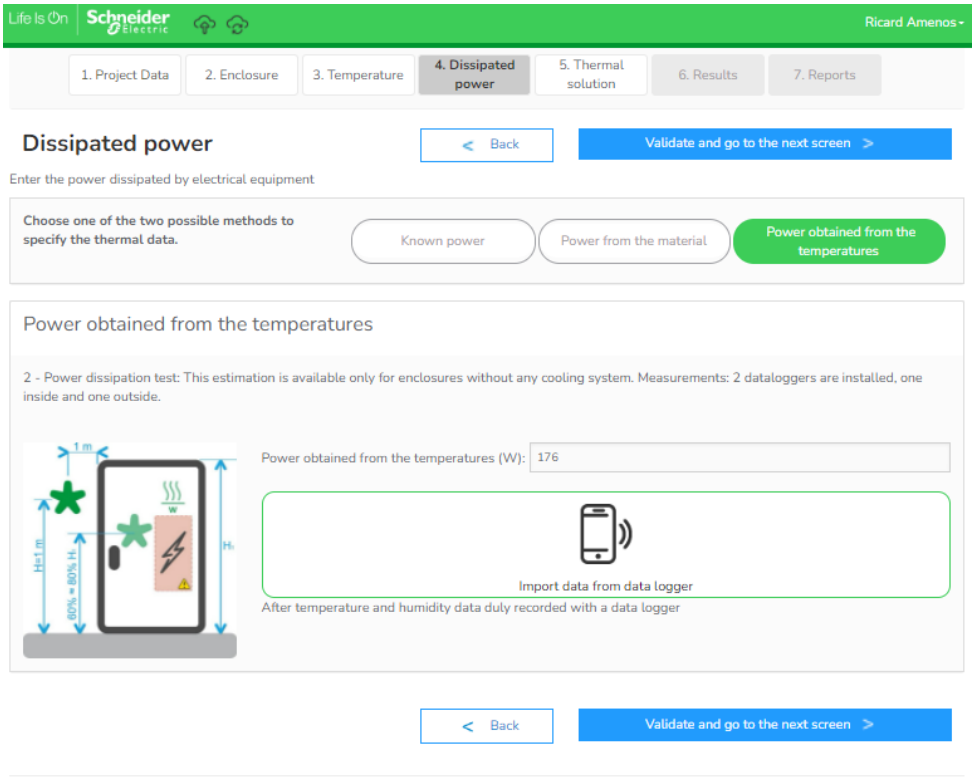


If the file has several data intervals, the users have the option to select only some intervals, based on their own choice.

- **Check data for dataloggers and power lost.**



- **Import Power data into the project.**



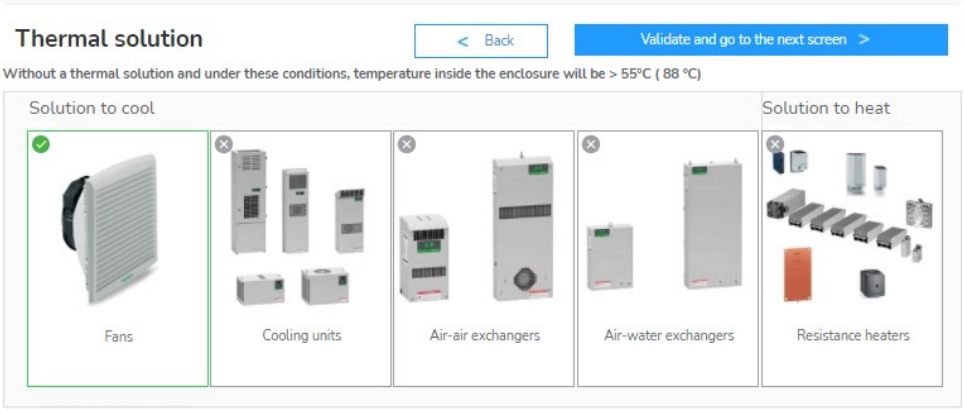
Thermal Solution

The **Thermal Solution** window allows the users to select the kind of thermal solution that they would like to use in the enclosure. The available thermal management solutions in the software are:

- Fans
- Cooling units
- Air-water exchangers
- Air-air exchangers
- Heaters

The user can also specify whether they want to use controllers such as thermostats or hygrometers with the chosen thermal solution.

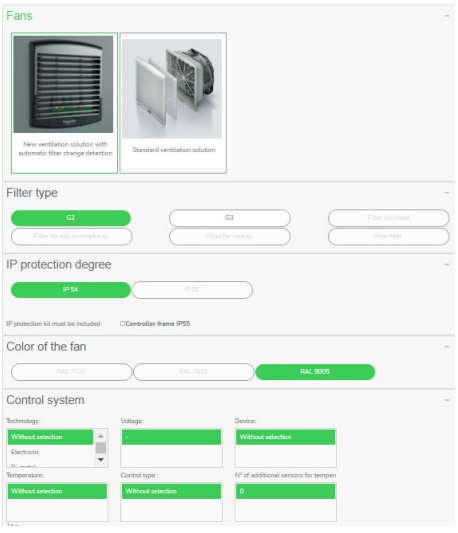
In this new version, a number of different thermal solutions can be selected in the same window to facilitate their comparison:



As shown, the software is providing the temperature that would be reached inside the panel in case of no thermal solution.

Once the thermal solution is selected, some thermal solution options will be shown at the bottom of the window, which will change depending on the solution chosen (model, flow, color, control system, certifications, water temperature…).

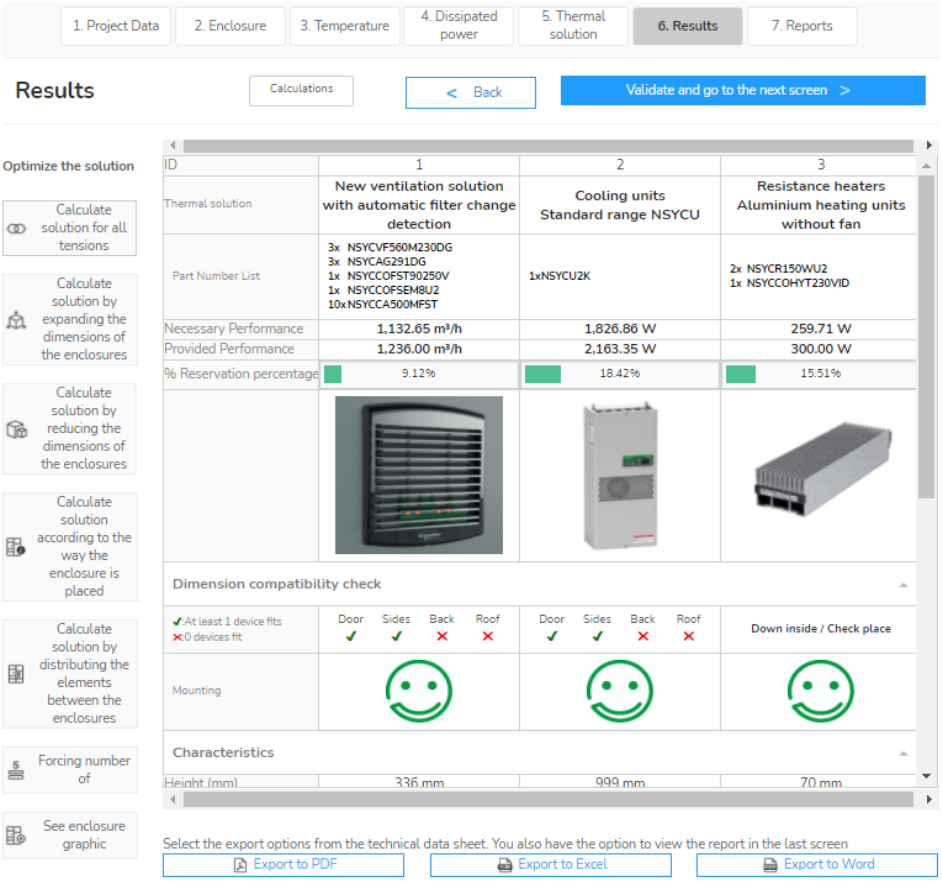
The example shown here gives the different options that appear when the user selects a thermal solution (ventilation or fans in this case):



Results

Once the thermal data is entered and the desired thermal solution is chosen, the software will perform the appropriate calculations to show the optimal results in the **Results** window, where ProClima Web Software will propose the optimal thermal solution inside the specified range, as well as the main characteristics of the equipment chosen.

For the same thermal problem, ProClima Web Software may suggest multiple solutions and provide a comparison between them.



The **reservation percentage** of the thermal solution is calculated automatically.
The **reservation percentage** is the capability of a solution to deliver more or less power than the theoretical thermal power strictly required, in accordance with the conditions defined by the user.
The calculated percentage is equal to the ratio of the cooling/heating power divided by the required theoretical power.
This percentage is useful in case of future installation upgrades and/or in case a solution is selected and optimized and the selection requires adjustment.

The **Result** window is divided in two main sections.

The one on the left is the Optimize the solution menu, which shows multiple optimization options for the thermal solution. Corresponding enclosures are proposed iteratively.

The next one shows the different solutions proposed by ProClima Web Software with their dimensions and technical characteristics.

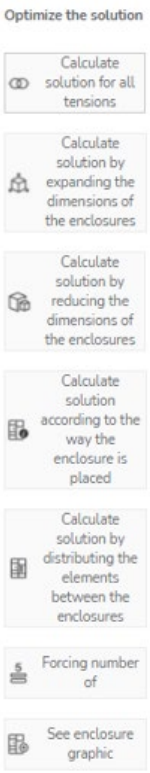
✓ At least 1 device fits: this means that for one enclosure, it will be possible to install at least one device.

× 0 device fits: this means that for one enclosure, no devices can be installed.

Smiley (green or red): this means that all the required devices can be installed at the panel level (with one or several enclosures).

Solution Optimization Iteration

The proposed thermal solution can be optimized by using this menu (with one or several iterations, including by using some passive solutions):



> Voltage change iteration

> Enclosure volume increase (passive solution)

> Enclosure volume compactness increase (passive solution)

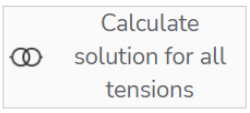
> Enclosure installation type impact

> Distribution of thermal solutions between enclosures

> Thermal equipment multiplier

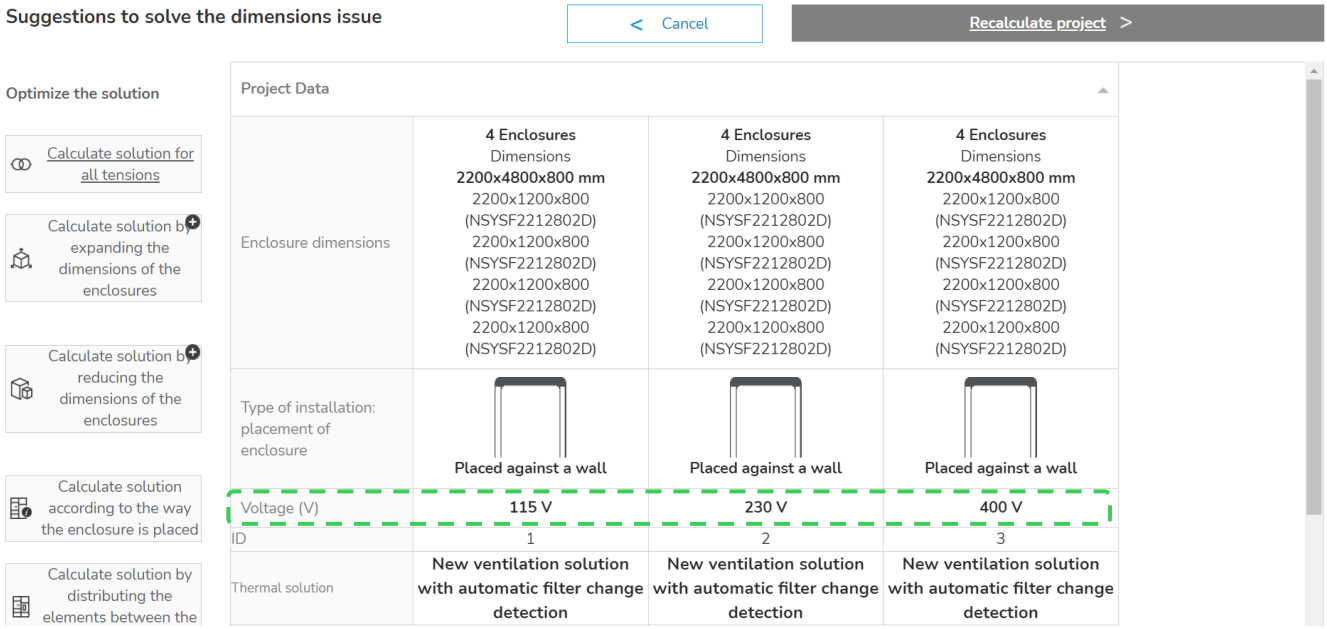
> Schematic of proposed solution

Voltage Change Iteration

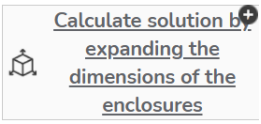


In this option, it is possible to display different solutions for different voltages for a thermal solution (cooling units, for example).

For example, in cooling equipment with high cooling power, three-phase compressors are used.

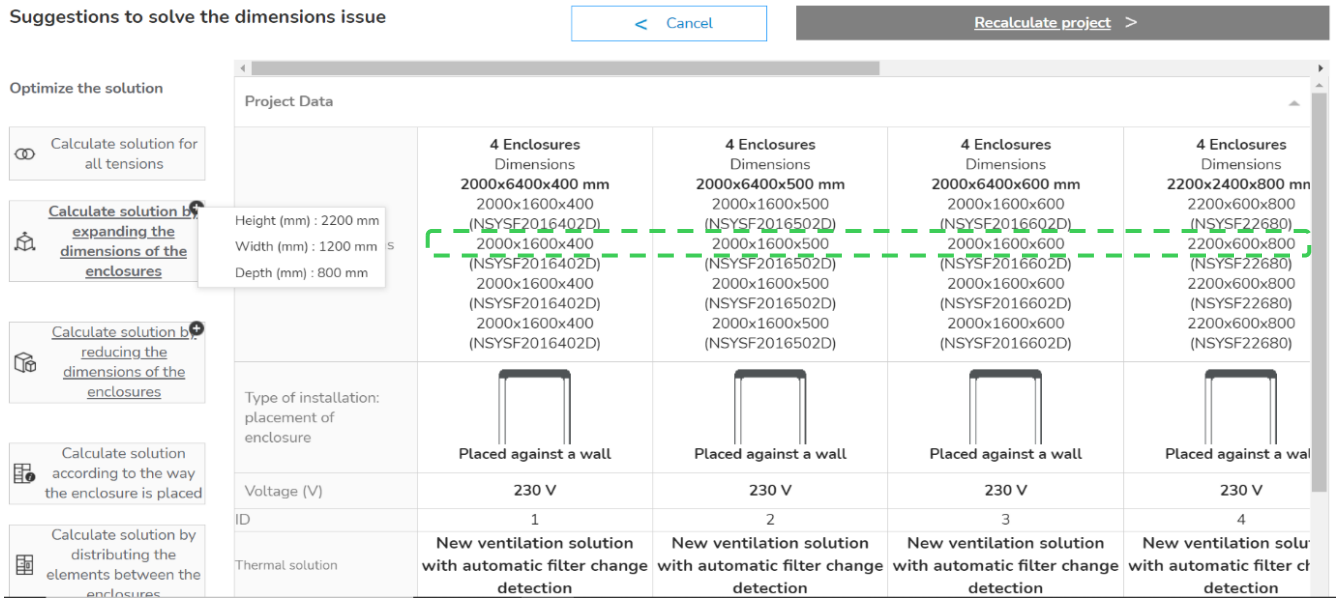


Enclosure Volume Increase (Passive Solution)

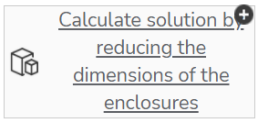


This is used to propose and evaluate different dimensional solutions within the same family of enclosures.

In this option, it is possible to change the dimensions of the enclosure and recalculate the solution with the new size. Moreover, you can fix the height, width and depth of the enclosure by clicking the ⊕ button.

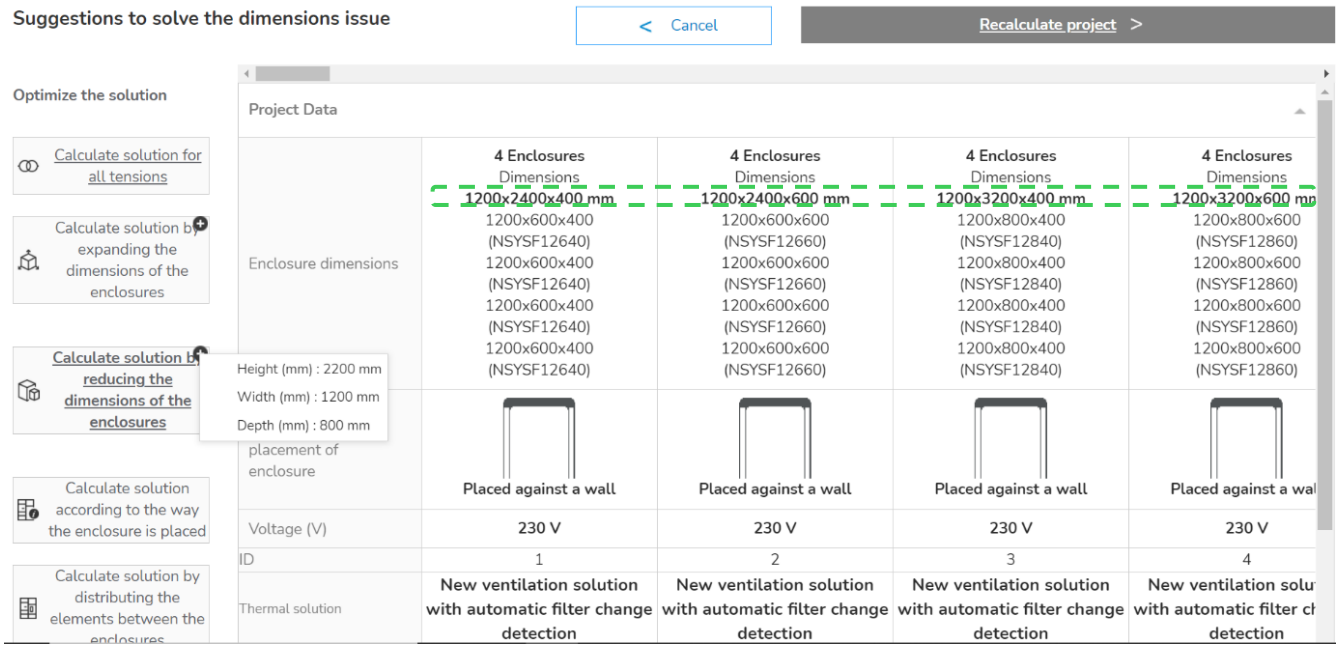


Enclosure Volume Compactness Increase (Passive Solution)



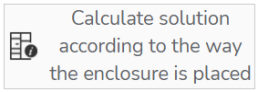
In the case customers want to improve their Capital Expenditure (CAPEX) and reduce the enclosure footprint, new reduced dimensions with the thermal solution calculated are proposed.

Again, you can fix the height, width and depth of the enclosure by clicking the ⊕ button.

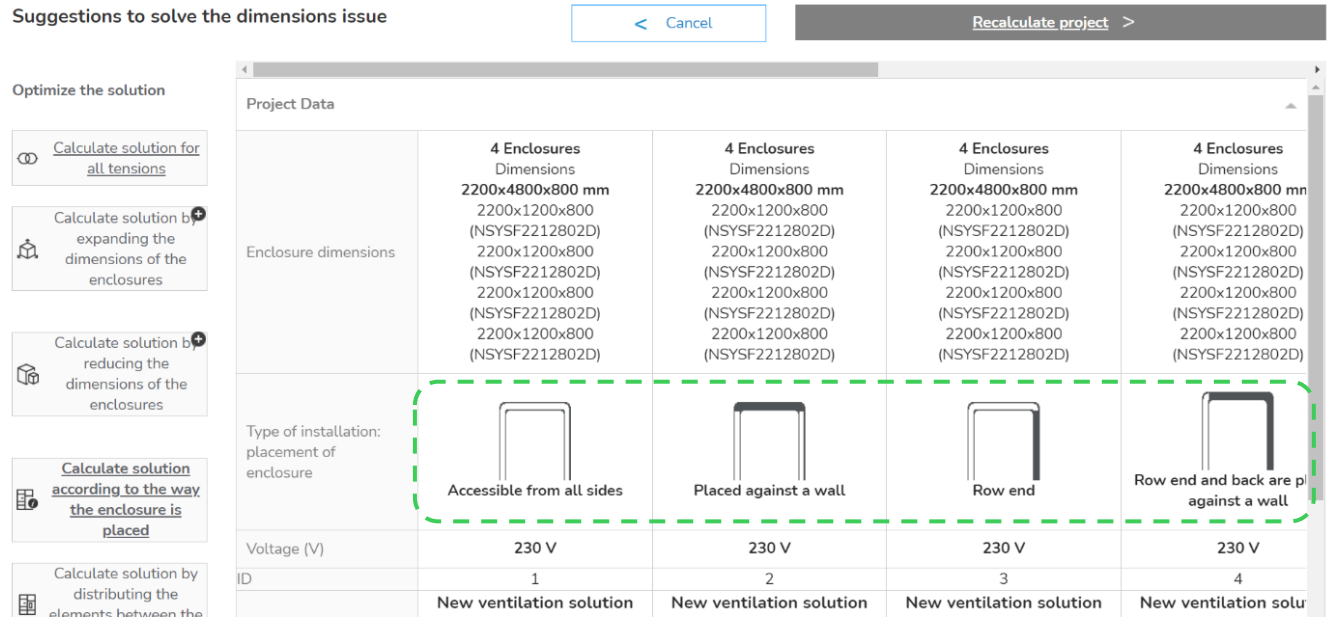


You can also use the function "*Calculate solution by expanding the dimensions of the enclosures*". This function is available in the "*optimize the solution*" menu on the left side of the window. This function proposes and evaluates different dimensional solutions within the same family of enclosures.

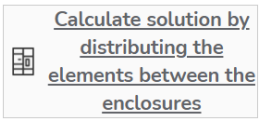
Enclosure Installation Type Impact



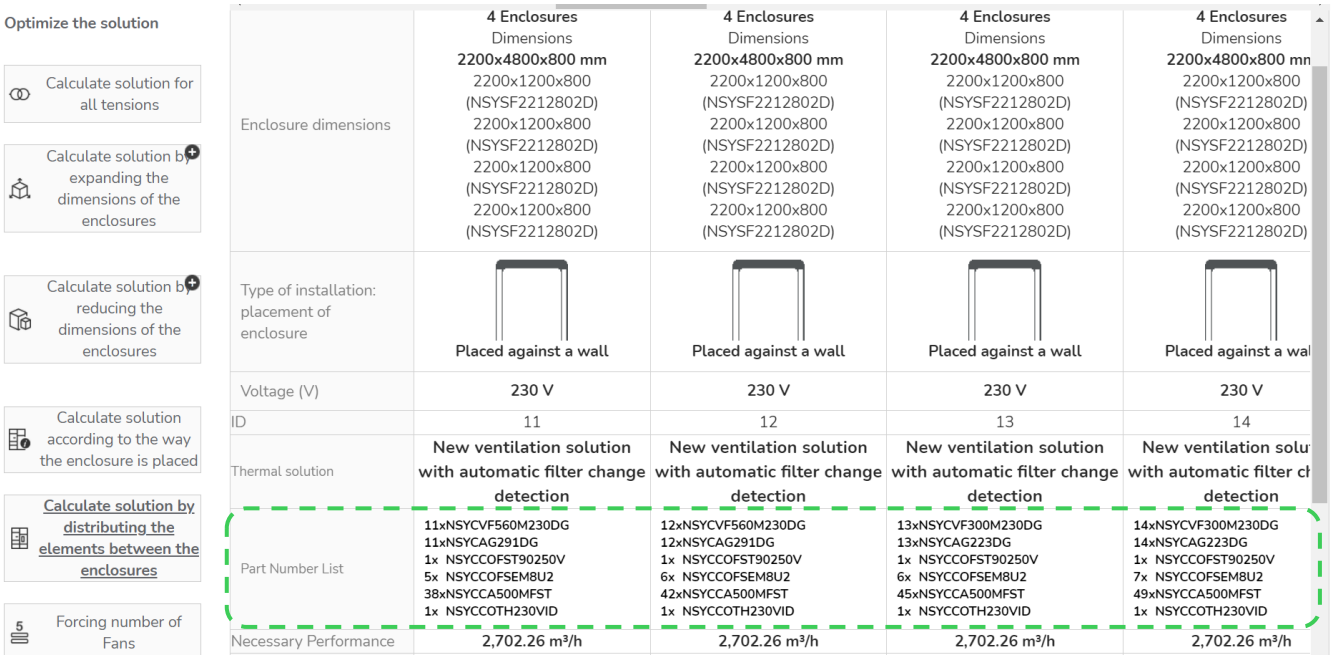
In this option, different solution options for different positions of the enclosure or set of enclosures are shown.



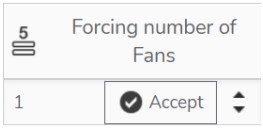
Distribution of Thermal Solutions Between Enclosures



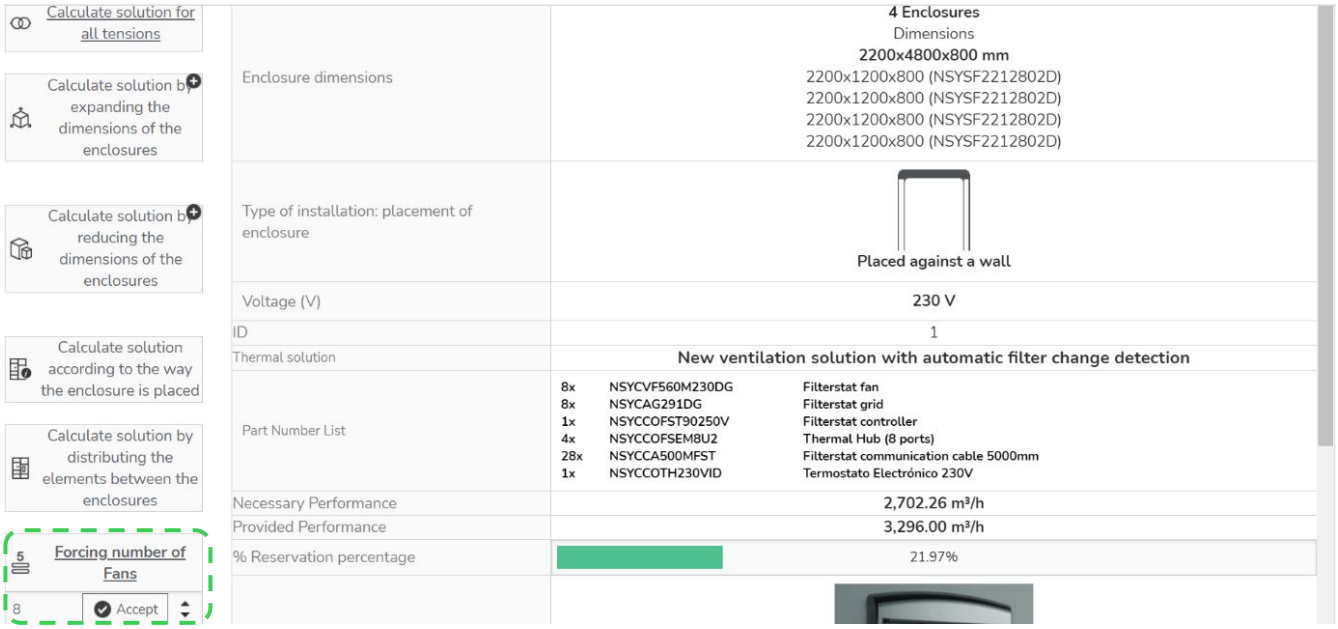
In this option, the thermal solution (in this example, the cooling units) can be distributed between the enclosures, with different possibilities shown for the same enclosure.



Thermal Equipment Multiplier



You can force (to the greatest extent possible) the amount of thermal equipment. Fans, heaters, cooling units, air-air exchangers and air-water exchangers can be modified according to the number of enclosures or the distribution of internal thermal loads.



Schematic of Proposed Solution

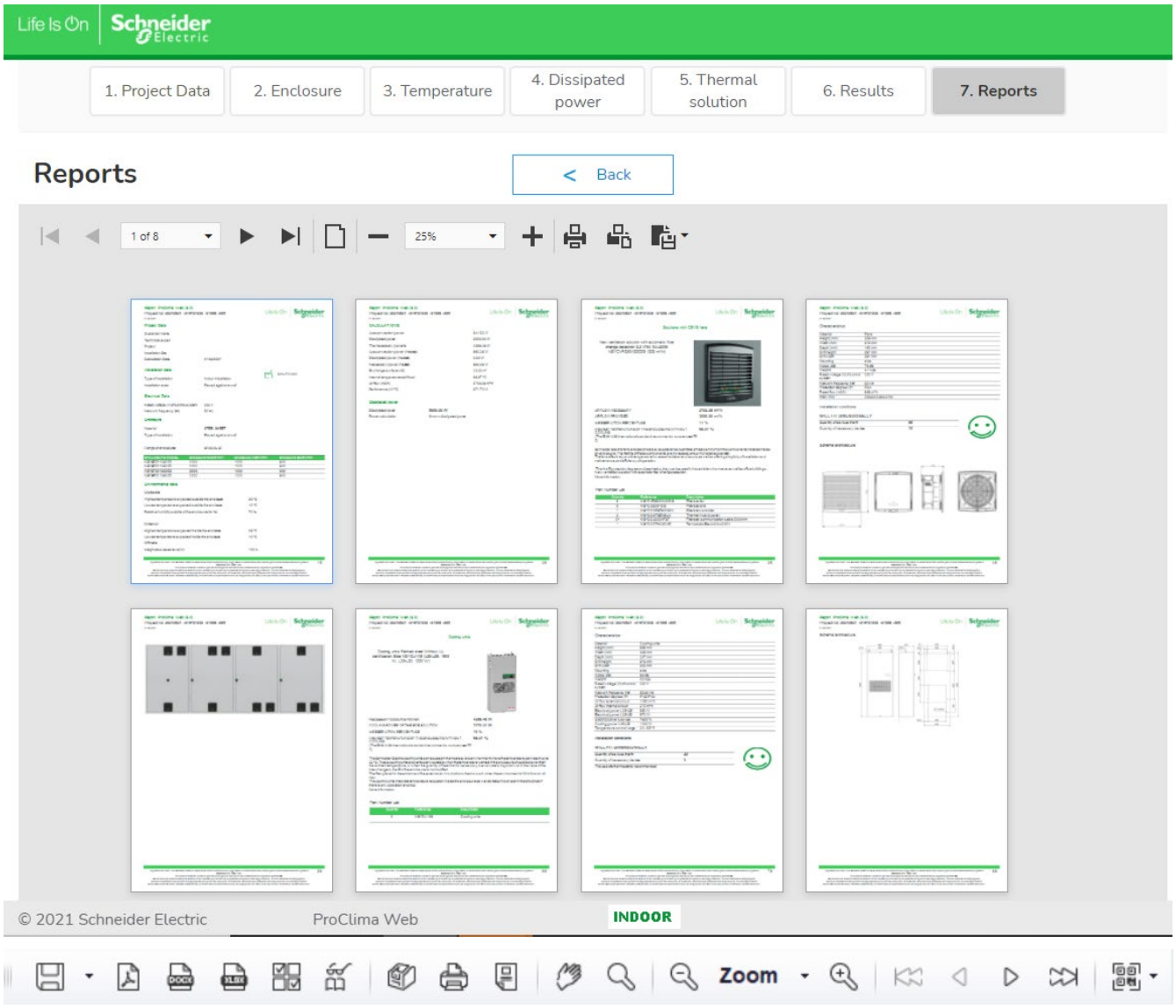
This option shows the schematic for the thermal solution for fans, using ClimaSys Smart Ventilation System (CSVS).

You can see how your equipment will be distributed and adapt the solution with the “Forcing number of Fans” option to ensure it best suits your needs and aesthetic requirements.

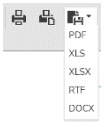
NOTE: This picture illustrates “New ventillation solution with automatic filter dirtyness and lifespan detection”.

Reports

In the **Reports** window, ProClima Web Software provides the different reports for the project.
It generates a report containing the general information for the project with the main temperature and humidity measurements and another report on the thermal solution chosen and its specifications.



The reports can be downloaded in different formats, including PDF, Word or Excel format (with the first four buttons above) and can be printed with the options that appear next to the save options in the window.



> Used to download the open document in PDF, RTF, Word or Excel format

> “Thumbnails” and “Search” options for the report

> “Print”, “Quick Print” and “Page Setup” options

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