



# KNXCONTROL

Data-logging-module

Version 1.3

REV06-20153011

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## GENERAL INFORMATION

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DIVUS GmbH  
 Pillhof 51  
 I-39057 Eppan (BZ)

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Please read the manual before beginning and keep the manual for later use.

The manual has been conceived and written for users who are experienced in the use of PCs and automation technology.

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## CONVENTIONS

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<b>[KEYS]</b>	Keys that are to be pressed by the user are given in square brackets, e.g. [CTRL] or [DEL]
<b>COURIER</b>	On-screen messages are given in the Courier font, e.g. C:\>
<b>COURIER BOLD</b>	Keyboard input to be made by the user are given in Courier bold, e.g. C:\>DIR).
<b>„...“</b>	Names of buttons to be pressed, menus or other onscreen elements and product names are given within double quotes. (e.g. "Configuration").
<b>PICTOGRAMS</b>	In this manual the following symbolic are used to indicate particular text blocs.
	Caution! A dangerous situation may arise that may cause damage to material.
	Hint Hints and additional notes
	New New features

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# 1 Introduction

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## 1.1 FOREWORD

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OPTIMA already offers the possibility to log and visualize energy values graphically in form of a bar chart without the need of any additional module. With the DATA-LOGGING – module UP-DATALOG-SW this function can be expanded to display any kind of values on any kind of page in the visualisation.

This way it is possible to display temperatures or other kind of measured values. The presentation in the visualisation can be made in different ways. For example it is possible to display temperature values in form of a curve, switching operations with bars or percentage values as a cake diagram. Due to the versatile display options for each type of value a suitable and intuitive display format can be found.

## 1.2 REQUIREMENTS AND LIMITATIONS

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To use the DATA-LOGGING – function in the OPTIMA-Surface are required the following things:

- A KNXCONTROL-device
- The additional module UP-DATALOG-SW<sup>1</sup>

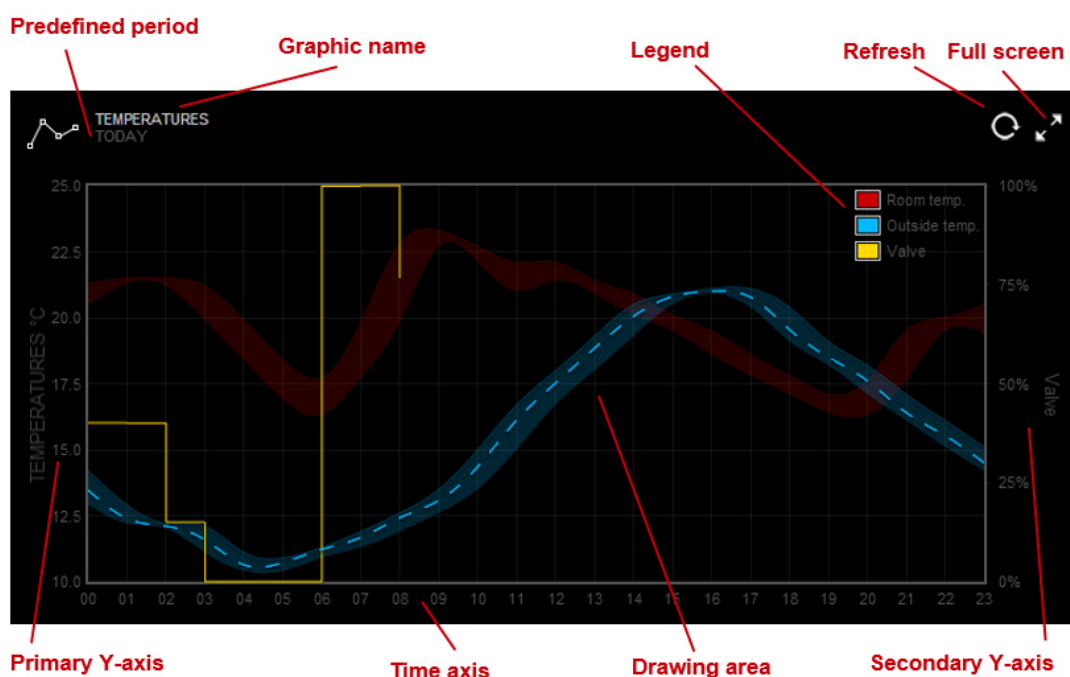
With the DATA-LOGGING – module values can be displayed in an intuitive way, but the module is not developed for continuous logging of values over a long time, because the logged values are deleted after a certain time to conserve the resources of the used KNXCONTROL-device.

<sup>1</sup> The DATA-LOGGING-module UP-DATALOG-SW can be ordered together with the KNXCONTROL-device or can be purchased separately, in this case the UP-DATALOG-SW comes in form of a license code.

## 2 Graphics

### 2.1 PRESENTATION

Graphics can be displayed in the visualisation in different rooms together with other objects. If graphics are used in rooms with the template "Background", their size and position can be changed according to the wish of the customer. Independent of the template of the room, background or grid, the presentation of the graphic remains the same:



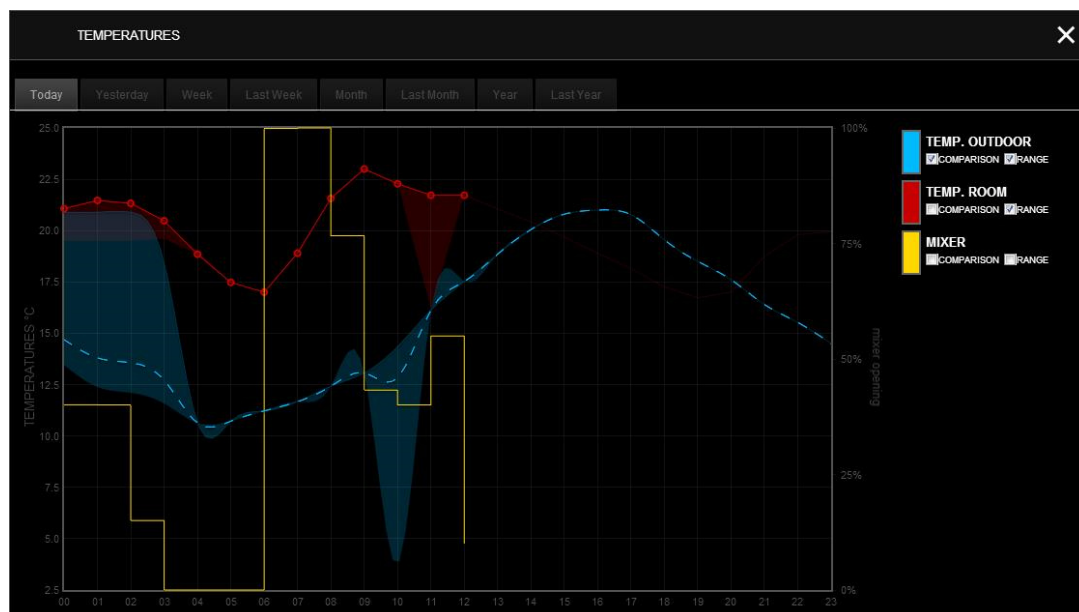
<b>PREDEFINED PERIOD</b>	Time period, for which the data should be displayed
<b>GRAPHIC NAME</b>	Name of the graphic
<b>LEGEND</b>	The legend shows the denomination of the displayed objects as well as their correlation to the used colors
<b>REFRESH</b>	A click on this symbol forces an immediately reload of the displayed data
<b>FULL SCREEN</b>	A click on this symbol opens the graphic in the full screen mode
<b>PRIMARY Y-AXIS</b>	Primary Y-axis as reference for the corresponding data
<b>TIME AXIS</b>	Time axis as reference for the displayed data

**DRAWING AREA** In this area the diagrams are displayed (time trend/cake/donut)

**SECONDARY Y-AXIS** Secondary Y-axis as reference for the corresponding data

Depending on the configuration of the graphic, some details can be hidden.

A click on the symbol „full screen“ opens the graphic in full screen mode:



In full screen mode the following additional functions are available:

- Over the tabs on the upper area it is possible to change the displayed time period:
  - Today
  - Yesterday
  - Week
  - Last Week
  - Month
  - Last Month
  - Year
  - Last Year
- Over the checkboxes near the legend it is possible to display or hide the range or compare curves for the corresponding object; this function has no effect on cake or donut diagrams.

- Over the colored fields in the legend it is possible to show or hide all values of the corresponding object. A click on the appropriate colored rectangle hides the associated data, another click on the same rectangle shows the data again.
- Inside the drawing area the following functions are available :
  - Scrolling: The graphics can be shifted up/down/left/right by clicking and holding the left mouse button in the drawing area and moving the mouse in the desired direction.
  - Zoom: If the mouse is on the drawing area it is possible to zoom in or out by moving the scroll wheel.

By clicking on the "X" in the upper right corner the full screen mode can be leaved.

<sup>1</sup> The functions available in the drawing area are only usable with KNXSERVER on client devices with a connected mouse with scroll wheel.

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## 2.2 GENERAL CONFIGURATION

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After creation of a new graphic the following settings are available:

<b>NAME</b>	Name that should be displayed in the administration and visualisation
<b>PREDEFINED PERIOD</b>	<p>Defines the time period for which the corresponding data should be displayed.</p> <p>If the graphic is opened in full screen mode it is possible to select and display a different time period.</p>
<b>STYLE</b>	<p>Defines the style, in which the graphic should be displayed. The following options are available:</p> <p>Time trend: Displays the value-progression of the predefined time period on a two-dimensional diagram with X- and Y-axis; the X-axis displays the predefined time period.</p> <p>Cake: Displays the values in form of a cake diagram.</p> <p>Donut: Displays the values in form of a donut/ring diagram.</p> <p>HINT: In Chapter 4 are some examples that show different values in different styles to give a short overview of the available possibilities.</p>
<b>STACK SERIES</b>	<p>Changes the graphic in the way that the values are no more displayed overlaying, but stacked on over another.</p> <p>The condition for the correct function of this setting is that all values are displayed on the same Y-axis.</p>
<b>SHOW LEGEND</b>	Defines whether the legend should be displayed on the graphic or not.

In the expert mode the following additional settings are available:

<b>VISIBLE</b>	Defines whether a graphic should be visible in the visualization or not.
<b>POSITION</b>	<p>Defines where the legend should be positioned. The following options are available:</p> <ul style="list-style-type: none"> <li>• Top-Right</li> <li>• Top-Left</li> <li>• Bottom-Right</li> <li>• Bottom-Left</li> </ul>
<b>COLUMNS</b>	Defines the number of the columns with which the legend should be displayed; if the field is empty the number will be chosen automatically.
<b>PRIMARY/SECONDARY Y-AXIS</b>	
<b>TITLE</b>	Title that should be displayed by the Y-axis.
<b>MIN. VALUE</b>	Minimal value of the Y-axis. If no value is specified an automatically (dynamic) value will be chosen.
<b>MAX. VALUE</b>	Maximal value of the Y-axis. If no value is specified an automatically (dynamic) value will be chosen.
<b>LABELS</b>	Provides the possibility to change the partitioning of the Y-axis in JSON-format (e.g. <code>[[0,"0%"],[50,"50%"],[100,"100%"]] )</code>

To display a graphic in a room it is needed to place the desired room in the table "Rooms, to which the graphic belongs" To do this it is needed to search the desired room in the search engine and afterwards to drag & drop the room into the table.

Of course it is also possible to drag graphics from the search engine into rooms like other objects. To do this it is needed to search the desired graphic in the search engine and afterwards to drag & drop the room from the search results into the table.

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## 2.3 CONFIGURATION OF THE RECORDED OBJECTS

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To record and display values it is needed to define the corresponding object that provides the needed information. New objects are added in the following way:

- Open the properties of the graphic in a new Tab
- Search for the desired object in the search engine and drag it into the table "Data series" ("Drag&drop")

For each added object are available the following options.

<b>LABEL</b>	Naming that should be used in the legend of the graphic for the corresponding object.
	If no label is defined, the name of the object itself will be used in the legend.
<b>ENABLE</b>	Defines whether the data recording of the object is active or not. An inactive data recording of the object means, that the recorded data of the object is not shown in the graphic.
<b>FUNCTIONALITY</b>	Defines the data series that contains the recorded data of the object.
	HINT: Each displayed object should be correlated to a different data series; A data series should never be used for more than one object in the same each graphic.
<b>DATA</b>	<p>Defines how the recorded data should be evaluated:</p> <ul style="list-style-type: none"> <li>• Average value</li> <li>• Min. value</li> <li>• Max. value</li> <li>• Sum</li> <li>• Counter</li> <li>• Difference</li> <li>• Integral</li> <li>• In Chapter 2.4 the different types of evaluation are explained in detail.</li> </ul>
<b>STYLE</b>	<p>Defines the way how recorded data should be displayed inside the graphic. Depending of the chosen style of the graphic, the following options are available:</p> <ul style="list-style-type: none"> <li>• Lines (Time trend)</li> <li>• Points (Time trend)</li> </ul>

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- Lines and points (Time trend)
- Curve (Time trend)\*\*
- Steps (Time trend)
- Bars (Time trend)
- Area (Time trend)
- Range (Time trend)
- Sector (Cake, Donut)

<b>COMPARISON*</b>	Defines if the comparison data of the previous time period should be displayed or not.
<b>RANGE*</b>	Defines if the value-range for the recorded objects should be displayed or not.
<b>SCALE FACTOR</b>	Defines an eventually scale factor. The scale factor gets multiplied with the recorded value; the result will be displayed in the graphic.
<b>Y-AXIS*</b>	Defines which Y-axis should be used as reference or the representation of the data. If no Y-axis is selected the primary Y-Axis will be used.

\*This setting affects only graphics of style "time trend".

\*\*To display the style "Curve" the option "RANGE" should be enabled.

## 2.4 EVALUATION

In this chapter will be explained how the recorded data can be evaluated. According to the selected option "Data" that has been defined for an object the recorded values are evaluated and displayed in different ways.

### 2.4.1 AVERAGE VALUE

The average value is the sum of all values that have been recorded for the corresponding object during the last time period (e.g. hour, day or month), divided by the count of recorded values.

### 2.4.2 MIN. VALUE

The smallest recorded value for the corresponding object during the last time period (e.g. hour, day or month).

### 2.4.3 MAX. VALUE

The biggest recorded value for the corresponding object during the last time period (e.g. hour, day or month).

#### 2.4.4 SUM

The sum of all values that have been recorded for the corresponding object during the last time period (e.g. hour, day or month).

#### 2.4.5 COUNTER

The quantity of recorded values for the corresponding object during the last time period (e.g. hour, day or month).

#### 2.4.6 DIFFERENCE

The difference between the first recorded value and the last recorded value for the corresponding object during the last time period (e.g. hour, day or month).

#### 2.4.7 INTEGRAL

Here is calculated the product of the recorded value and the time during which the corresponding value is hold (time values in minutes); this calculation is made for each change of the value. At the end of each time period (e.g. hour, day or month) the sum of all these multiplications is calculated and then divided by the number of minutes of the time period. The result of this calculation is displayed in the graphic.

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## 2.5 COLORS

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The colors for the representation of the single objects are assigned automatically. The colors are predefined and can't be personalized. The colors are assigned in dependency of the order of the recorded objects in the following way:

1. object / data series	rgb(0,186,255)
2. object / data series	rgb(200,0,0)
3. object / data series	rgb(255,216,0)
4. object / data series	rgb(186,226, 45)
5. object / data series	rgb(240,0,255)
6. object / data series	rgb(255,127,0)
7. object / data series	rgb(139,132,255)
8. object / data series	rgb(85,197,83)
9. object / data series	rgb(228,188,123)
10. object / data series	rgb(180,180,180)

The order of the added objects can be changed at any time by drag & drop the single objects to the wished place by using the corresponding blue "ORDER"-button.

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## 2.6 EXPORT AND IMPORT OF RECORDED DATA

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The recorded values can be exported in form of a CSV file. In this way it is possible to store recorded data and to process them externally. The stored data can be imported into the device after an eventually reset of the database or an exchange of the KNXCONTROL-device.

### 2.6.1 EXPORT OF RECORDED DATA

To create a CSV-backup file of the recorded Data the following steps are required:

- Access to the KNXCONTROL-device and open the administration area
- Select the option "Export data into CSV file" under „Technologies -> Energy -> Import/Export"
- Click on "EXECUTE"
- The generated file will be stored according to your browser settings.

### 2.6.2 IMPORT OF STORED DATA

To import a previous generated CSV-backup file into a KNXCONTROL-device are needed the following steps:

- Access to the KNXCONTROL-device and open the administration area
- Select the option "Import data from CSV file" under „Technologies -> Energy -> Import/Export"
- Select the desired CSV-backup file over the browse dialog
- Click on "EXECUTE"

# 3 Settings

In the settings it is possible to define, how long the recorded values should be stored. The following settings are available:

<b>DELETE HOURLY DATA AFTER... [DAYS]</b>	Defines after how many days old hourly data should be deleted.
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<b>DELETE DAILY DATA AFTER... [MONTHS]</b>	Defines after how many months old daily data should be deleted
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<b>DELETE YEARLY DATA AFTER... [YEARS]</b>	Defines after how many years old yearly data should be deleted
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To conserve the storage of the KNXCONTROL-device the old data is deleted after a certain amount of time.

# 4 Examples

In this chapter the usage and the configuration of graphics are explained within 2 examples..

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## 4.1 EXAMPLE 1 - TEMPERATURE

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This example shows the graphical presentation of a heating regulation (outside temperature, room temperature, heating valve).

### 4.1.1 CONFIGURATION

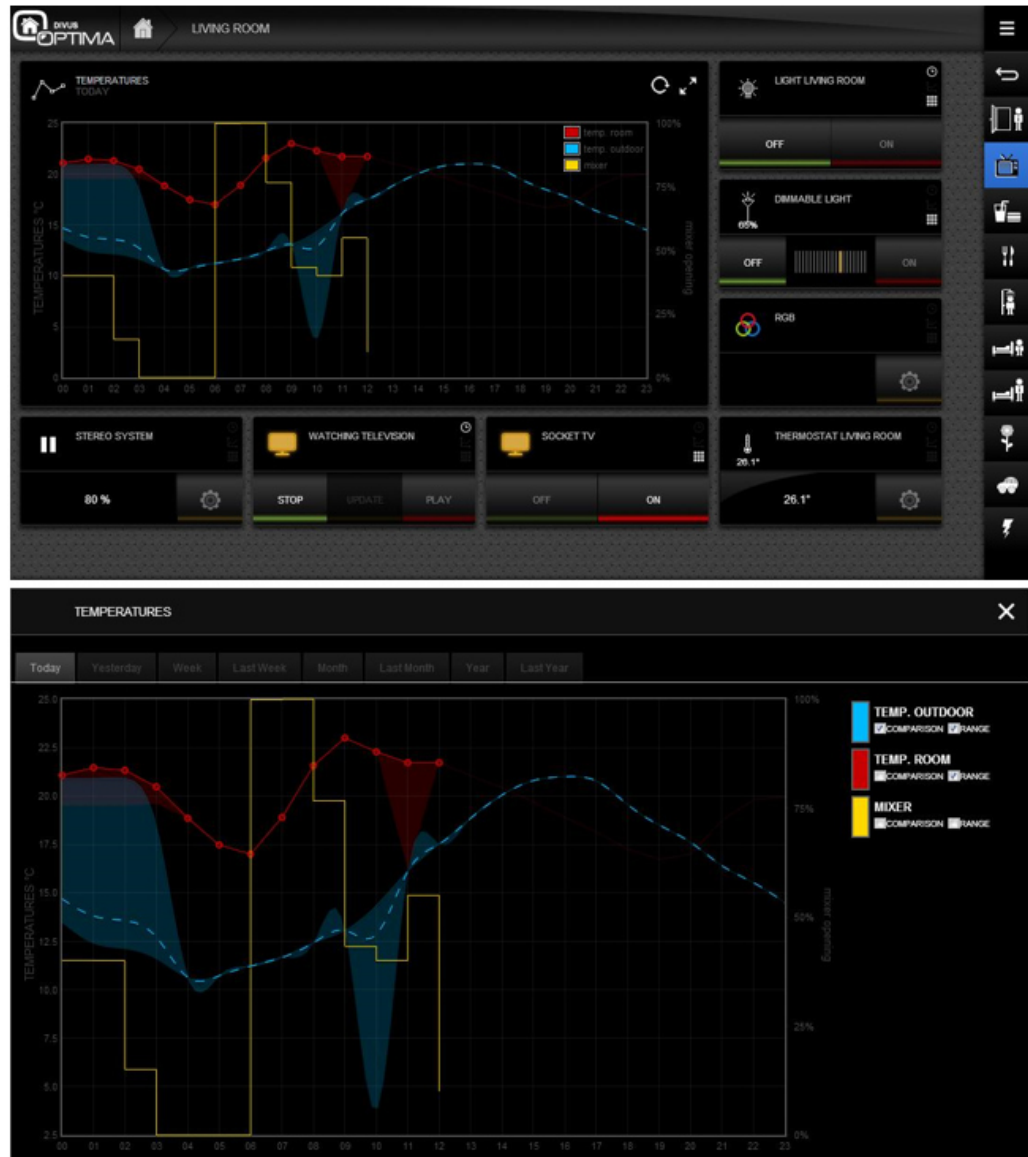
A new graphic with the following properties is created:

<b>NAME</b>	Temperatures
<b>VISIBLE</b>	Yes
<b>PREDEFINED PERIOD</b>	Today
<b>STYLE</b>	Time trend
<b>STACKED SERIES</b>	No
<b>SHOW LEGEND</b>	Yes
<b>POSITION</b>	Top-Right
<b>COLUMNS</b>	empty = automatic
<b>PRIMARY Y-AXIS</b>	
<b>TITLE</b>	TEMPERATURES °C
<b>MIN. VALUE</b>	empty = automatic
<b>MAX. VALUE</b>	empty = automatic
<b>LABELS</b>	empty
<b>SECONDARY Y-AXIS</b>	
<b>TITLE</b>	Valve
<b>MIN. VALUE</b>	0
<b>MAX. VALUE</b>	100





#### 4.1.2 PRESENTATION



#### 4.2 EXAMPLE 2 – ENERGY BALANCE

In the following Chapter on a practical example it is explained how different graphics can be combined. Therefore the following 4 graphics are configured:

- Graphic A: The voltage and the current output of a solar plant of the current day
- Graphic B: The progress of the produced and the consumed power of the current day

- Graphic C: The relation between the produced and the consumed energy of the current day
- Graphic D: The relation between the produced and the consumed energy of the previous day

All 4 graphics are added to the room "Energy". Since this room uses the template "Background" it is possible to position all 4 graphic arbitrarily on the page. Each single graphic can afterwards be opened in full screen mode.

#### 4.2.1 CONFIGURATION

##### 4.2.1.1 CONFIGURATION GRAPHIC A


A new graphic with the following properties is created:

<b>NAME</b>	Photovoltaic
<b>VISIBLE</b>	Yes
<b>PREDEFINED PERIOD</b>	Today
<b>STYLE</b>	Time trend
<b>STACKED SERIES</b>	No
<b>SHOW LEGEND</b>	Yes
<b>POSITION</b>	Top-right
<b>COLUMNS</b>	1
<b>PRIMARY Y-AXIS</b>	
<b>TITLE</b>	Current
<b>MIN. VALUE</b>	Empty = automatic
<b>MAX. VALUE</b>	Empty = automatic
<b>LABELS</b>	Empty
<b>SECONDARY Y-AXIS</b>	
<b>TITLE</b>	Voltage
<b>MIN. VALUE</b>	210
<b>MAX. VALUE</b>	250
<b>LABELS</b>	Empty

Afterwards three objects are added to the table "Data series" from the search engine using drag&drop and configured the following way:

<b>NAME</b>	Graphic current	Graphic voltage
<b>LABEL</b>	Current	Voltage
<b>ENABLE</b>	Yes	Yes
<b>FUNCTIONALITY</b>	Data series 1	Data series 2
<b>DATA</b>	Integral	Integral
<b>STYLE</b>	Lines	Lines
<b>COMPARISON</b>	No	No
<b>RANGE</b>	No	No
<b>SCALE FACTOR</b>	None	None
<b>Y-AXIS</b>	1-Primary	2-Secondary

Afterwards the graphic is added to the room "Energy", so that the graphic is visible inside the visualisation.



SAVE CLEAR CACHE BASE LOGOUT VISUALISATION

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Welcome

Search results

Menu

- ▶ Setup
- ▶ Technologies
- ▶ Customization
- ▶ Visualisation
- ▶ Advanced functions
- ▼ Data-Logging
  - Graphics
    - Temperatures
    - Photovoltaic
    - Daily production
    - Relation today
    - Relation yesterday
    - Settings
- ▶ Users and permissions

Photovoltaic

?

Photovoltaic CLOSE

Object properties

**General information**

Name:

**Permissions**

Visible:

**Graphs**

Predefined period:

Style:

Stack series:

**Legend**

Show legend:

Position:

Columns:   
(empty = automatic)

**Primary Y-axis**

Title:

Min. value:   
(empty = automatic)

Max. value:   
(empty = automatic)

Labels:   
(JSON-format, empty = automatic)

**Secondary Y-axis**

Title:

Min. value:   
(empty = automatic)

Max. value:   
(empty = automatic)

Labels:   
(JSON-format, empty = automatic)

CLOSE

**Data series**

	Name	Label	Enable	Functionality	Data	Style	Comparison	Range	Scale factor	Y-axis
	Graphic current	Current	<input checked="" type="checkbox"/>	Data serie	Inte	Line	<input type="checkbox"/>	<input type="checkbox"/>		
	Graphic voltage	Voltage	<input checked="" type="checkbox"/>	Data serie	Inte	Line	<input type="checkbox"/>	<input type="checkbox"/>		

Rooms, to which the graphic belongs

	Name	Description / ETS name
	Energy	

## 4.2.1.2 CONFIGURATION GRAPHIC B

A new graphic with the following properties is created:

<b>NAME</b>	Daily production
<b>VISIBLE</b>	Yes
<b>PREDEFINED PERIOD</b>	Today
<b>STYLE</b>	Time trend
<b>STACKED SERIES</b>	No
<b>SHOW LEGEND</b>	Yes
<b>POSITION</b>	Top-right
<b>COLUMNS</b>	1
<b>PRIMARY Y-AXIS</b>	
<b>TITLE</b>	Empty
<b>MIN. VALUE</b>	Empty = automatic
<b>MAX. VALUE</b>	Empty = automatic
<b>LABELS</b>	Empty
<b>SECONDARY Y-AXIS</b>	
<b>TITLE</b>	Empty
<b>MIN. VALUE</b>	Empty = automatic
<b>MAX. VALUE</b>	Empty = automatic
<b>LABELS</b>	Empty

Afterwards three objects are added to the table "Data series" from the search engine using drag&drop and configured the following way:

<b>NAME</b>	Graphic photovoltaic	Graphic photovoltaic
<b>LABEL</b>	Production	Consumption
<b>ENABLE</b>	Yes	Yes

<b>FUNCTIONALITY</b>	Data series 1	Data series 2
<b>DATA</b>	Average value	Average value
<b>STYLE</b>	Area	Area
<b>COMPARISON</b>	Yes	Yes
<b>RANGE</b>	No	No
<b>SCALE FACTOR</b>	1	-1
<b>Y-AXIS</b>	1-Primary	1-Primary

Afterwards the graphic is added to the room "Energy", so that the graphic is visible inside the visualisation.

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SAVE CLEAR CACHE BASE LOGOUT VISUALISATION

Welcome

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Daily production

Object properties

**General information**

Name:

**Permissions**

Visible:

**Graphs**

Predefined period:

Style:

Stack series:

**Legend**

Show legend:

Position:

Columns:   
(empty = automatic)

**Primary Y-axis**

Title:

Min. value:   
(empty = automatic)

Max. value:   
(empty = automatic)

Labels:   
(JSON-format, empty = automatic)

**Secondary Y-axis**

Title:

Min. value:   
(empty = automatic)

Max. value:   
(empty = automatic)

Labels:   
(JSON-format, empty = automatic)

CLOSE

**Data series**

	Name	Label	Enable	Functionality	Data	Style	Comparison	Range	Scale factor	Y-axis
	Graphic photovoltaic	Production	<input checked="" type="checkbox"/>	Data serie	Ave	Are	<input checked="" type="checkbox"/>	<input type="checkbox"/>	1	
	Graphic consumption	Consumption	<input checked="" type="checkbox"/>	Data serie	Ave	Are	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-1	

**Rooms, to which the graphic belongs**

	Name	Description / ETS name
	Energy	

## 4.2.1.3 CONFIGURATION GRAPHIC C

A new graphic with the following properties is created:


<b>NAME</b>	Relation today
<b>VISIBLE</b>	Yes
<b>PREDEFINED PERIOD</b>	Today
<b>STYLE</b>	Cake
<b>STACKED SERIES</b>	No
<b>SHOW LEGEND</b>	Yes
<b>POSITION</b>	Top-Right
<b>COLUMNS</b>	1
<b>PRIMARY Y-AXIS</b>	
<b>TITLE</b>	Empty
<b>MIN. VALUE</b>	Empty = automatic
<b>MAX. VALUE</b>	Empty = automatic
<b>LABELS</b>	Empty
<b>SECONDARY Y-AXIS</b>	
<b>TITLE</b>	Empty
<b>MIN. VALUE</b>	Empty = automatic
<b>MAX. VALUE</b>	Empty = automatic
<b>LABELS</b>	Empty

Afterwards three objects are added to the table "Data series" from the search engine using drag&drop and configured the following way:

<b>NAME</b>	Graphic photovoltaic	Graphic consumption
<b>LABEL</b>	Production	Consumption
<b>ENABLE</b>	Yes	Yes

<b>FUNCTIONALITY</b>	Data series 1	Data series 2
<b>DATA</b>	Sum	Sum
<b>STYLE</b>	Sector	Sector
<b>COMPARISON</b>	No	No
<b>RANGE</b>	No	No
<b>SCALE FACTOR</b>	None	None
<b>Y-AXIS</b>	---	---

Afterwards the graphic is added to the room "Energy", so that the graphic is visible inside the visualisation.



SAVE CLEAR CACHE BASE LOGOUT VISUALISATION

---

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    - Photovoltaic
    - Daily production
    - **Relation today**
    - Relation yesterday
  - Settings
- ▶ Users and permissions

Relation today

Relation today ?

CLOSE

Object properties

**General information**

Name:

**Permissions**

Visible:

**Graphs**

Predefined period:

Style:

Stack series:

**Legend**

Show legend:

Position:

Columns:   
(empty = automatic)

**Primary Y-axis**

Title:

Min. value:   
(empty = automatic)

Max. value:   
(empty = automatic)

Labels:   
(JSON-format, empty = automatic)

**Secondary Y-axis**

Title:

Min. value:   
(empty = automatic)

Max. value:   
(empty = automatic)

Labels:   
(JSON-format, empty = automatic)

CLOSE

**Data series**

	Name	Label	Enable	Functionality	Data	Style	Comparison	Range	Scale factor	Y-axis
...	Graphic photovoltaic	Production	<input checked="" type="checkbox"/>	Data serie	Sur	Sec	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	▼
...	Graphic consumption	Consumption	<input checked="" type="checkbox"/>	Data serie	Sur	Sec	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>	▼

**Rooms, to which the graphic belongs**

	Name	Description / ETS name
...	Energy	<input type="text"/>

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## 4.2.1.4 CONFIGURATION GRAPHIC D

A new graphic with the following properties is created:


<b>NAME</b>	Relation yesterday
<b>VISIBLE</b>	Yes
<b>PREDEFINED PERIOD</b>	Yesterday
<b>STYLE</b>	Donut
<b>STACKED SERIES</b>	No
<b>SHOW LEGEND</b>	No
<b>POSITION</b>	Top-Right
<b>COLUMNS</b>	empty
<b>PRIMARY Y-AXIS</b>	
<b>TITLE</b>	Empty
<b>MIN. VALUE</b>	Empty = automatic
<b>MAX. VALUE</b>	Empty = automatic
<b>LABELS</b>	Empty
<b>SECONDARY Y-AXIS</b>	
<b>TITLE</b>	Empty
<b>MIN. VALUE</b>	Empty = automatic
<b>MAX. VALUE</b>	Empty = automatic
<b>LABELS</b>	Empty

Afterwards three objects are added to the table "Data series" from the search engine using drag&drop and configured the following way:

<b>NAME</b>	Graphic photovoltaic	Graphic consumption
<b>LABEL</b>	Production	Consumption
<b>ENABLE</b>	Yes	Yes

<b>FUNCTIONALITY</b>	Data series 1	Data series 2
<b>DATA</b>	Sum	Sum
<b>STYLE</b>	Sector	Sector
<b>COMPARISON</b>	No	No
<b>RANGE</b>	No	No
<b>SCALE FACTOR</b>	None	None
<b>Y-AXIS</b>	---	---

Afterwards the graphic is added to the room "Energy", so that the graphic is visible inside the visualisation.



SAVE
CLEAR CACHE
BASE
LOGOUT
VISUALISATION

Welcome

Relation yesterday

Menu

- ▶ Setup
- ▶ Technologies
- ▶ Customization
- ▶ Visualisation
- ▶ Advanced functions
- ▼ Data-Logging
  - Graphics
    - Temperatures
    - Photovoltaic
    - Daily production
    - Relation today
    - **Relation yesterday**
  - Settings
- ▶ Users and permissions

Relation yesterday

?

Object properties

**General information**

Name:

**Permissions**

Visible:

**Graphs**

Predefined period:

Style:

Stack series:

**Legend**

Show legend:

Position:

Columns  
(empty = automatic):

**Primary Y-axis**

Title:

Min. value  
(empty = automatic):

Max. value  
(empty = automatic):

Labels  
(JSON-format, empty = automatic):

**Secondary Y-axis**

Title:

Min. value  
(empty = automatic):

Max. value  
(empty = automatic):

Labels  
(JSON-format, empty = automatic):

CLOSE

**Data series**

	Name	Label	Enable	Functionality	Data	Style	Comparison	Range	Scale factor	Y-axis
...	Graphic photovoltaic	Production	<input checked="" type="checkbox"/>	Data serie	Sur	Sec	<input type="checkbox"/>	<input type="checkbox"/>		
...	Graphic consumption	Consumption	<input checked="" type="checkbox"/>	Data serie	Sur	Sec	<input type="checkbox"/>	<input type="checkbox"/>		

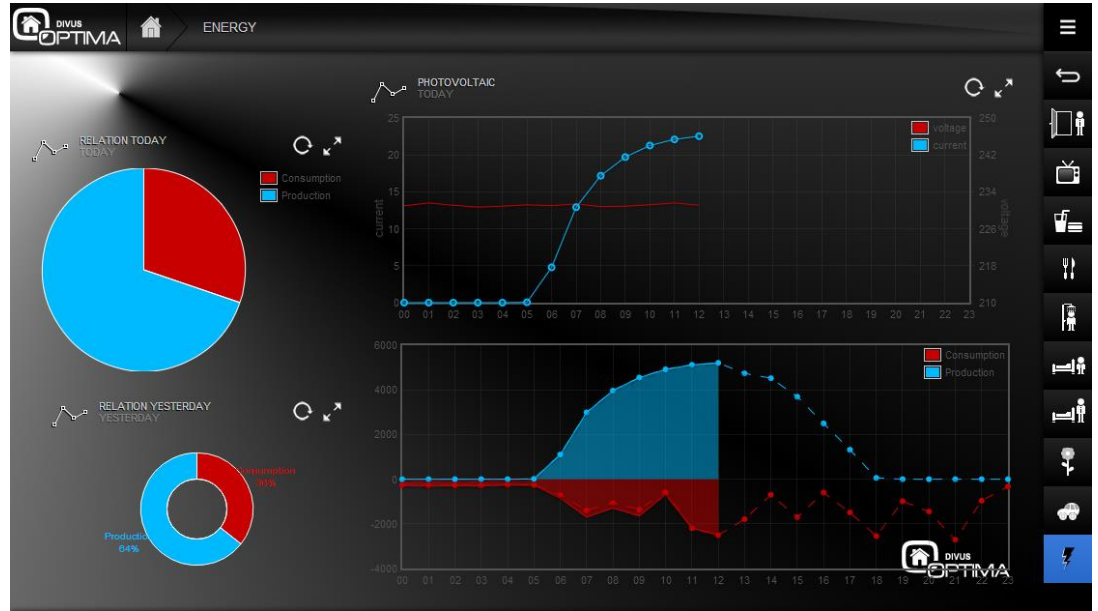
**Rooms, to which the graphic belongs**

	Name	Description / ETS name
...	Energy	

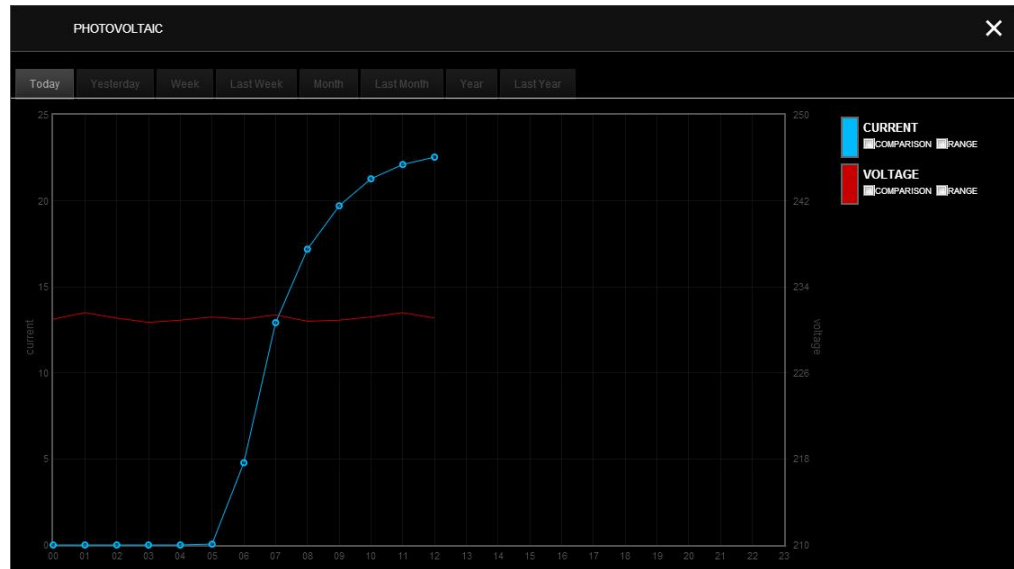
✎
🗑
📄

### 4.2.2 APPEARANCE

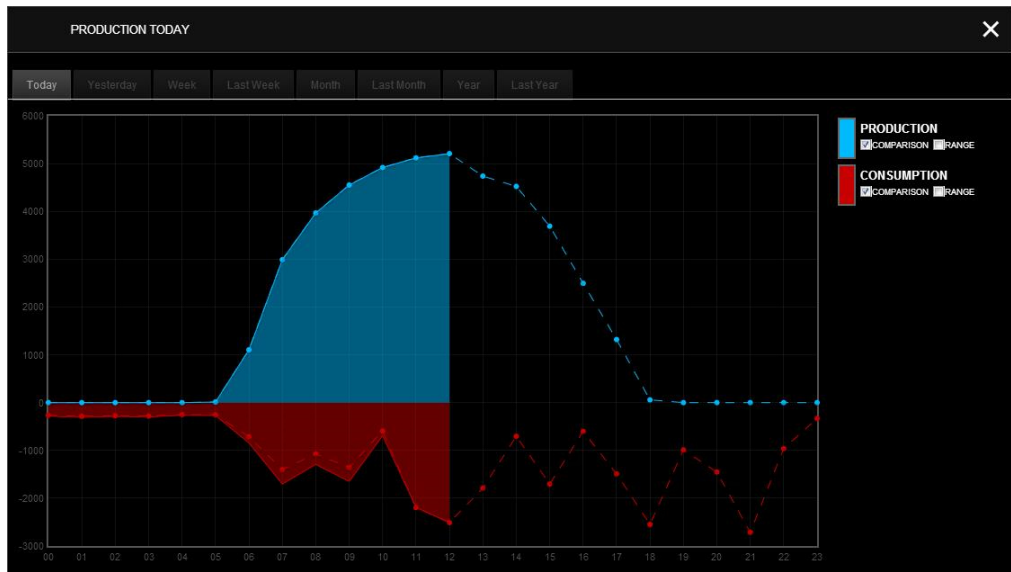
#### 4.2.2.1 BACKGROUND (GRAPHIC A-D)



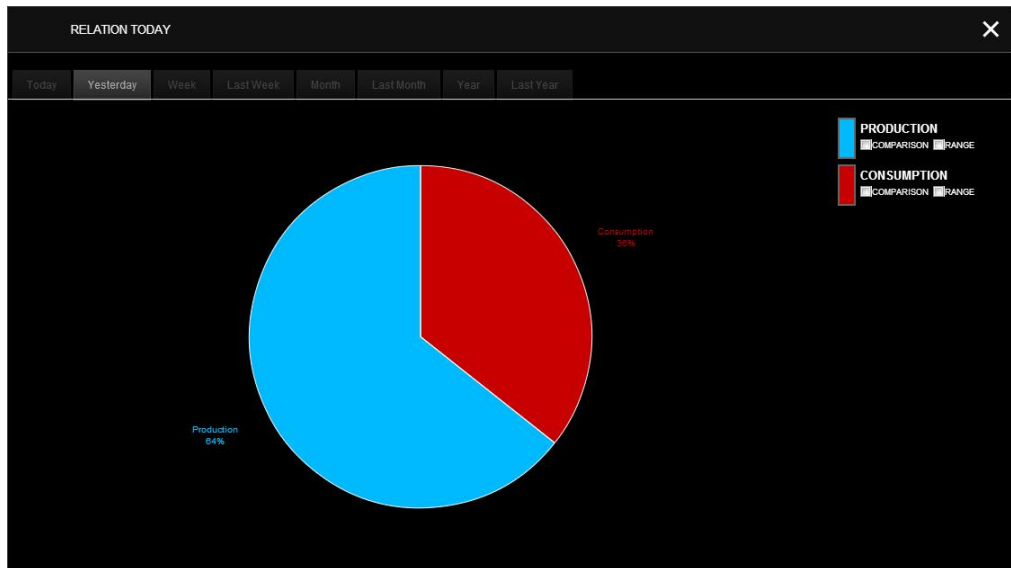
#### 4.2.2.2 GRAFIK A - VOLLBILD



4.2.2.3 GRAPHIC B – FULL SCREEN



4.2.2.4 GRAPHIC C – FULL SCREEN



#### 4.2.2.5 GRAPHIC D – FULL SCREEN

