

Web server parametrization

Abstract

This application note deals with AMiT web server parametrization and its potential use.

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Document: ap0046_en_05.pdf

Attachments

File contents: ap0046_en_03.zip

ap0046_en_03.awp	AWDet editor application
..\Images\	The images used in design of web pages.

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Revision history

Version	Date	Changes by	Changes
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002	02. 11. 2011	Zbyněk Říha	Links to various chapters in chapters 5.1, 5.3, 7.1.1 and 8.1 edited. Properties of the web server in chapter 2.1 added.
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Related documentation

No documentation is related to this application note.

1. Help tab in the EsiDet section of the DetStudio development environment
file: Esidet_en.chm
2. Help tab in the PseDet section of the DetStudio development environment
file: Psedet_en.chm
3. Help tab for the AWDet editor
file: AwDethelp_en.chm
4. Type W2 control systems documentation
files: amini4xw2x_g_en_xxx.pdf, ad-cpuw2_g_en_xxx.pdf
5. Type W3 control systems documentation
files: amap99w3_g_en_xxx.pdf, amiris99w3_g_en_xxx.pdf, art4000w3_g_en_xxx.pdf
6. AMREG series control units documentation
files: amr-op10_g_en_xxx.pdf, amr-op84x_g_en_xxx.pdf, amr-op87x_g_en_xxx.pdf
7. AMREG series control and communication units documentation
files: cpxxxx_g_en_xxx.pdf, acos200_g_en_xxx.pdf
8. Application note AP0016 – Principles of RS485 interface usage
file: ap0016_en_xx.pdf
9. Application note AP0037 – Principles of Ethernet network usage
file: ap0037_en_xx.pdf

1 Definitions of terms

PseDet station

Control systems and terminals made by AMiT; their process algorithms are programmed in a section of the DetStudio environment called PseDet.

PseDet “W” station

Control systems and terminals made by AMiT with “W2” or “W3” at the end of their designation; their process algorithms are programmed in a section of the DetStudio environment called PseDet. E.g. **AMiNi4DW2**, **AD-CPUW2**, **AMAP99W3** or **ART4000W3**.

EsiDet station

Control systems and terminals made by AMiT; their process algorithms are programmed in a section of the DetStudio environment called EsiDet. E.g. **AMR-OP84(G)**, **AMR-OP87(G)**, **AMR-CP4x/DM** or **ACOS200**.

DetStudio

Development environment made by AMiT; it is used for parametrisation of PseDet and EsiDet stations. This environment is accessible at www.amitautomation.com.

AWDet

Visual editor of AMiT company used for designing web sites and for web server parametrisation. This environment is accessible at www.amitautomation.com.

Hardware

PseDet stations, EsiDet stations in the DB-Net/IP (DB-Net) network.

Remote controllers

PseDet and EsiDet stations connected to the web server via one of the communication interfaces.

Broadcast

Message received by all network interfaces in the computer network.

DHCP server

Server that assigns IP addresses, network masks and implicit gateways to computers.

DB-Net

An asynchronous network communication protocol developed by AMiT company that is either used with the RS785 interface (connection of multiple stations into one network) or the RS232 interface (point-to-point topology).

DB-Net/IP

Asynchronous network communication protocol by AMiT implemented in Ethernet interface.

Segment

Network of PseDet and EsiDet stations communicating via the DB-Net protocol (communication via serial interfaces). In case of this AP, it is assumed that at least one of them is active and has Ethernet interface.

Web server

The web server of the PseDet “W” station or of the EsiDet station.

Context menu

The menu that shows after right-clicking an item, element or object.

AppLoader

A programme developed by the AMiT company that is used for loading applications created in DetStudio into PseDet and EsiDet stations. The editor is accessible at www.amitautomation.com.

2 Web servers and their properties

All PseDet “W” stations and all EsiDet stations with the Ethernet interface include a web server. The web server of the AMiT company supports displaying variables, blocks of text, images, time plans, archives both as tables and as graphs, and other elements. It is not supposed to substitute larger visualisation. For small visualisation and as a service tool, it is fully equipped in terms of displaying information for comfortable supervision and remote control.

2.1 Web server properties

Common basic properties of the web server:

- ◆ Maximum image size is limited to 128 kB (given the web server speed, the optimum is between 20 and 50 kB).
- ◆ Maximum filename length is 8 characters + 3 characters for file extension.
- ◆ One web server folder may contain up to 32 items (files/folders).
- ◆ The web server reliably serves maximum of two browsers at the same time.
- ◆ Elements displaying text/image dependent on a variable value may show up to 16 different states.
- ◆ The web server will allow connection of a single FTP client at a given time.
- ◆ A maximum of one archive displaying element or one operation log displaying element or one time plan displaying/editing element can be displayed per page.
- ◆ A maximum of 6 **AuthLink** elements may be placed on a single page (see the description of so-called Case slots in AWDet help).

Based on the web server type, there are further limits:

PseDet “W” stations web server:

- ◆ It is possible to use some of serial interfaces of the station to communicate with remote stations (via DB-Net protocol).
- ◆ For communication with remote stations over the Ethernet network (DB-Net/IP communication), reading/writing needs to be processed at the regulating level of the station.

EsiDet stations web server:

- ◆ It is possible to use some of serial interfaces of the station to communicate with remote stations (via DB-Net protocol).
- ◆ It is possible to use DB-Net/IP protocol-based communication to communicate with remote stations.

Web server in the **AMR-CP4x/DM** control system with **AWEB** firmware:

- ◆ It is possible to place up to 30 elements for editing variable values per page.
- ◆ A maximum of 13 **AuthLink** elements may be placed on a single page (see the description of so-called Case slots in AWDet help).
- ◆ To communicate with remote stations, the web server can use the Ethernet interface and one of two serial interfaces.
- ◆ In an Ethernet network (communication via DB-Net/IP), the web server serves only 12 remote stations along with all of their sub-stations in the DB-Net network.

2.2 PseDet “W” stations web server

During parametrization of a PseDet “W” station web server, the communication between the PseDet “W” station and the web server. Communication needs to be set up only when the PseDet “W” station web server is supposed to be active, i.e. it will ask for data from remote stations (or from PC) on its own via serial interfaces (communication via DB-Net).

When there is a need to display data from remote stations connected to the PseDet “W” station web server via Ethernet (DB-Net/IP protocol-based communication), it is necessary to implement

reading/writing already at regulating level (programming with DetStudio IDE) into the PseDet “W” station running the web server. The PseDet “W” station web server cannot – on its own – read/write data from/to remote stations over Ethernet.

2.3 EsiDet stations web server

To use the EsiDet stations web server, it is necessary to use the **WebServer** object in the DetStudio project. This object defines the web server.

On web pages defined in EsiDet stations, it is possible to display values of all objects, blocks and variables that were defined in the DetStudio project.

When there is a need to display data in the web server from remote stations connected to the EsiDet station web server via serial interface (DB-Net based communication) or via Ethernet (DB-Net/IP based communication), it is necessary to insert the **DbNet** object into the EsiDet station running the web server and to link the server with the remote stations.

2.4 Web server in AMR-CP4x/DM with AWEB firmware

When the web server in the **AMR-CP4x/DM** control system with AWEB firmware is used, the programmer needs to define communication of the system and the web server. **AMR-CP4x/DM** with AWEB firmware can communicate with remote stations either via serial interfaces (DB-Net protocol communication) or via Ethernet (DB-Net/IP protocol communication).

3 Web server usage

For the web server to function correctly, it is necessary to perform the following steps:

- ◆ in case of EsiDet stations, it is necessary to load an application with a **WebServer** object present in the DetStudio project,
- ◆ web server application (web site) design,
- ◆ setting communication parameters of the web server,
- ◆ loading the application into the web server.

Web server web is designed in the AWDet WYSIWYG editor. The AWDet editor is available at amitautomation.com in section “Products/Software/AWDet – web presentation editor”.

To make the web design for stations manufactured by AMiT possible, either the station needs to be loaded with a relevant DetStudio project, or it is necessary to have a list of variables, aliases and reports for the operation log generated by DetStudio in *.csv format.

Below, you will find description of operation and a sample application (which is attached to this application note) for **AMR-OP87** the EsiDet control terminal web server.

4 Web server application design

After installation and start-up of the AWDet editor, create a new project.

4.1 Creating a project

Create a new project by going to “File/New project” – this will open the “New window” project. Name the project “ap0046_en_03” and save it to the “D:\AWDET\Projects” folder.

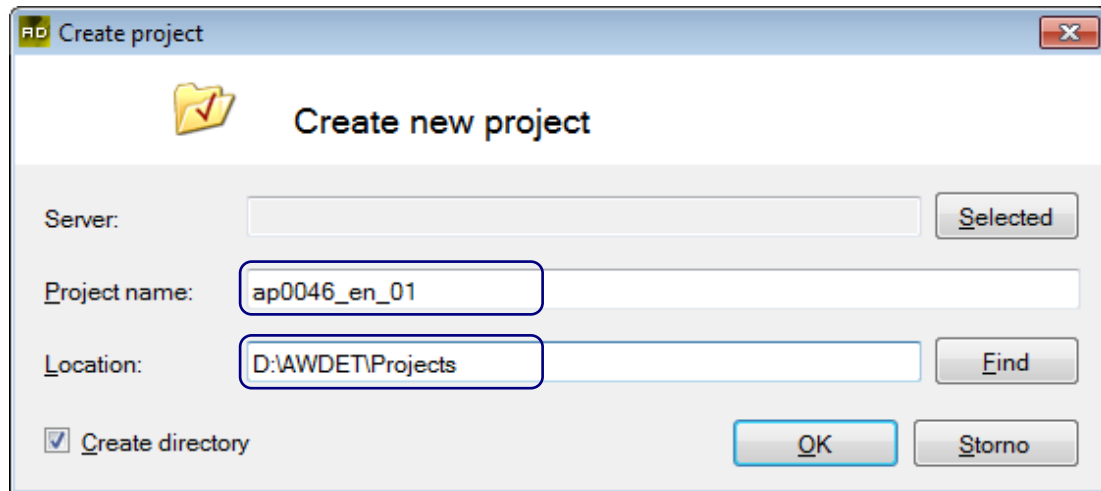


Fig. 1 – Creating a project

Select the web server type by pressing “**Change**”. Pressing the “**Change**” button opens a window with a list of servers – choose **AMR-OP87(G)** from the “Control HMIs” section.

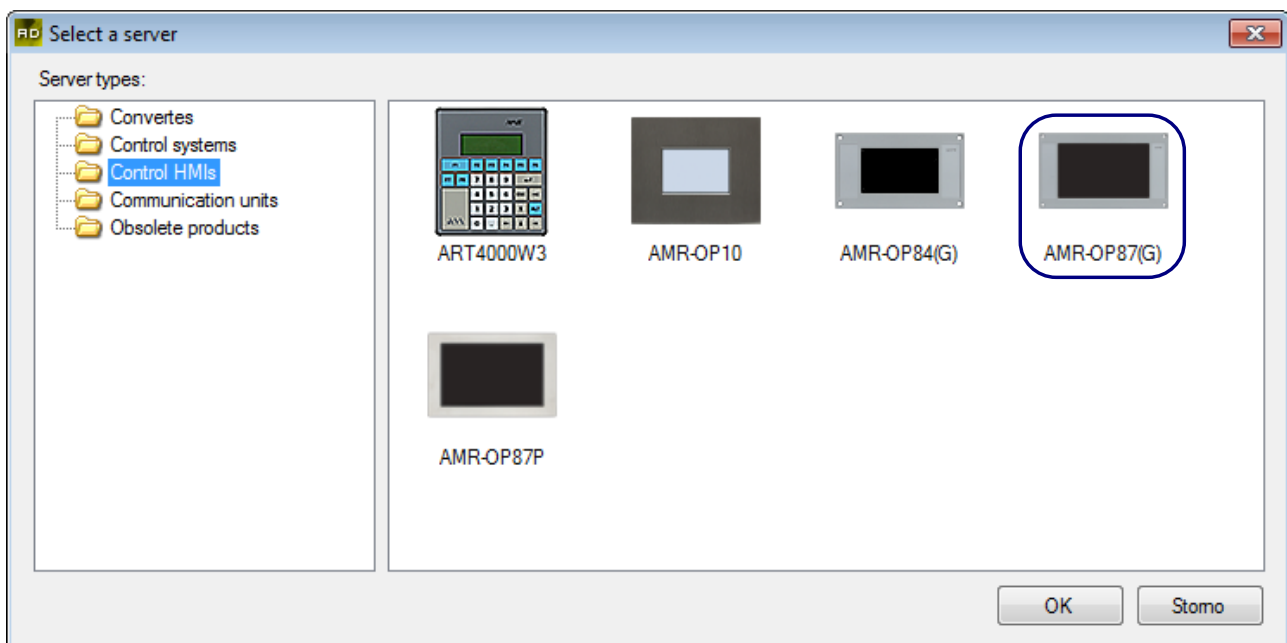


Fig. 2 – The webserver type selection window.

Pressing “**OK**” confirms the selection and closes the selection window.

Selecting the “Create directory” option in the “New project” window causes the AWDet to create a project directory in “AWDET/Projects” after confirming the “New project window”. In the “Projects” subdirectory, there will be an “ap0046_en_05” directory containing the AWDet project itself.

After creating the project, a window with global settings of the web site appears. Use it to set common parameters for the web site created in AWDet studio.

Leave the resolution settings at (1024 × 768) pixels and the justification at left – see the following figure. Confirm settings by pressing “OK”.

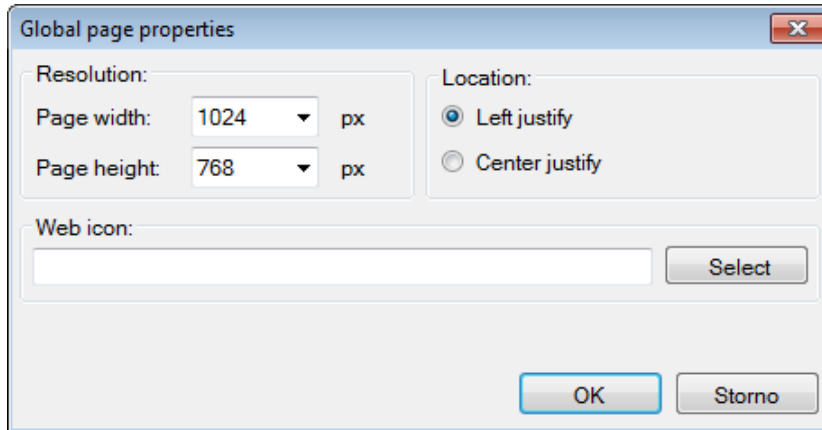


Fig. 3 – Global page properties window

After setting global parameters, a window for setting communication parameters will open. In the “Setting communication” window, set the Offline mode to True and confirm the window by pressing “OK”.

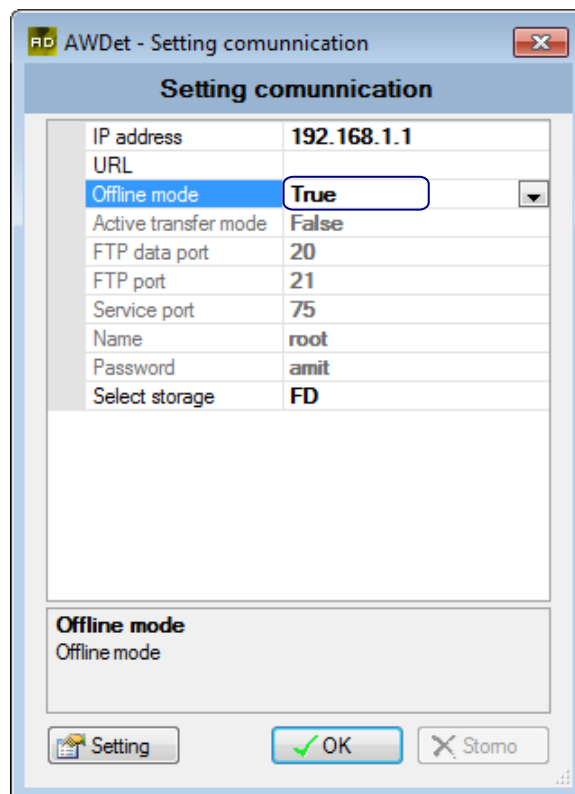


Fig. 4 – Setting the Offline mode

4.2 Binding a server with a station

To bind a station with a server, it is necessary to set the DetStudio source file for the specific station. Use the esidet_p1_en_02.dsox application included in the DetStudio installation. After setting the source file, all variables, aliases, properties of blocks and objects (and potentially the operation log texts) of the stations are automatically imported from the DetStudio project. Furthermore, with PseDet stations, it is possible to import aliases and operation log texts even from PSP3 or via *.CSV files. To import the project, use the “Project/Server configuration” item in the AWDet menu.

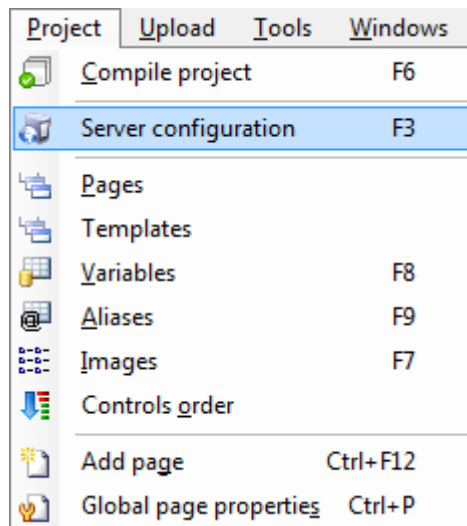



Fig. 5 – Preferences of DetStudio project import into AWDet

“AWDet – Server configuration” window opens – use the  button in the “Source file” tab to define the address of the given file.

When importing a DetStudio project, it is possible to use the “Import remote station” option. The import itself will occur automatically by adding the DetStudio project. However, the stations need to be pre-defined in the DetStudio project. Further information is available in chapter 10 “Appendix D”.

Screen import is described in chapter 7 “APPENDIX A”.

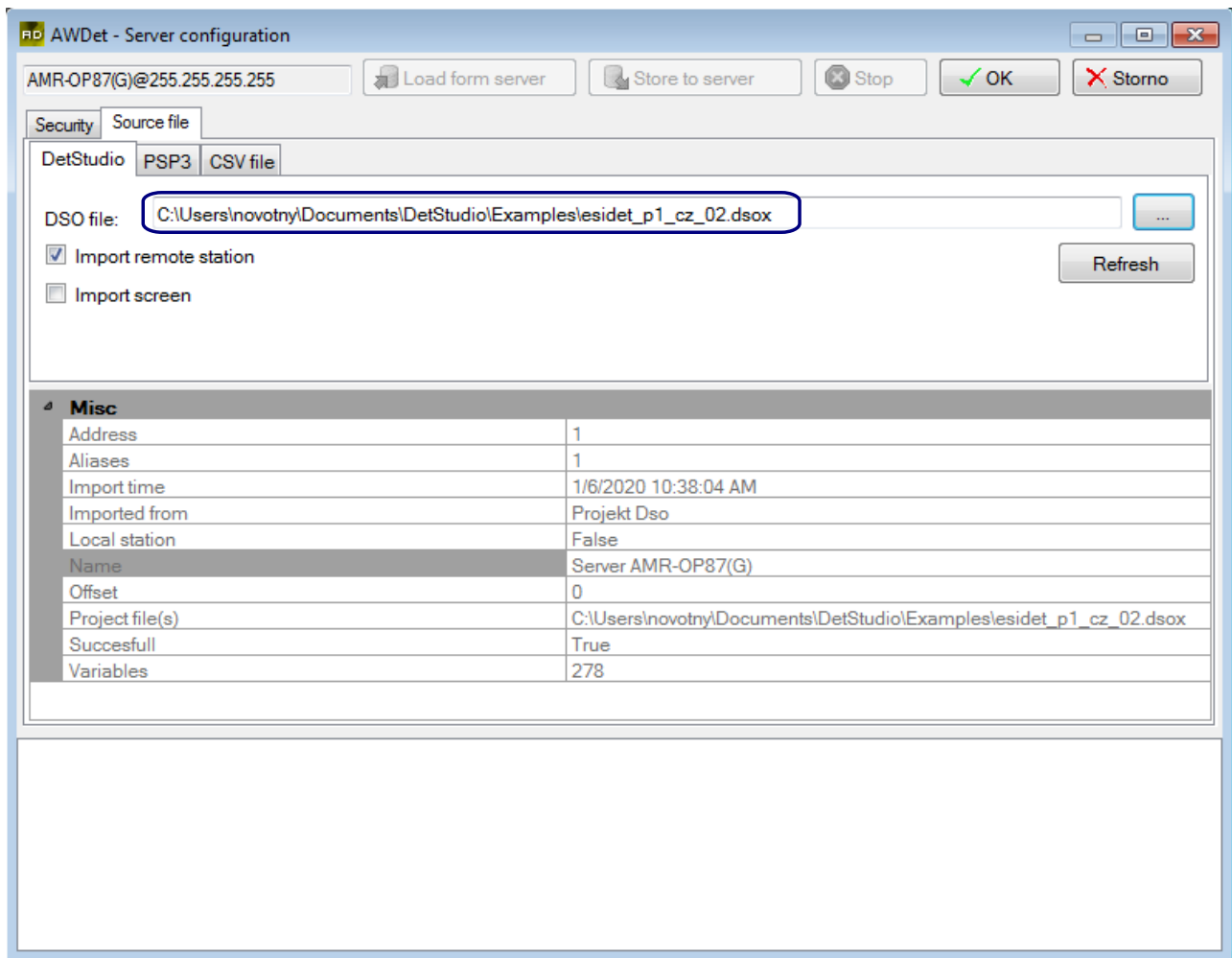


Fig. 6 – DetStudio project import into AWDet

4.3 Web site parametrization

Design of the web site is created in a WYSIWYG manner. That means that the user is not required to know any kind of programming or mark-up language to build the site.

A blank project already contains three empty web pages in the “Project” window. The user may edit them in any manner or delete them altogether.

The first page a web browser displays after entering the web server address is the Index page. For the purposes of this tutorial, use the Index page as a dashboard for the status of the technology.

As a first step of web design, change the update period of data on the web page. Change the period in the “Properties pages” window that is accessible via the “Properties” item in the context menu that opens after right-clicking the given web page in the “Project” window.

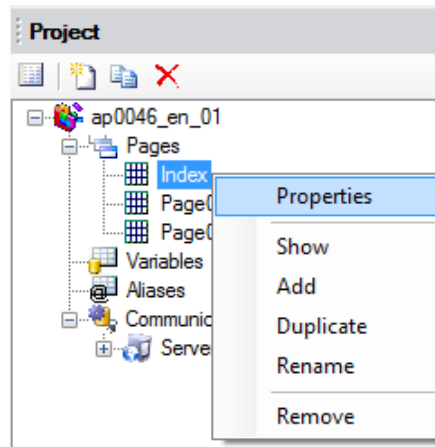


Fig. 7 – Opening the Properties pages window

In the “Parameters” tab, set the web page data update period in the “Auto reload” section. Check the “Enabled” option and enter the required period of automatic data update into the “Period” field (minimum period is 5 s). Should the option remain unchecked, the web page data would refresh only after pressing the browser “**Refresh**” button.

Caution

Setting a too low period of automatic data update places unnecessary load on the web server in terms of its computing power. That may even cause the web server to become overloaded by read requests (depending on the number of communicated variables).

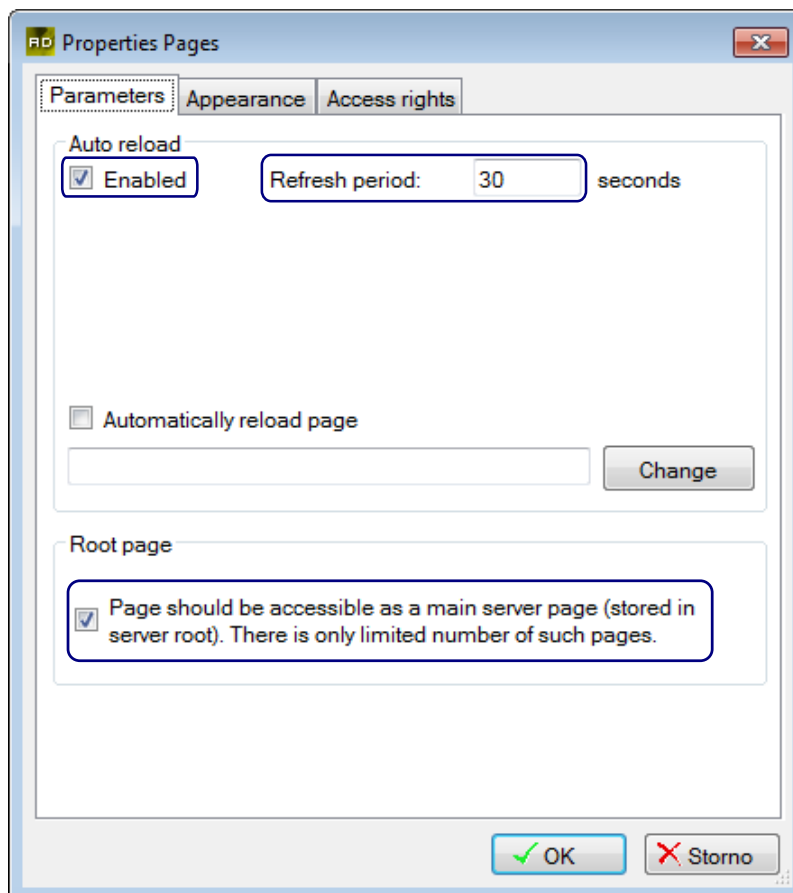


Fig. 8 – Setting the Index page parameters

The “Root page” section is used to set a direct access to the page from a web browser. The Index page needs to have the root page option checked always. With the rest of the pages, the choice lies with the user. More detailed description of root pages is in the AWDet help. Leave the “Root page” settings as is and confirm settings by pressing “OK”.

4.3.1 Images

To insert an image – be that onto a page, the background or as an object – it first needs to be loaded into the list of images. To insert an image into the list, use the “Project/Images” menu item.

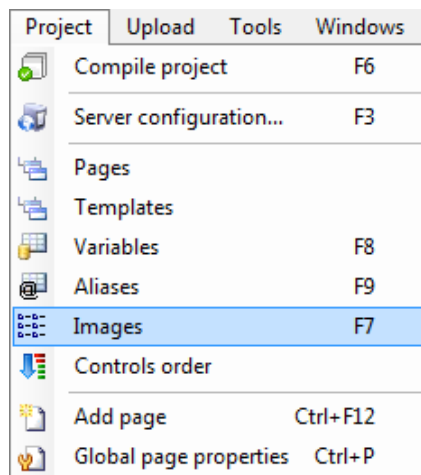


Fig. 9 – Opening the window with the list of usable images

Clicking the menu item opens the “Pictures importer” window. It is used to import images into the project and to adjust their properties.

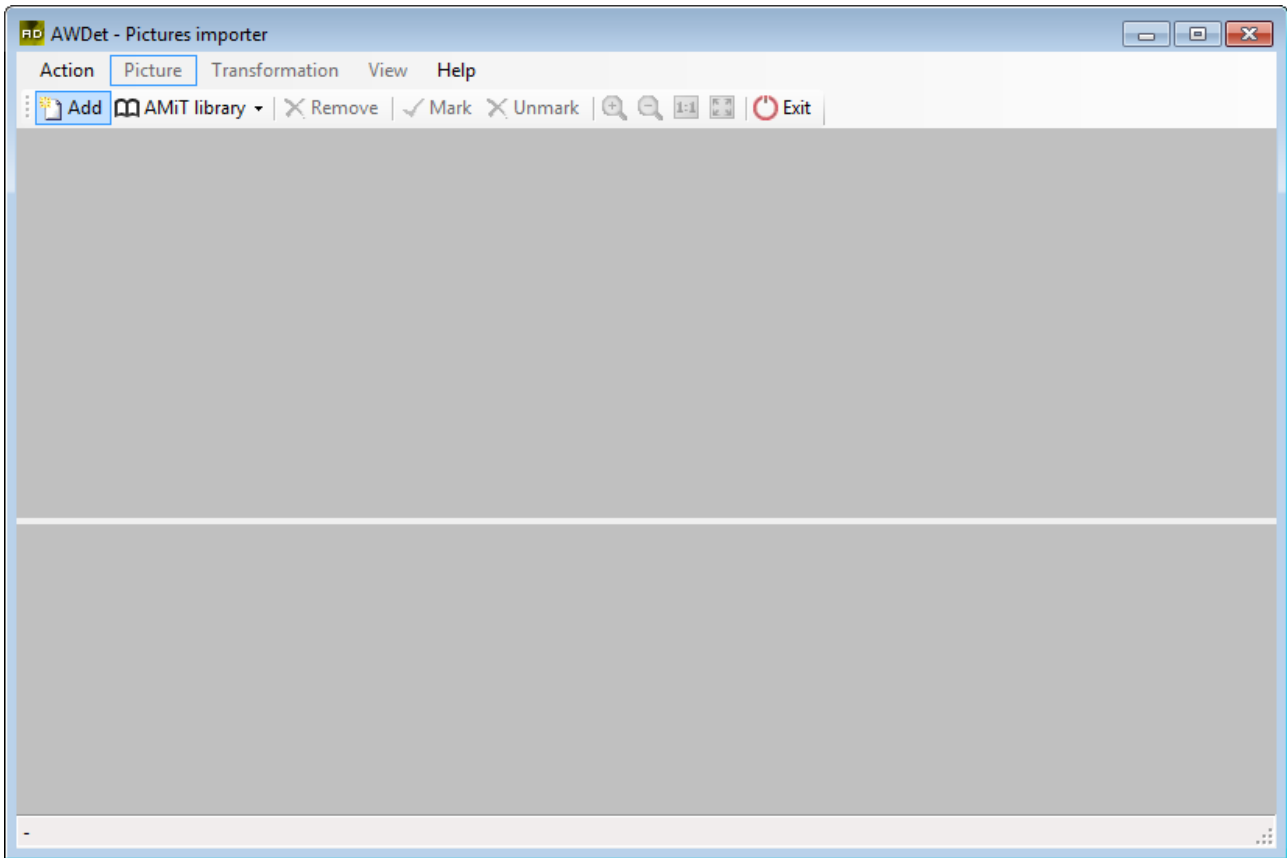


Fig. 10 – Pictures importer window

Clicking the “**Add**” button in the importer opens a file picker window for selecting the picture file(s) that is to be imported into the project.

Libraries with ready to use images are included in the importer window.

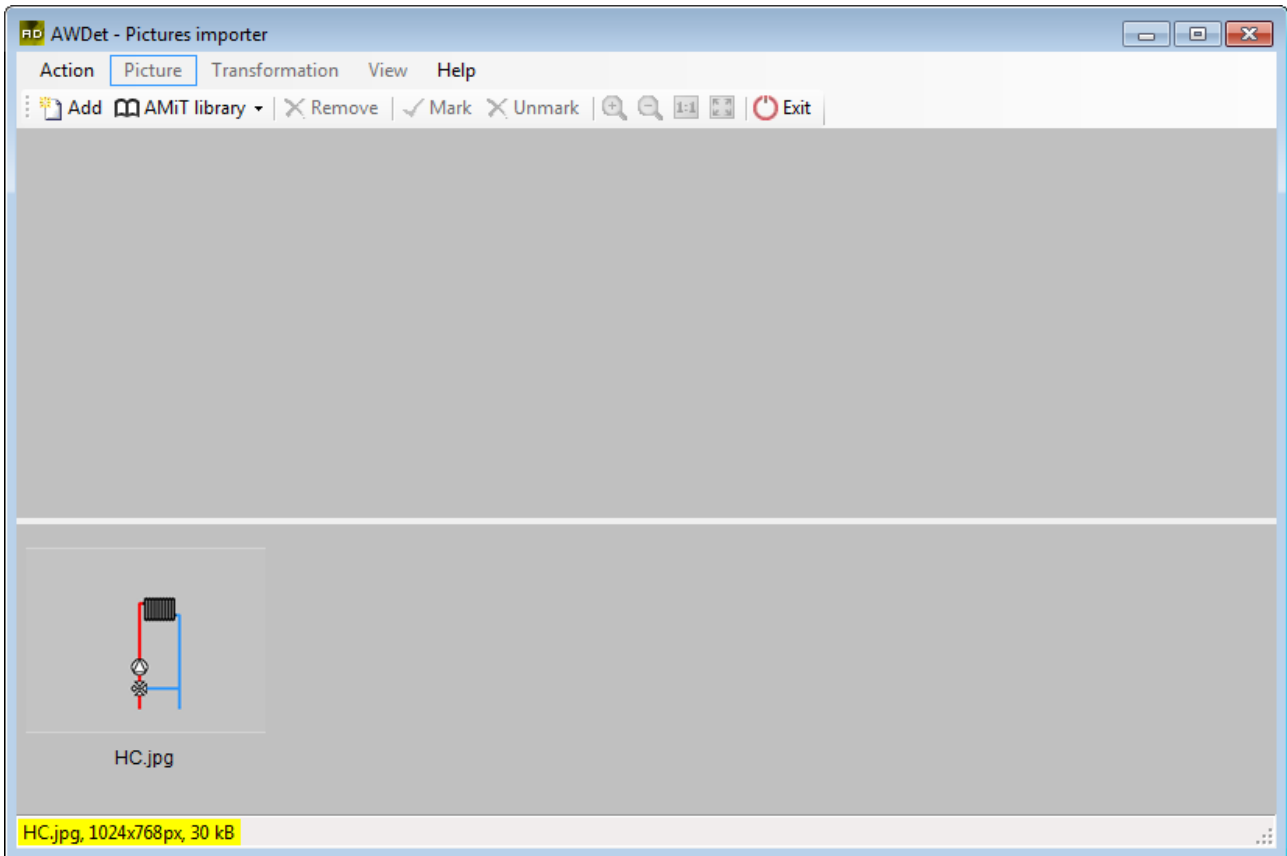


Fig. 11 – An image imported in the project

That imports the image into the project and it is possible to close the “Pictures importer” window.

An image can be inserted on a page as an individual entity (the **Image** element) or it may be used in those elements that allow the use of images for displaying states/values, or it is possible to use the image as a background of a page.

To set the background of a page, use the “Properties pages” window that is accessible via the “Properties” item in the context menu that opens after right-clicking the Index web page in the “Project” window. In the “Properties pages” window, go to the “Appearance” tab and select the “Local” option (to choose an image that is directly in the web server). Clicking the “**Select**” button opens the pictures importer – use it to select a pre-imported image and confirm your selection by pressing “**Select picture and exit**”.

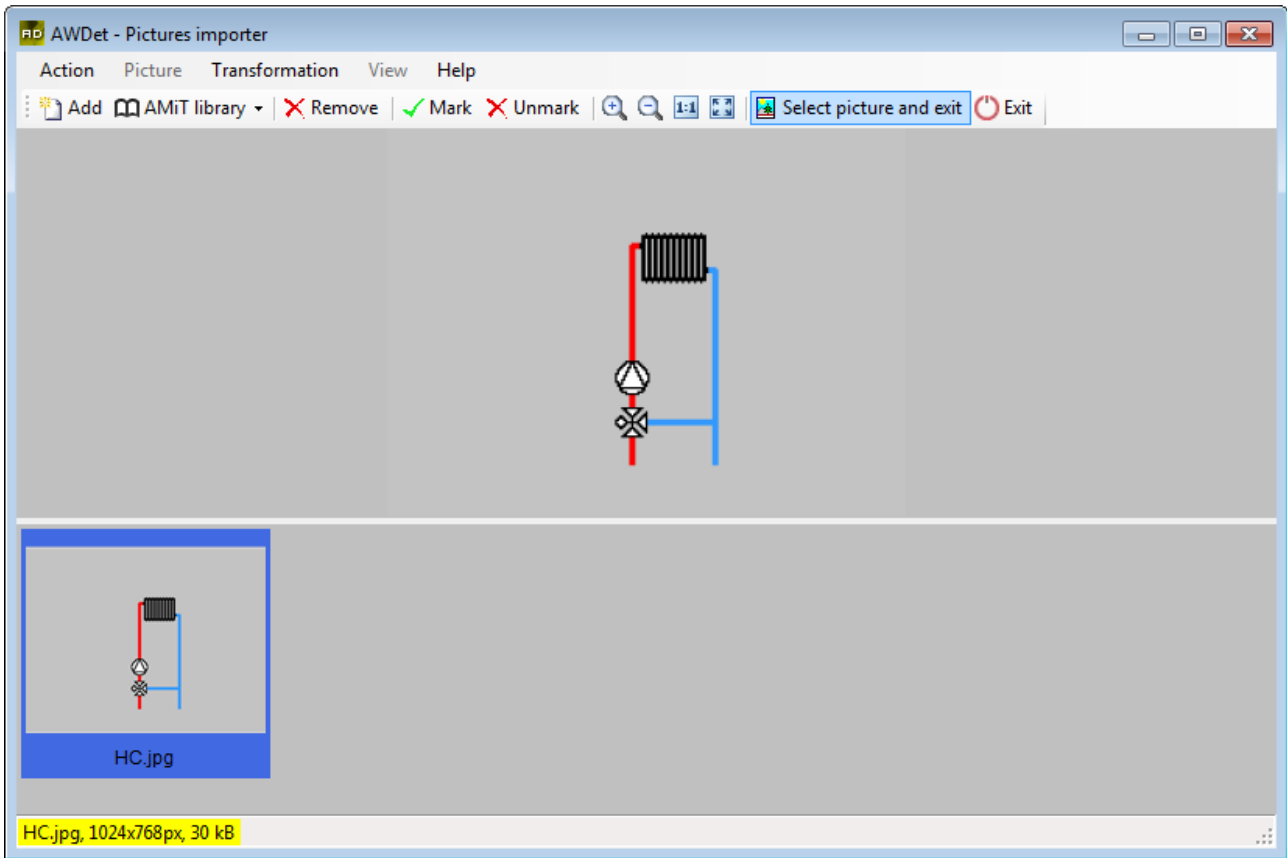


Fig. 12 – Selection of an image for the Index page background

Pressing the button closes the importer window. Back in the “Properties pages” window, the name of the image will be in the “Local” field. Next, set the title of the page and confirm settings by pressing “OK”.

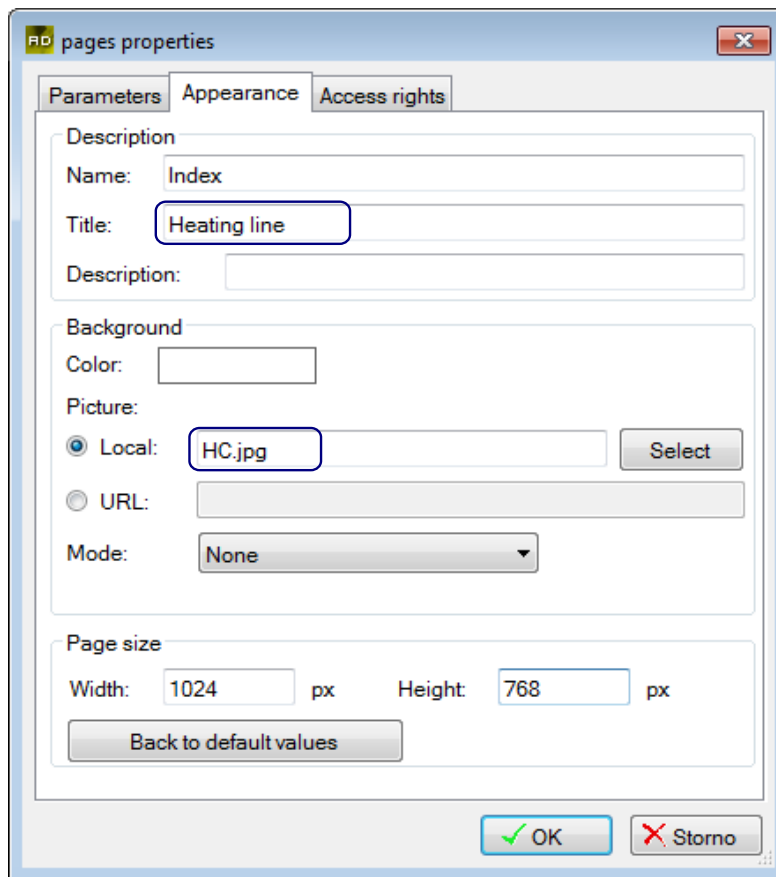


Fig. 13 – Setting the Index page properties

Note

The image needs to be saved on the web server. It is possible to place it on a different server on the internet. In such a case, specify the address of the image in the “URL” field. The web server won’t therefore need to load images and will have a significantly faster response time.

4.3.2 Position and size of page elements

After placing any element onto the page, it is possible to adjust its size by using any of the eight sizing handles. It is further possible to adjust the position of the element:

- ◆ by dragging and dropping the element onto the desired position,
- ◆ by pressing the arrow keys – a single press of an arrow key will move the image 1 pixel in the direction of the arrow,
- ◆ by pressing the arrow keys along with the CTRL key – in this case, a single press will move the image 1 grid span in the direction of the arrow.

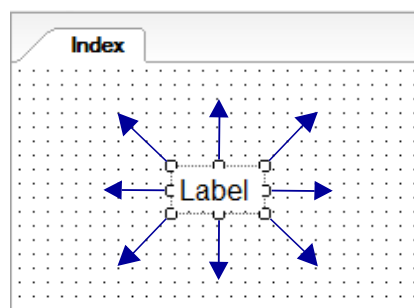


Fig. 14 – Sizing handles of the image

Position and size can be set even in the “Location” tab of the “Properties” window. To open the “Properties” window, double-click the element. In the “Location” tab of the “Properties” window, it is possible to set the size and positioning of the element.

4.3.3 Using static text

To insert static text, use the `Label` element. Drag it onto the desired location on the screen from the “Toolbox” window.

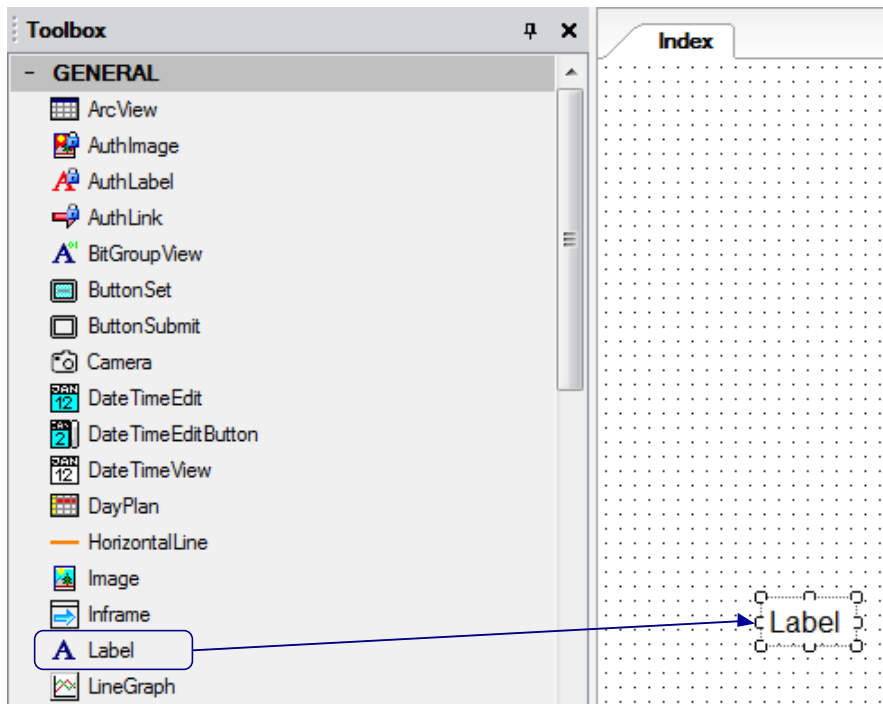


Fig. 15 – Dragging an element from the “Toolbox” window to the page

After positioning an element, double-click it to open the “Label properties” window. In the “Parameters” tab, enter the text of the `Label` element. Furthermore, in the “Parameters” tab, it is possible to set auto-sizing (based on the quantity and size of text), vertical centring of text or none of the two options.

In the “Style” tab, set the desired font and text justification within the `Label` element.

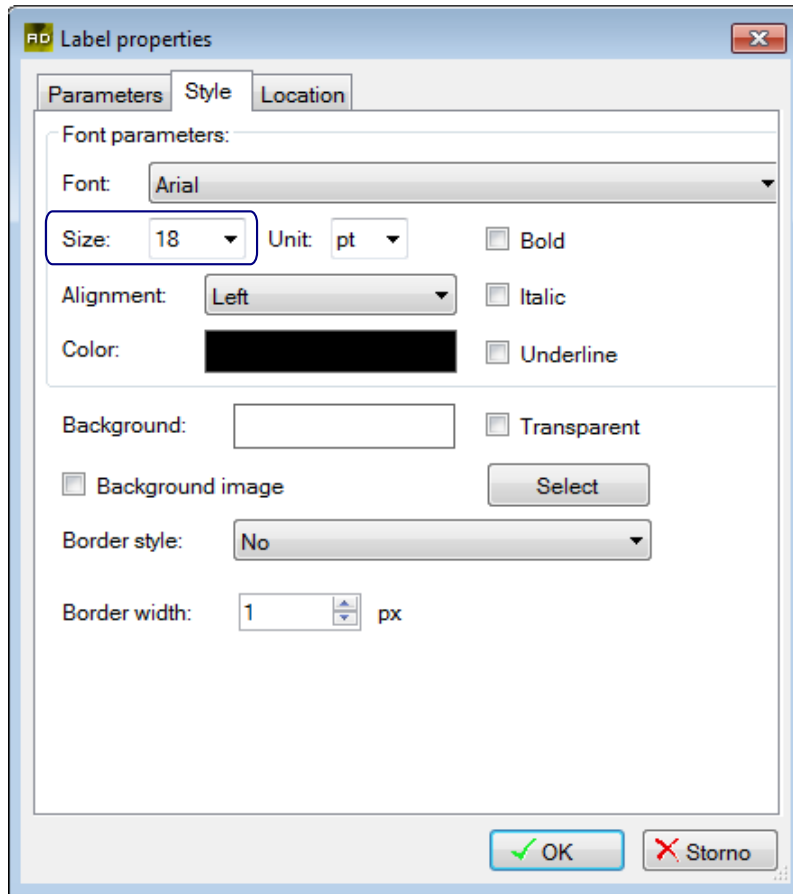


Fig. 16 – Style of Label elements on the Index page

On each page, add a `Label` element with a concise description of the page. Define the appearance of the `Label` element in the “Style” tab.

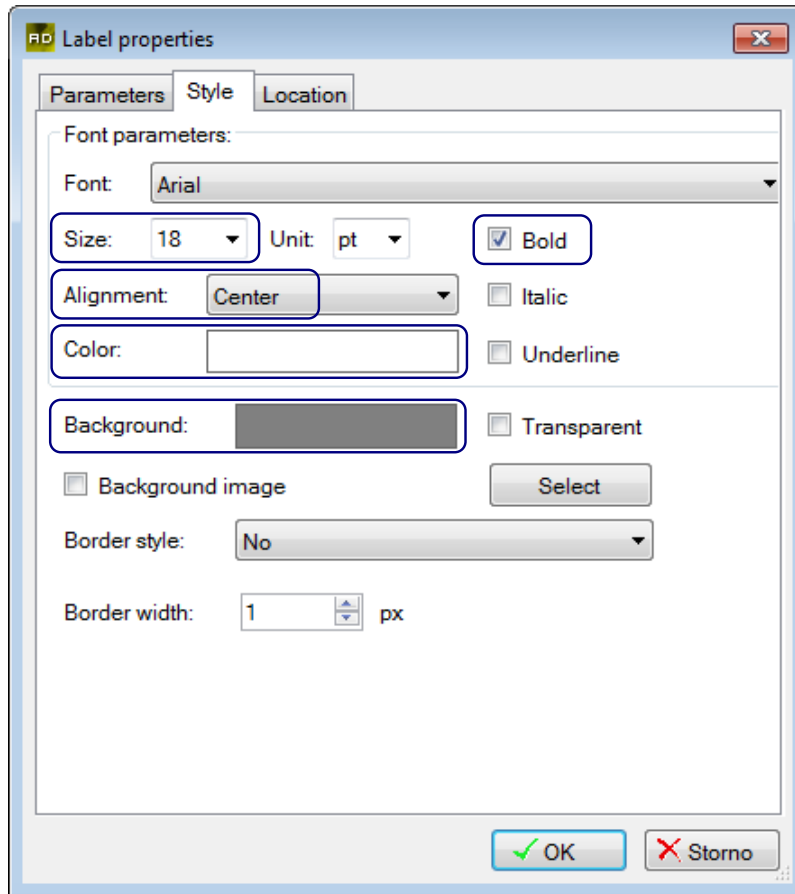


Fig. 17 – Style of Label elements used to describe the displayed page

After that, confirm the settings in the “Label properties” window by pressing the “**OK**” button. Place static text fields onto the Index page according to the following figure.

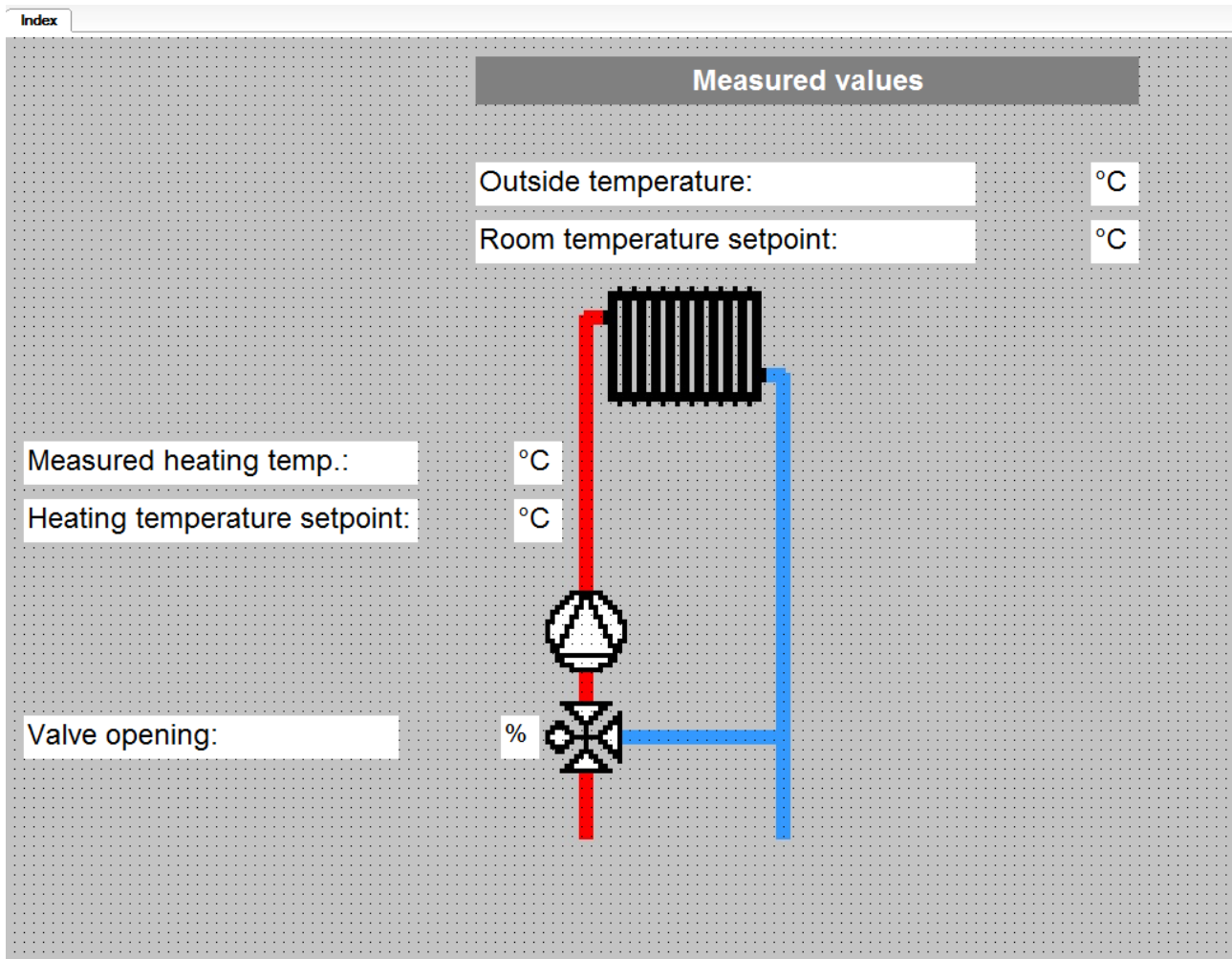


Fig. 18 – Placement and appearance of the Label elements on the Index page

4.3.4 View the variable value

To display a variable value, use the **NumericView** element. For the purposes of the sample application, display the measured and required temperatures and the value of valve opening. Drag a **NumericView** element from the “Toolbox” window onto the page. Place the elements between **Label** elements describing the value.

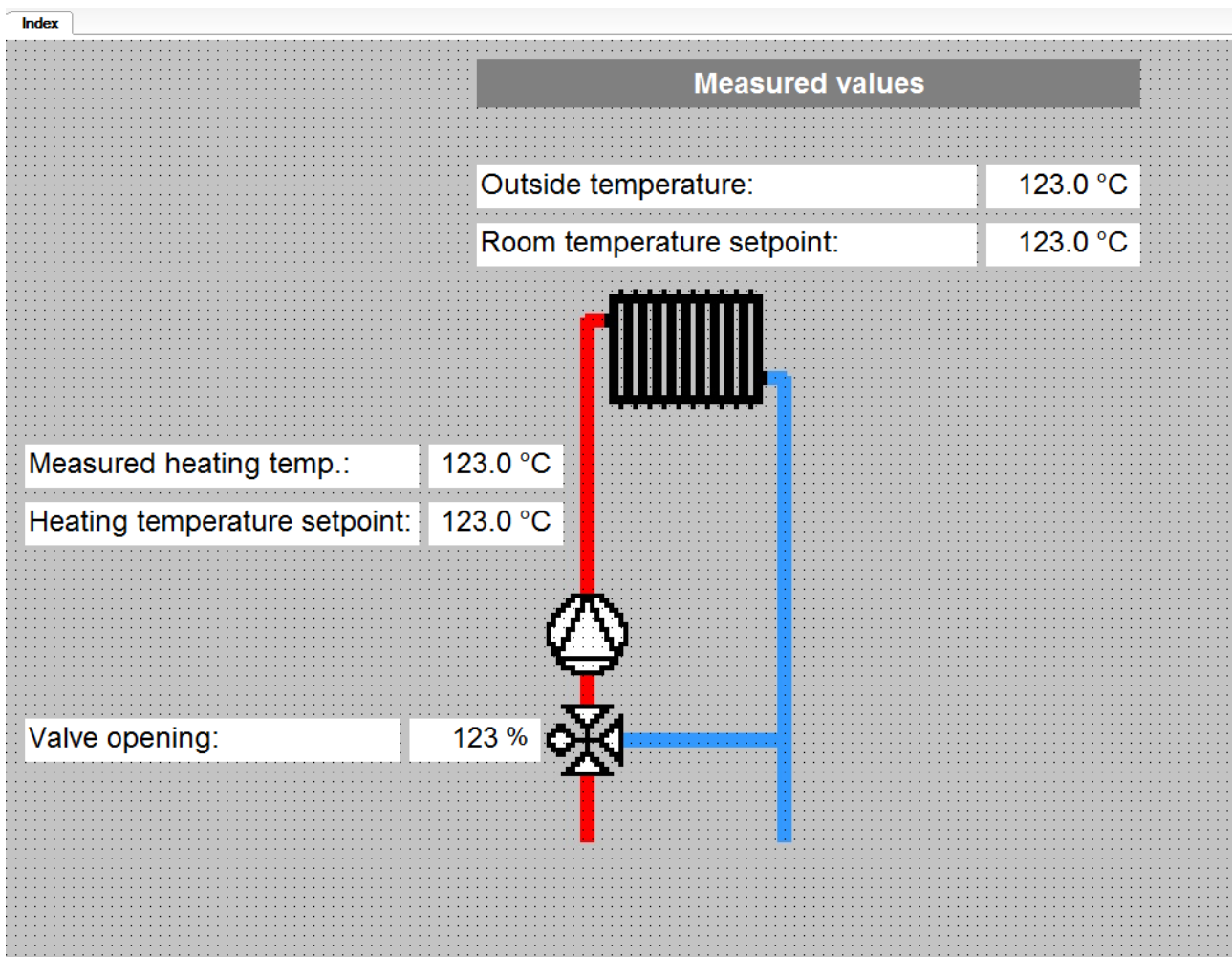


Fig. 19 – Position of NumericView elements

After positioning the element, double-click it to open the “NumericView properties” window. Select the variable the value of which is supposed to be displayed in the **NumericView** element by going to the “Variable” tab and clicking the “**Select**” button. Select these variables:

Label element text	Variable
Outside temperature:	Server AMR-OP87(G).MM.M_AIDO1.Temp_Outside.Value
Room temperature setpoint	Server AMR-OP87(G).RegulaceCFC.DayPlan1.Output
Current heating line temperature	Server AMR-OP87(G).MM.M_AIDO1.Temp_HW.Value
Heating line temperature setpoint	Server AMR-OP87(G).RegulaceCFC.EqLine1.HeatWaterTemp
Valve opening	Server AMR-OP87(G).RegulaceCFC.Pid1.Action

In the “Parameters” tab, set the format of the displayed variable by using the “**Change**” button. Pressing the “**Change**” button opens the “Number format selection” window – use it to define the format.

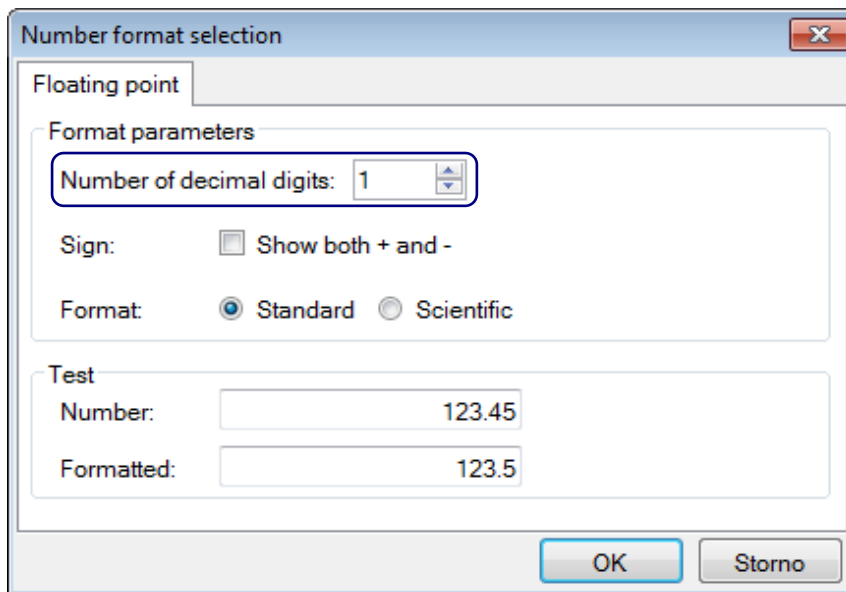


Fig. 20 – “Number format selection” window with a definition of format of time and date

Set the number of decimal places, leave the standard number format and confirm the window by pressing the “OK” button. The **NumericView** element can also change its appearance in case the value is above/below certain threshold. To set it up, check the “Enabled” checkboxes next to the Minimum and Maximum fields of the elements displaying the variables. At the same time, edit the minimum and maximum thresholds in the fields next to the checkboxes.

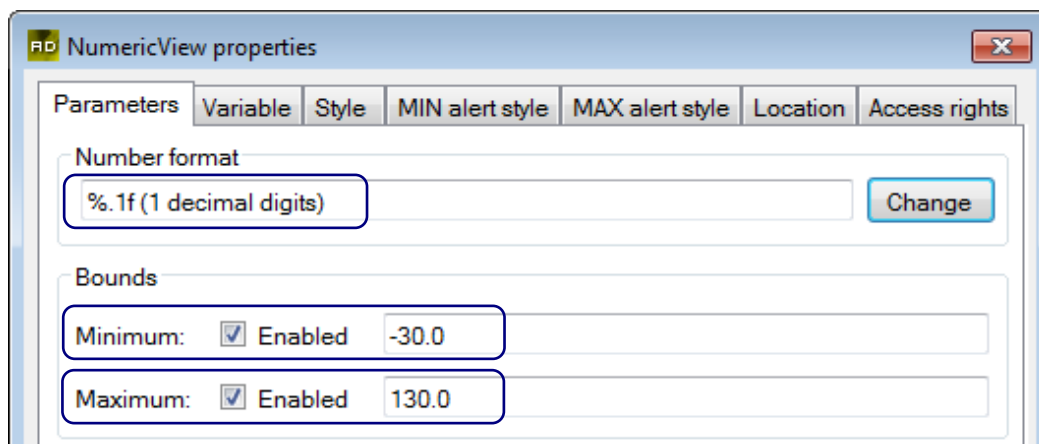


Fig. 21 – Settings NumericView element parameters

Use the “Style” tab to set the appearance of the **NumericView** element when the value of the displayed variable is within the min/max thresholds previously defined in the “Parameters” tab.

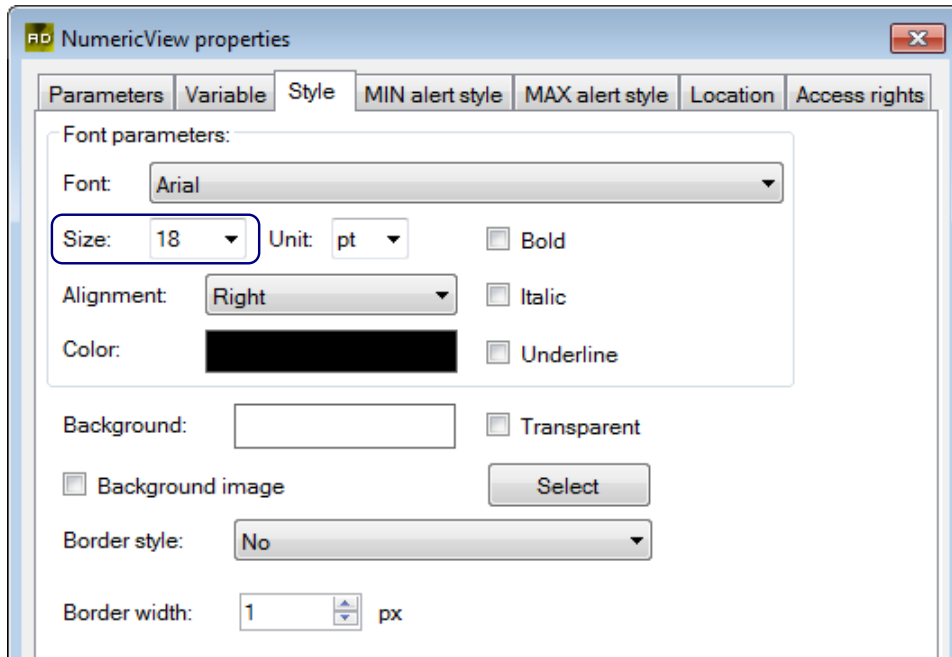


Fig. 22 – NumericView element appearance settings

The appearance of the **NumericView** element when the displayed variable value is below the min threshold previously defined in the “Parameters” tab can be adjusted in the “MIN alert style” tab. While the value is below the minimum threshold, the below defined style is used.

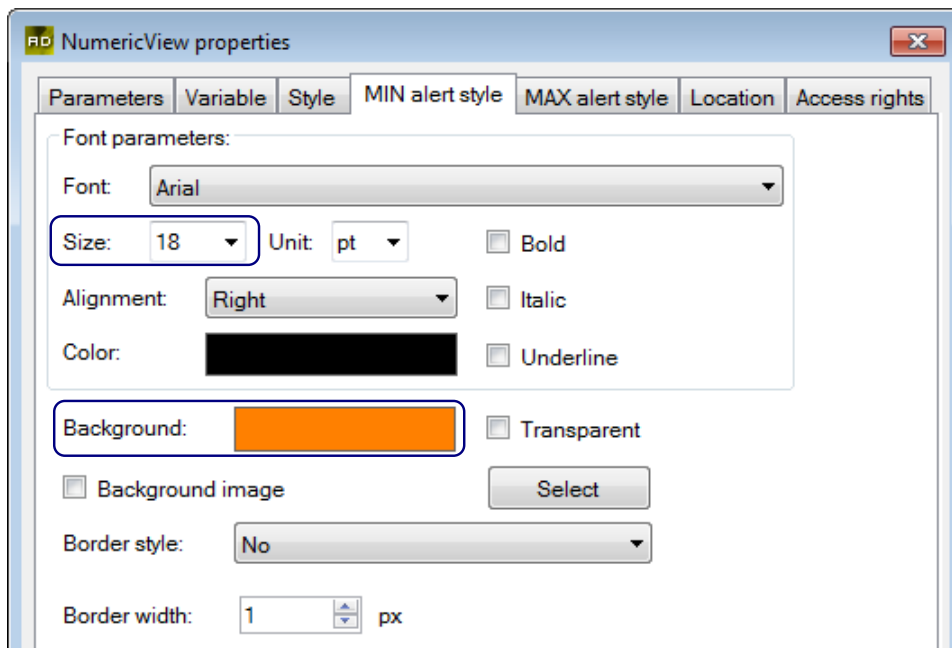


Fig. 23 – MIN alert style definition for the NumericView element

The appearance of the **NumericView** element when the displayed variable value is above the max threshold previously defined in the “Parameters” tab can be adjusted in the “MAX alert style” tab. While the value is above the maximum threshold, the below defined style is used.

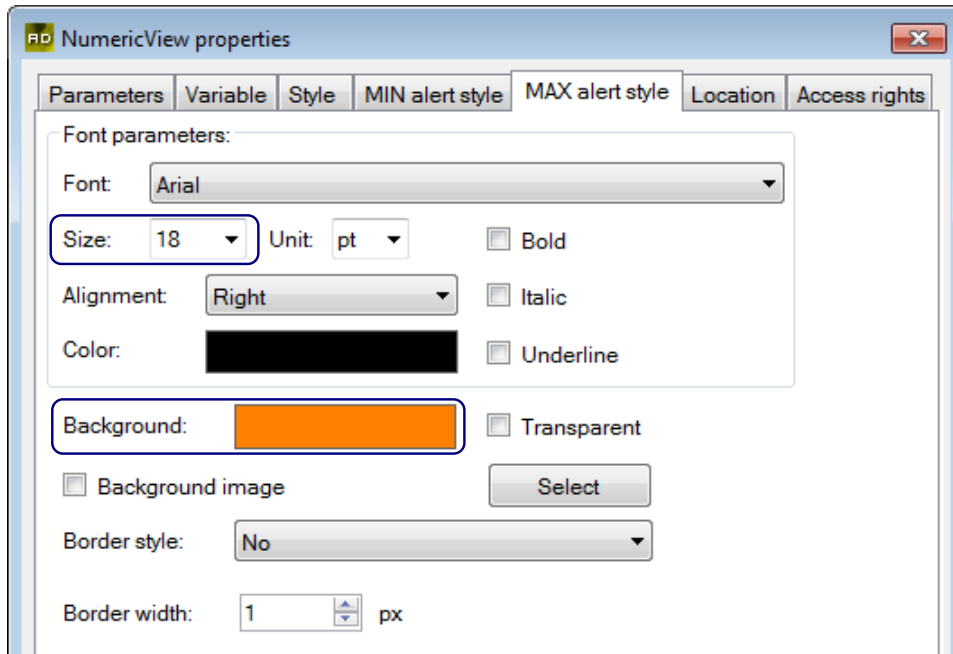


Fig. 24 – MAX alert style definition for the NumericView element

Confirm your settings by pressing the “OK” button.

Adjust the size of the elements by using the sizing handles as required.

4.3.5 Displaying a group of text fields according to the value of variable bits

To display a group of text fields according to the value of variable bits (True/False), use the **BitGroupView** element. For the purposes of the example, display the text fields according to current fault states. Drag a **BitGroupView** element from the “Toolbox” window and drop it onto the Index screen.

Double-click the **BitGroupView** and select the **AMR-OP87 (G) .Alarm1 .Alarm** variable in the “Bit” tab.

In the “Parameters” tab, define individual False and True blocks of text. Consequently, set the number of bits the element will display and define the bit labels in the “Set of description labels”.

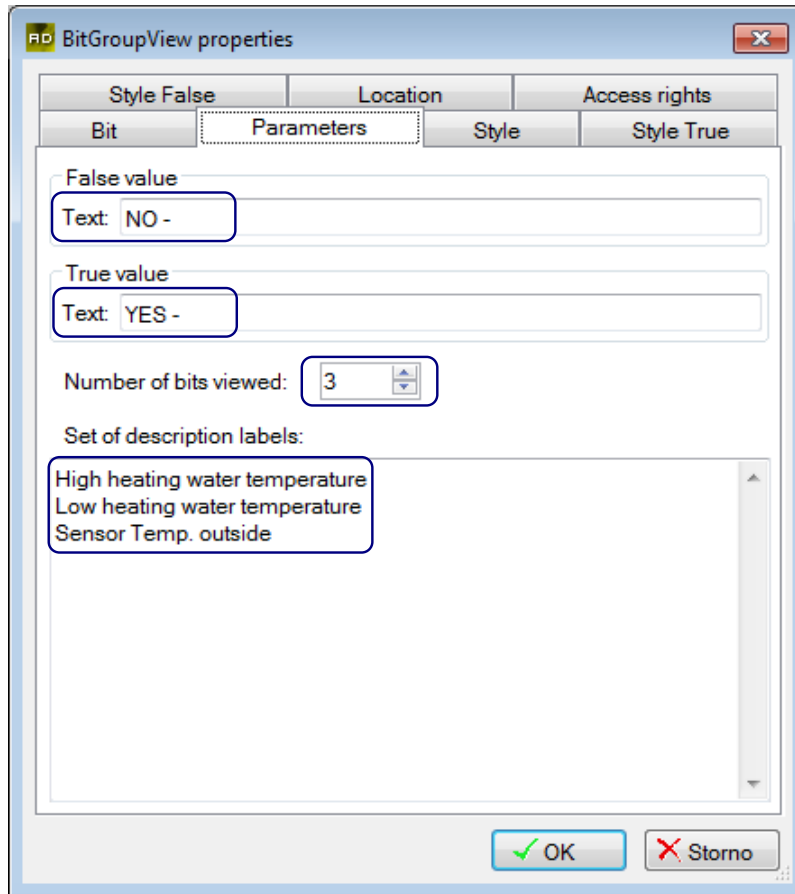


Fig. 25 – Settings BitGroupView element parameters

To set the appearance of the **BitGroupView** element according to individual states, use the “Style True” and “Style False” tabs.

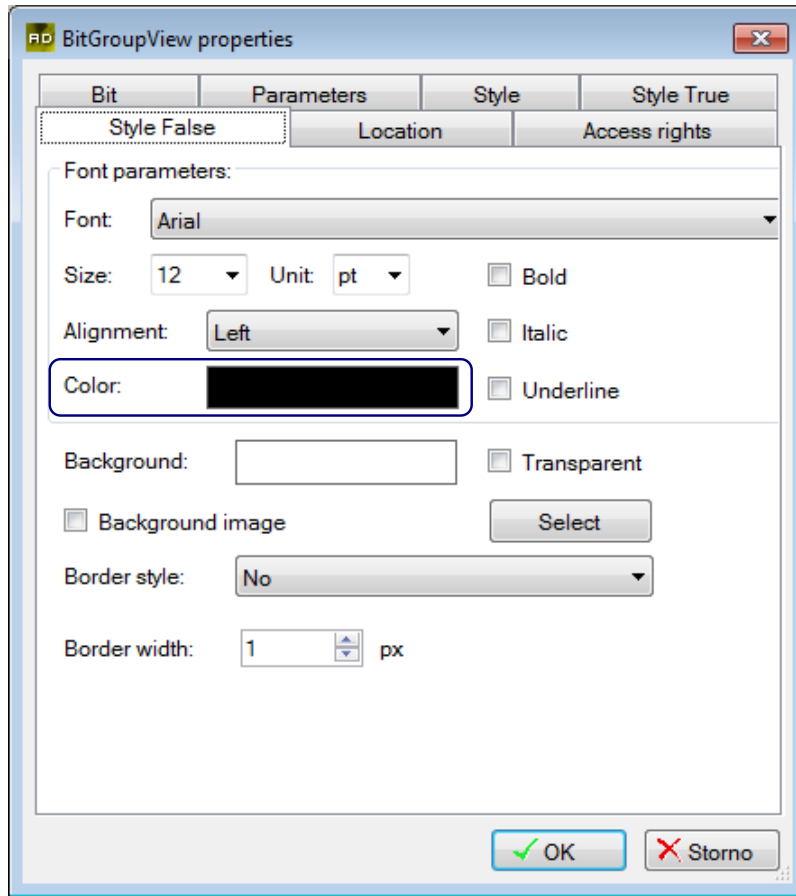


Fig. 26 – Setting the BitGroupView element False style

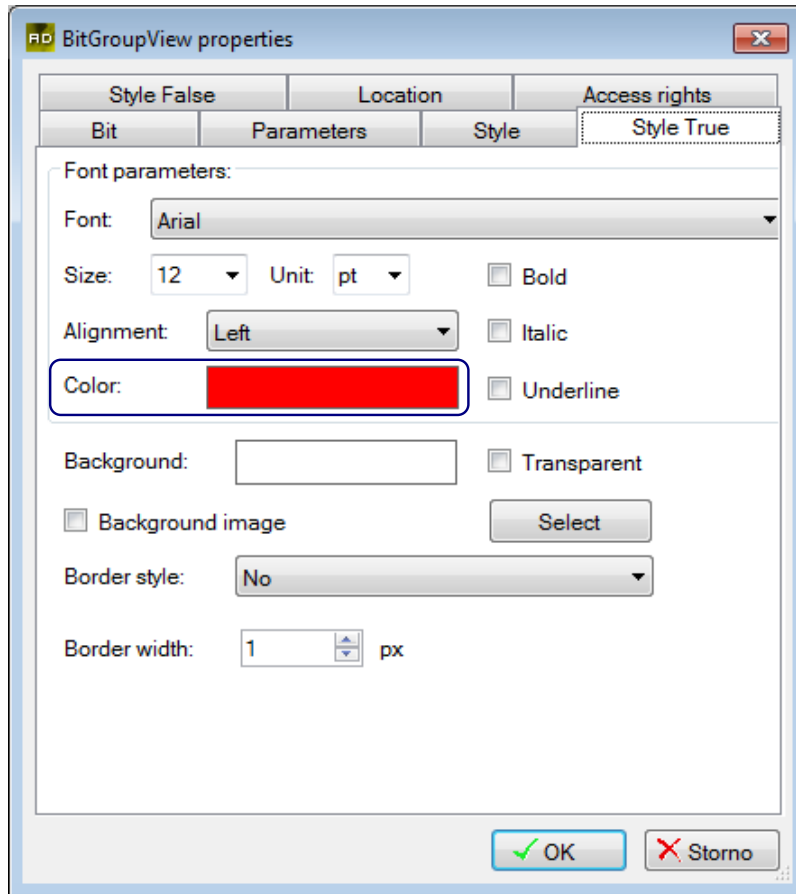


Fig. 27 – Setting the BitGroupView element True style

Confirm your settings by pressing the “**OK**” button.

Adjust the size of the element by using the sizing handles as required.

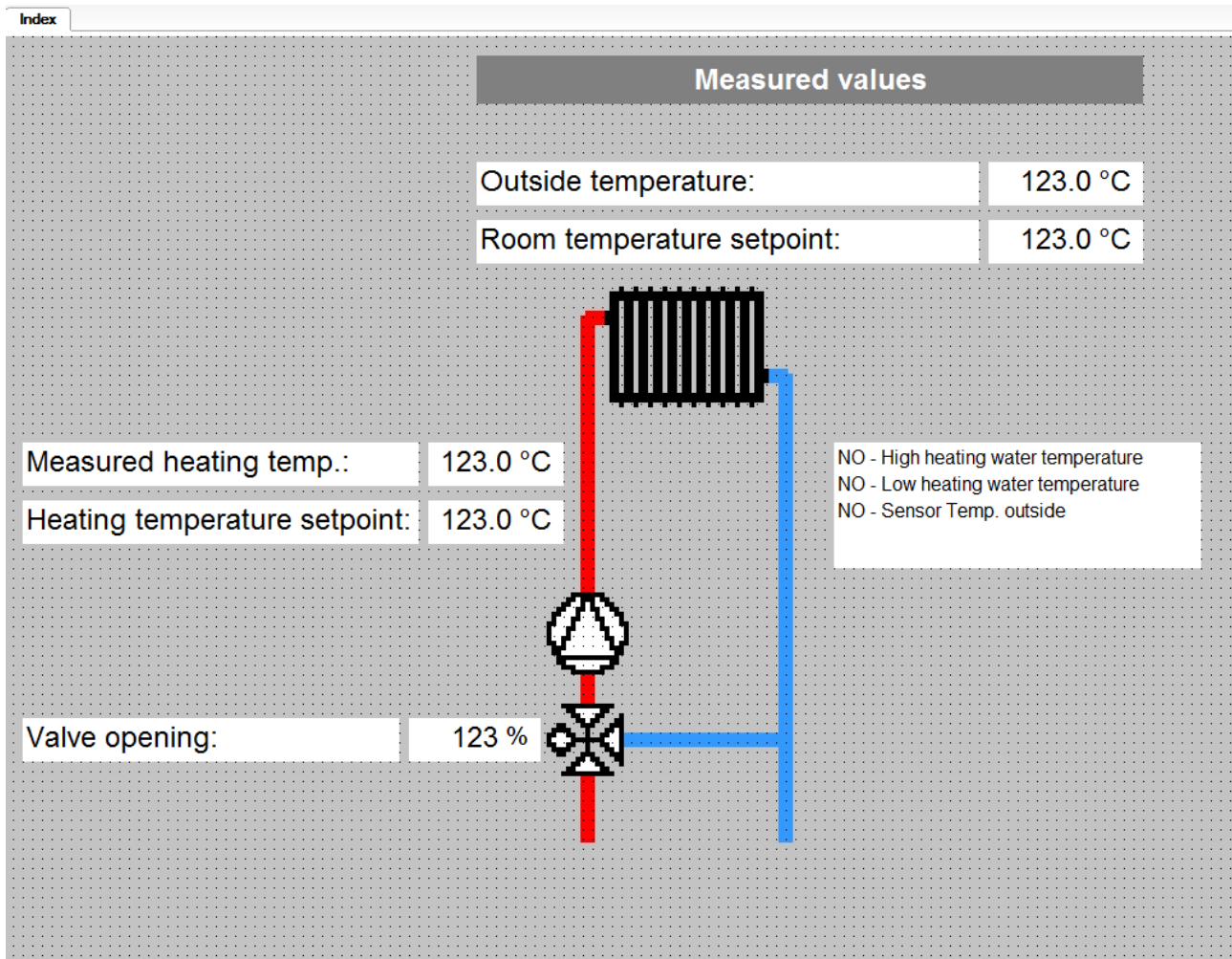


Fig. 28 – Position and final appearance of the BitGroupView element

4.3.6 Date and time view

To view date and time, use the `DateTimeView` element. Drag a `DateTimeView` element from the "Toolbox" window and drop it onto the Index screen. Double-click the `DateTimeView` element to open the "Parameters" tab of the "Properties" window – use it to set the style of date and time. To change the style, press the "**Change**" button. Pressing the "**Change**" button opens the "Number format selection" window – use it to define the the format.

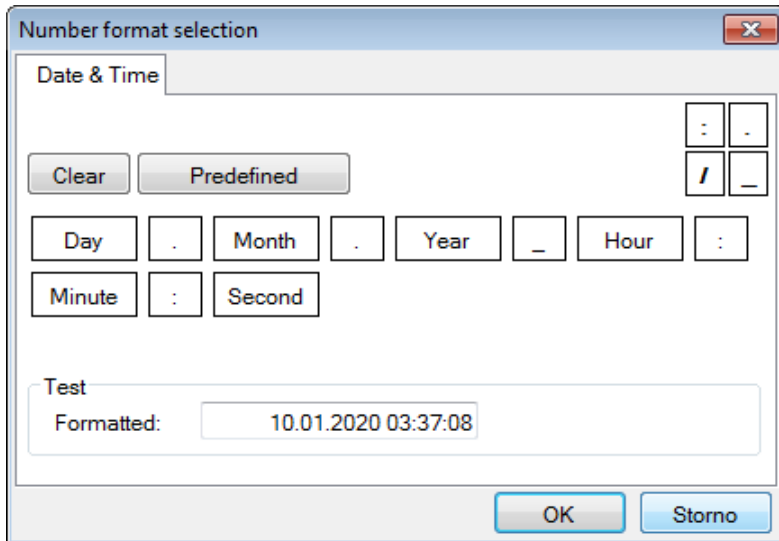


Fig. 29 – “Number format selection” window with a definition of format of time and date

In the “Variable” tab, select the `Server AMR-OP87 (G) .$Station date and time` variable.

Use the “Style” tab to set the appearance of the `DateTimeView` element.

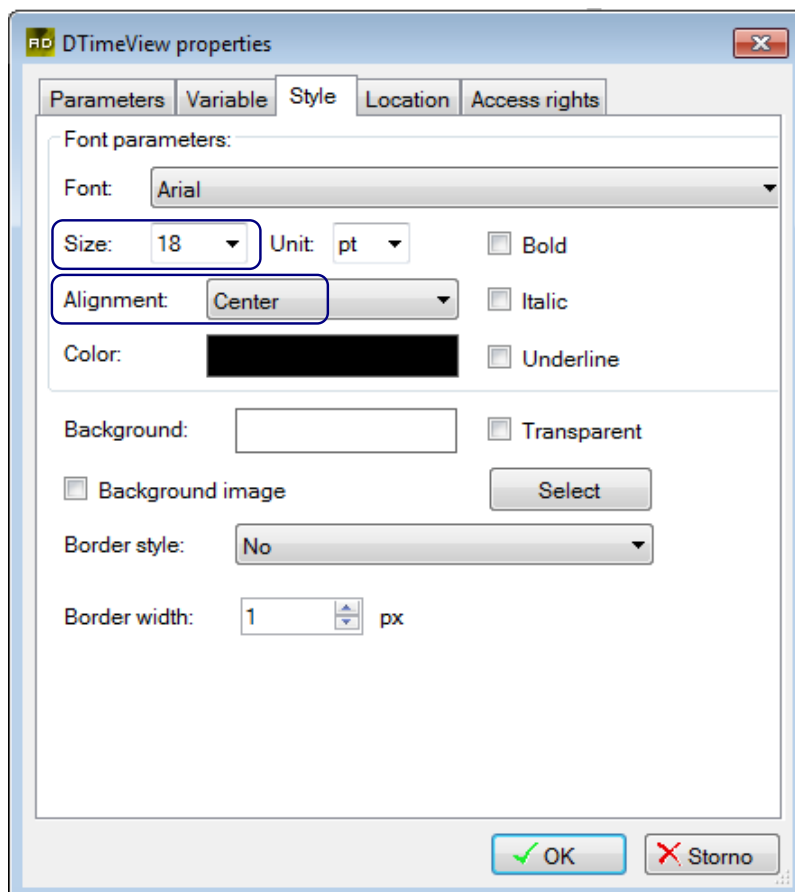


Fig. 30 – DateTimeView element appearance settings

Confirm your settings by pressing the “**OK**” button.

Adjust the size of the element by using the sizing handles as required.

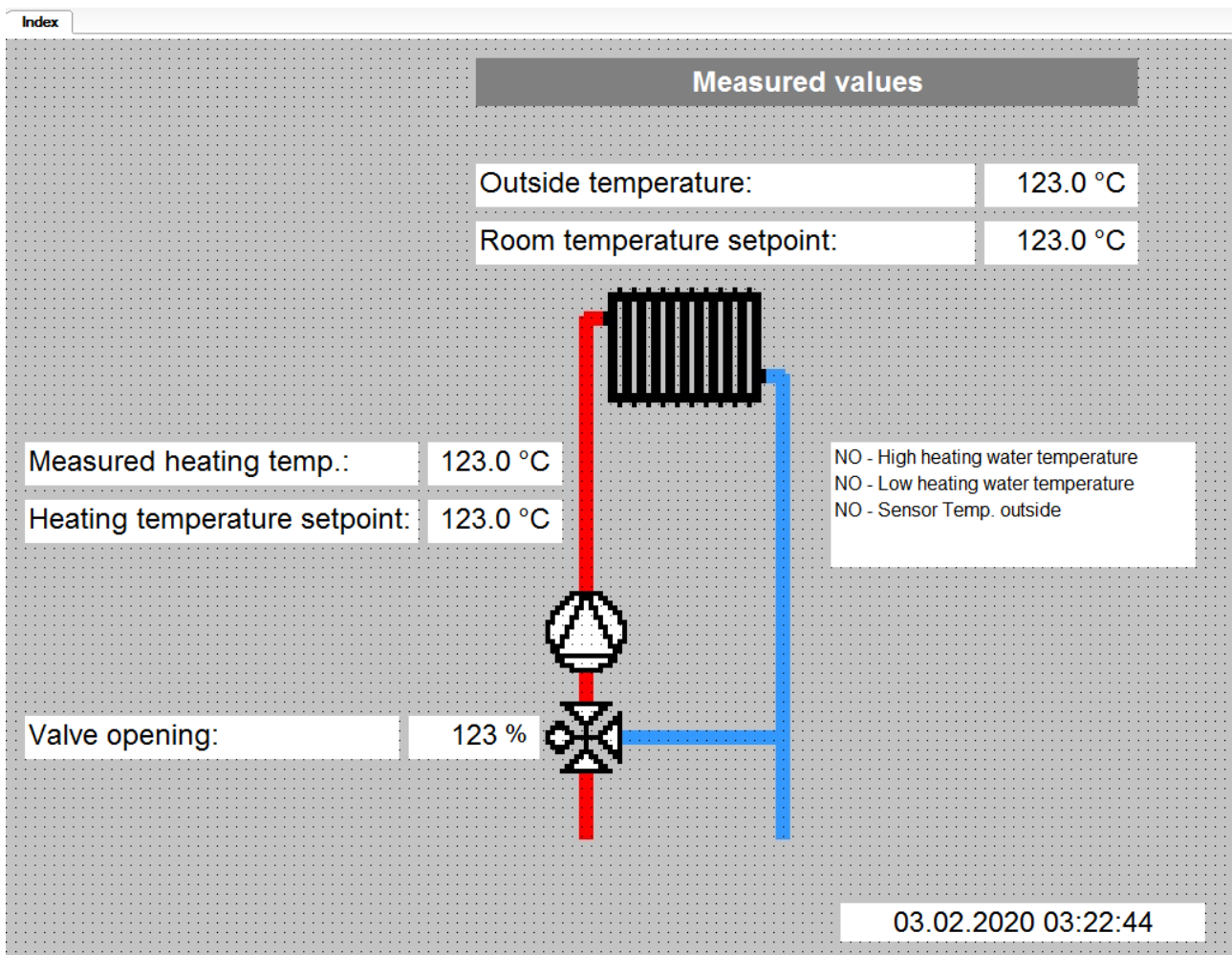


Fig. 31 – Position and final appearance of the DateTimeView element

4.3.7 Viewing a picture via the Image element

To view a picture, use the **Image** element. Drag an **Image** element from the “Toolbox” window and drop it onto the Index screen. Double-click the **Image** element to open the “Image properties” window. Use the “Local” radio button in the “Parameter” tab to select an image located directly on the web server. Clicking the “**Select**” button opens the pictures importer – select picture 30sPB1. It is located in the picture library for timers. Confirm your selection by pressing “**Select picture and exit**”.

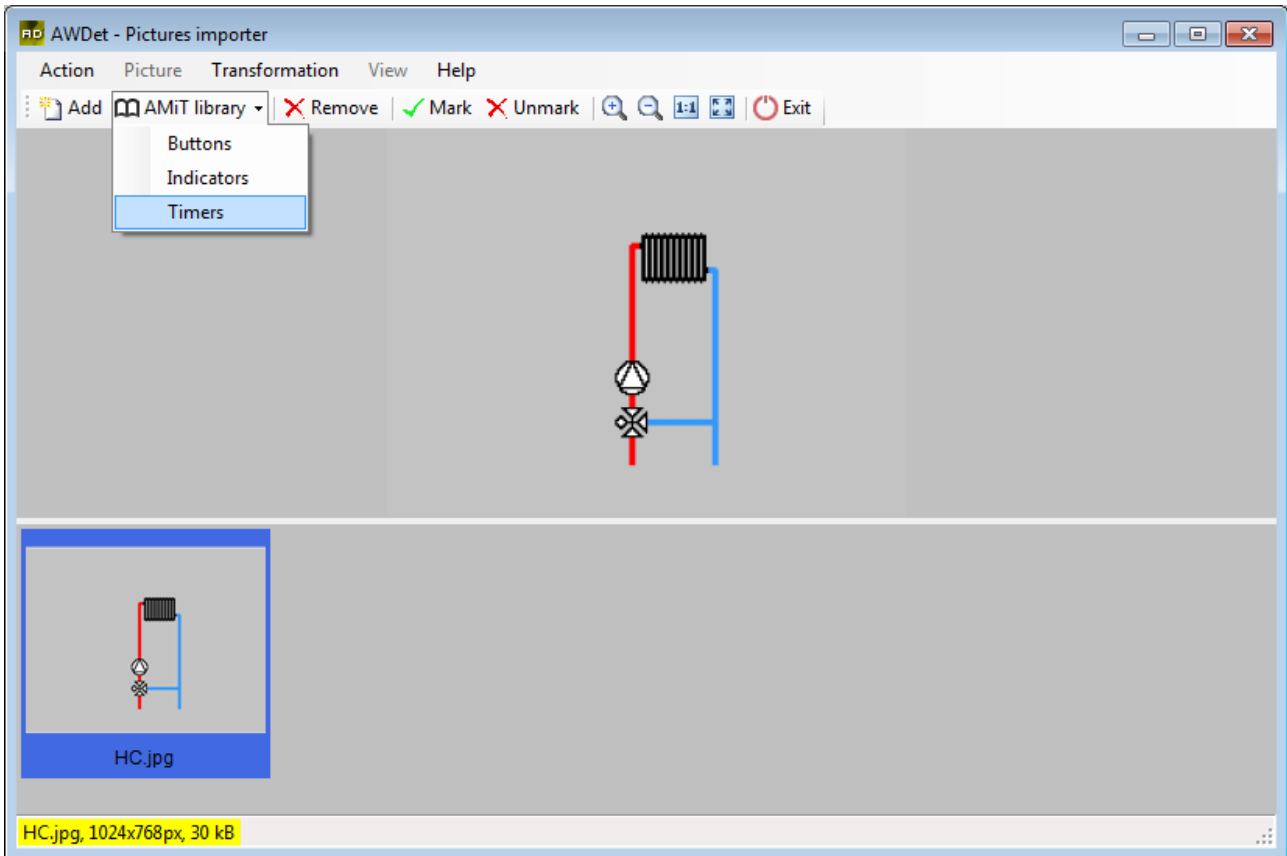


Fig. 32 – The “Timers option” in the “AMiT library” menu in the Picture importer

Use the default values in the “Properties” window “Mode” tab of the **Image** element. Confirm your settings by pressing the “**OK**” button.

Adjust the size of the element by using the sizing handles as required.

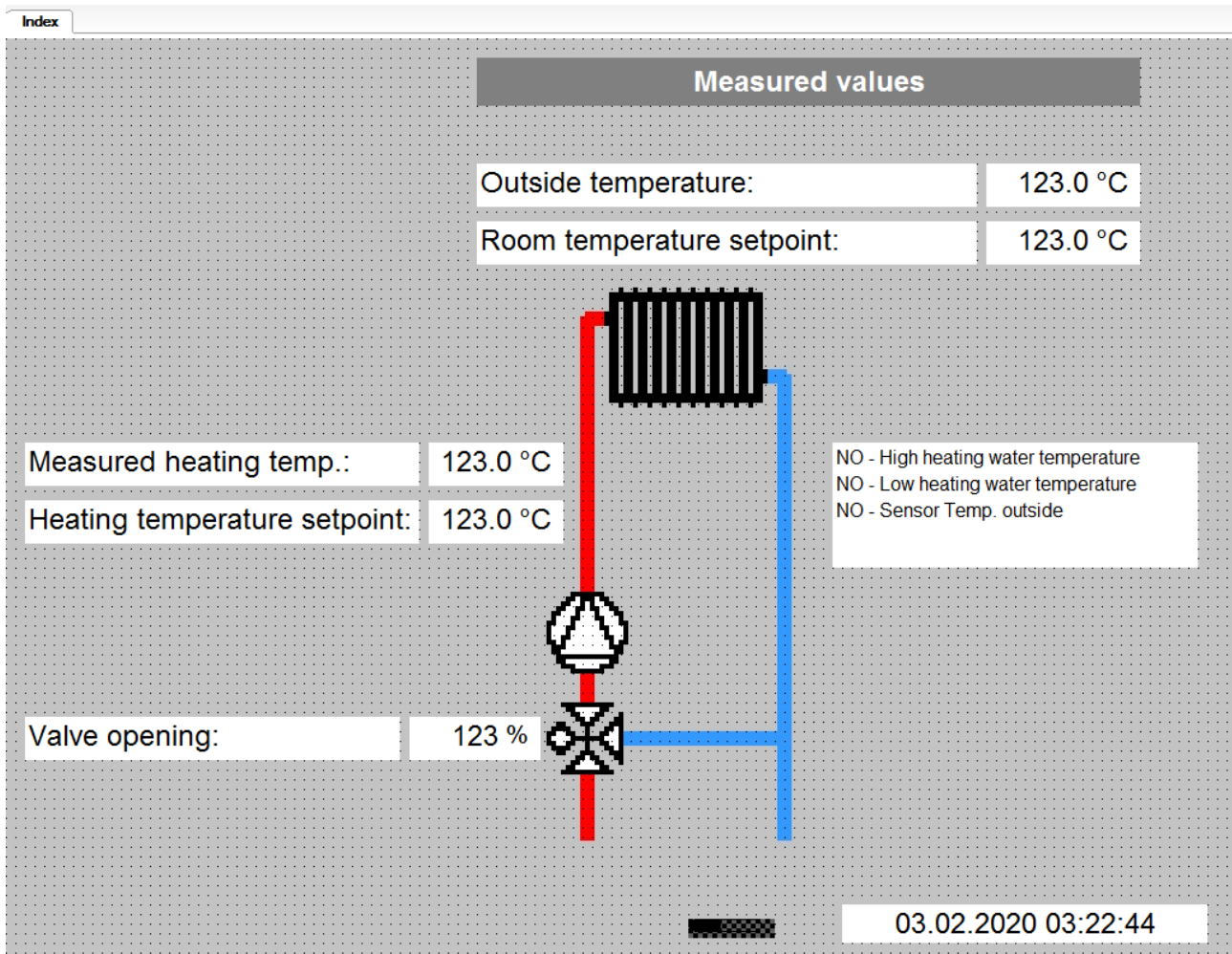


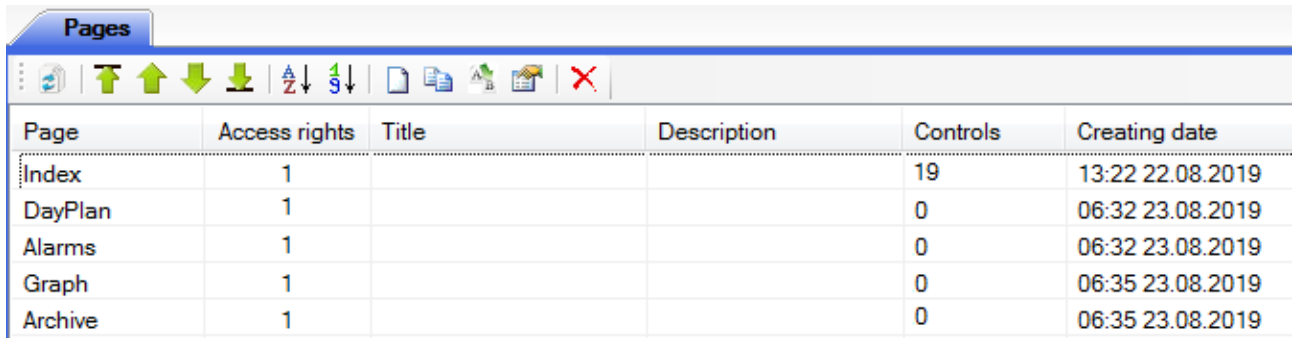
Fig. 33 – Position and final appearance of the image element

4.3.8 Transition to another web page

To create a transition between two pages that are both located on the web server or where one is located anywhere on the internet, it is necessary to use a **Menu**, **Link** or **AuthLink** element. The **Menu** element is used to create multiple links between individual pages with individual links listed one below another. For the purposes of the sample application, begin with a **Menu** element on the Index page.



Rename Page001 and Page002 pages and create two blank pages. To create the pages, use the “Pages” manager window – double-click the “Pages” item in the “Properties” window. In the list of pages, mark Page001 and left-click the icon in the “Pages” toolbar to rename the page. Rename the page to **DayPlan**. This page will be used to display the day plan of required room temperature.

Secondly, in the list of pages, mark Page002 and left-click the icon in the “Pages” toolbar to rename the page. Rename the page to Alarms. This page will be used to display the state of failures. Next, in the list of pages, create two new pages. To do so, press the icon (Add page). A “New page” window opens – use it to define the name of the page. Set the name of the first page to Graph and of the second one to Archive. Confirm the settings in the “New page” window by pressing the “**OK**” button.



Page	Access rights	Title	Description	Controls	Creating date
Index	1			19	13:22 22.08.2019
DayPlan	1			0	06:32 23.08.2019
Alarms	1			0	06:32 23.08.2019
Graph	1			0	06:35 23.08.2019
Archive	1			0	06:35 23.08.2019

Fig. 34 – List of pages in the Pages window

Use the **Menu** element to create links between individual pages defined in the properties window of the **Menu** element. Open the “Menu properties” window by double-clicking the given element. Once there, create new items in the “Link table” tab. To add items, use the  icon (Add link). To edit a link, press  (Edit text and link). Use the editing window to enter text (into the “Text” section) the **Menu** element will display. The “Link” column allows you to decide whether the respective **Menu** link will lead to a “Local” page (located on the web server) or to a page located somewhere else (defined in the “URL” field). In this case, use the “Local” field, as all the pages are on the web server. Select “Local” and click the “**Select**” button. This opens the “Select a link from pages list” window – use it to select one of the pages defined in previous steps.

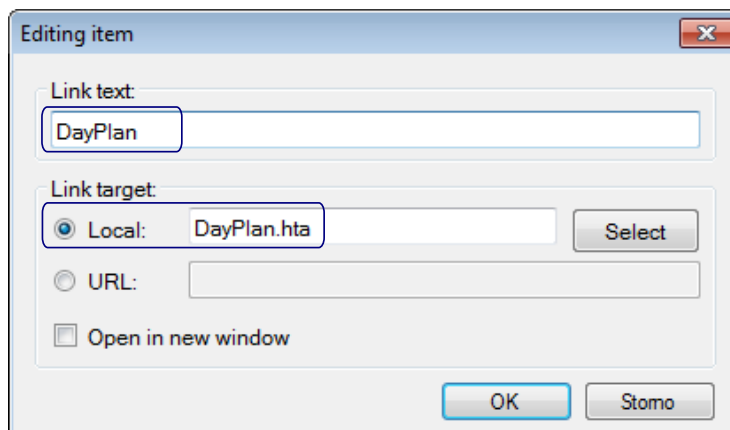


Fig. 35 – Editing links in the **Menu** element

Note

If the web page is required to open in a new internet browser window, check the “Open in new window” checkbox in the “Parameters” tab.

Define 4 items in the “Link table” and set the desired height of items.

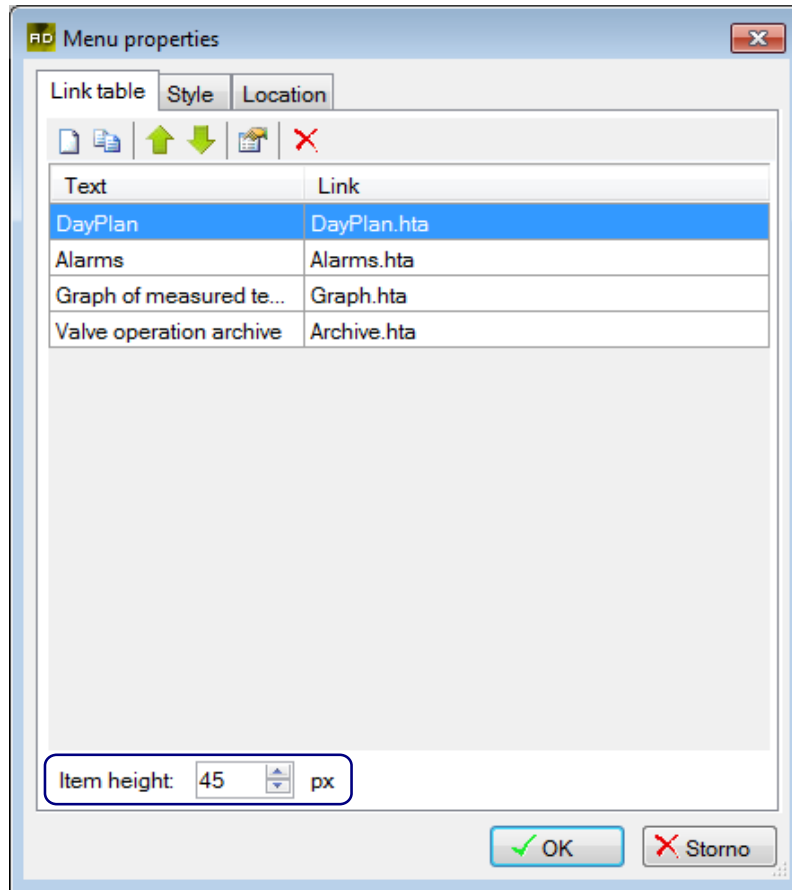


Fig. 36 – Link table in the Properties window of the **Menu**

Use the “Style” tab to set the appearance of the **Menu** element.

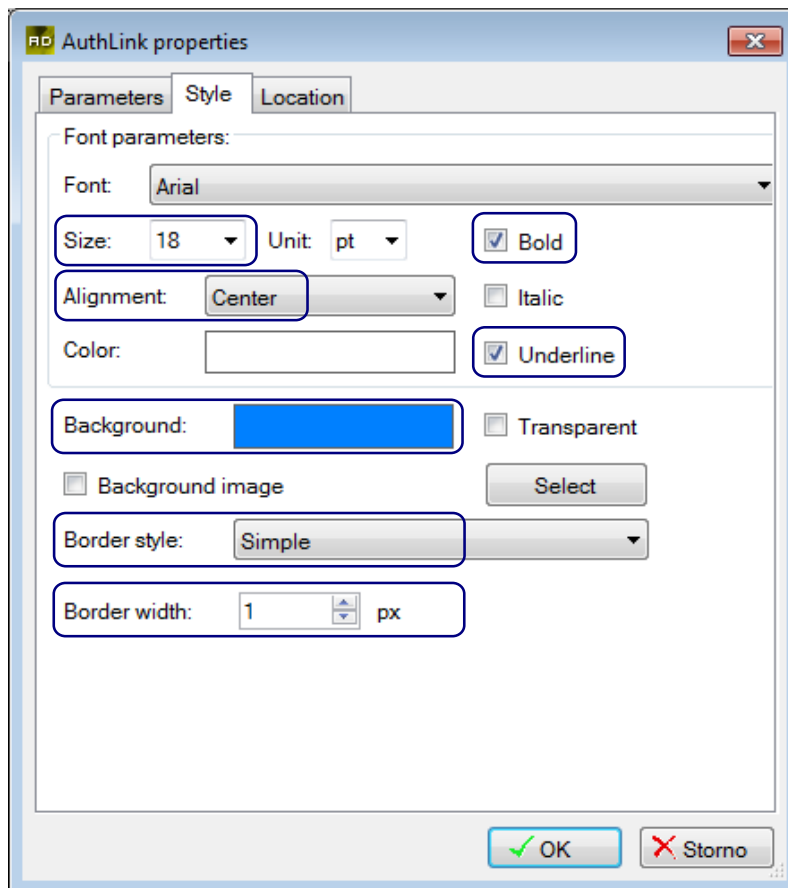


Fig. 37 – Menu element appearance settings

Confirm your settings by pressing the “**OK**” button. Finally, adjust the size of the **Menu** element by using the sizing handles as required.

Next, add the **AuthLink** element to the Index page. **AuthLink** element is used to create a link that will require authentication prior to making the transition. The web server supports three levels of privileges:

- ◆ **user** – access to the web site,
- ◆ **service** user – access to the web site,
- ◆ **root** user – access to the website, server configuration, rights for upload, editing and removing pages.

Access to the web site is available only after entering a valid combination of a user name and a password. These three levels of privileges can be use to limit access to some of the elements while designing the individual pages.

In this example, use the **AuthLink** to link a page for configuration of service parameters but only for users with a higher privileges level than the **user** level. For **users**, the link will redirect them to a page notifying them about them lacking sufficient authorisation for editing service parameters.

Create two blank pages in the Pages editor. Set the name of the first page to Service and of the second one to NoLogin.

Edit the **AuthLink** element by double-clicking it. Enter the text of the **AuthLink** element into the “Label” field of the “Parameters” tab. In the “Link for User” section, chose whether the **AuthLink** is to link a “Local” page (located on the web server) or a page located somewhere else (defined in the “URL” field). In this case, use the “Local” field, as all the pages are on the web server. Select “Local” in all three sections and click the “**Select**” button. This opens the “Select a link from pages list” window – use it to select one the pages defined in previous steps.

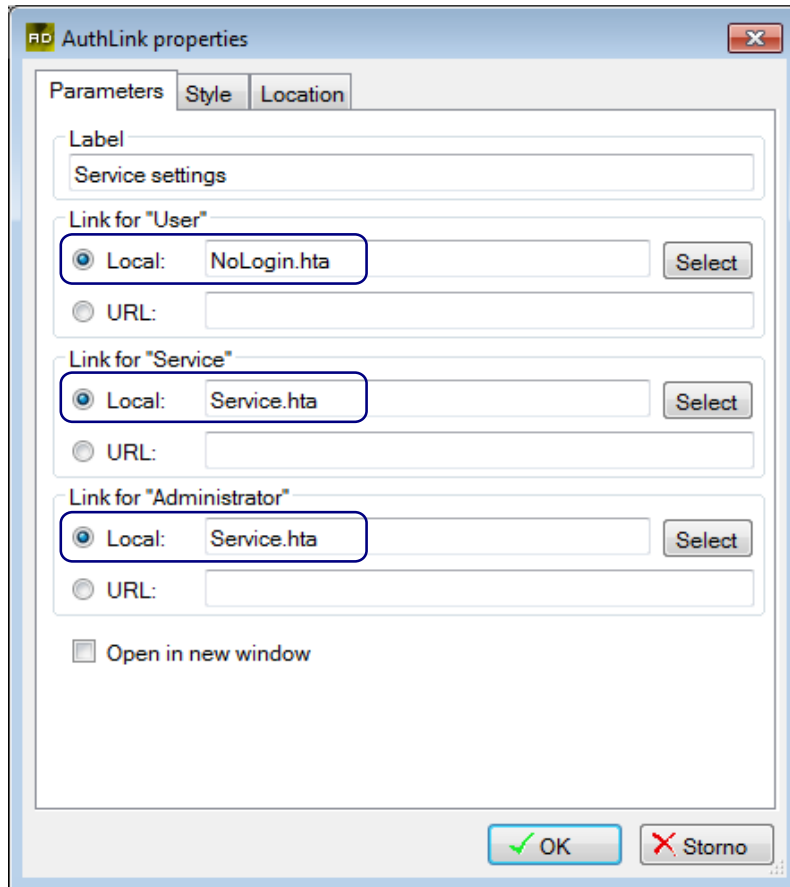


Fig. 38 – Settings of the AuthLink element and of the page the it will lead to
Define the appearance of the **AuthLink** element in the “Style” tab.

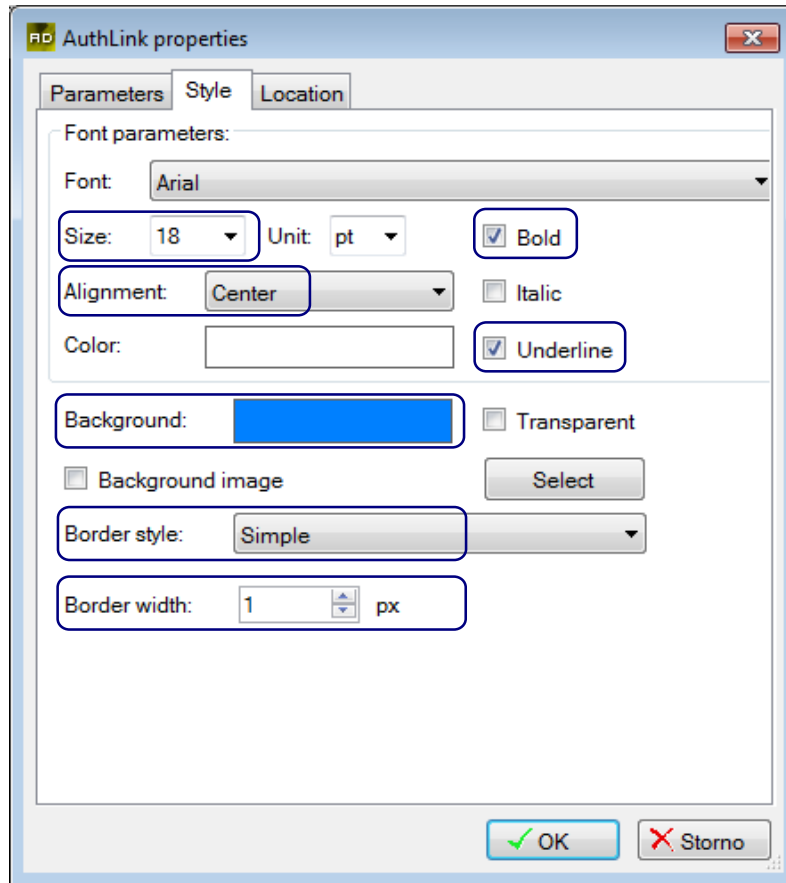


Fig. 39 – AuthLink element appearance settings

Confirm your settings by pressing the “**OK**” button. Finally, adjust the size of the **AuthLink** element by using the sizing handles as required.

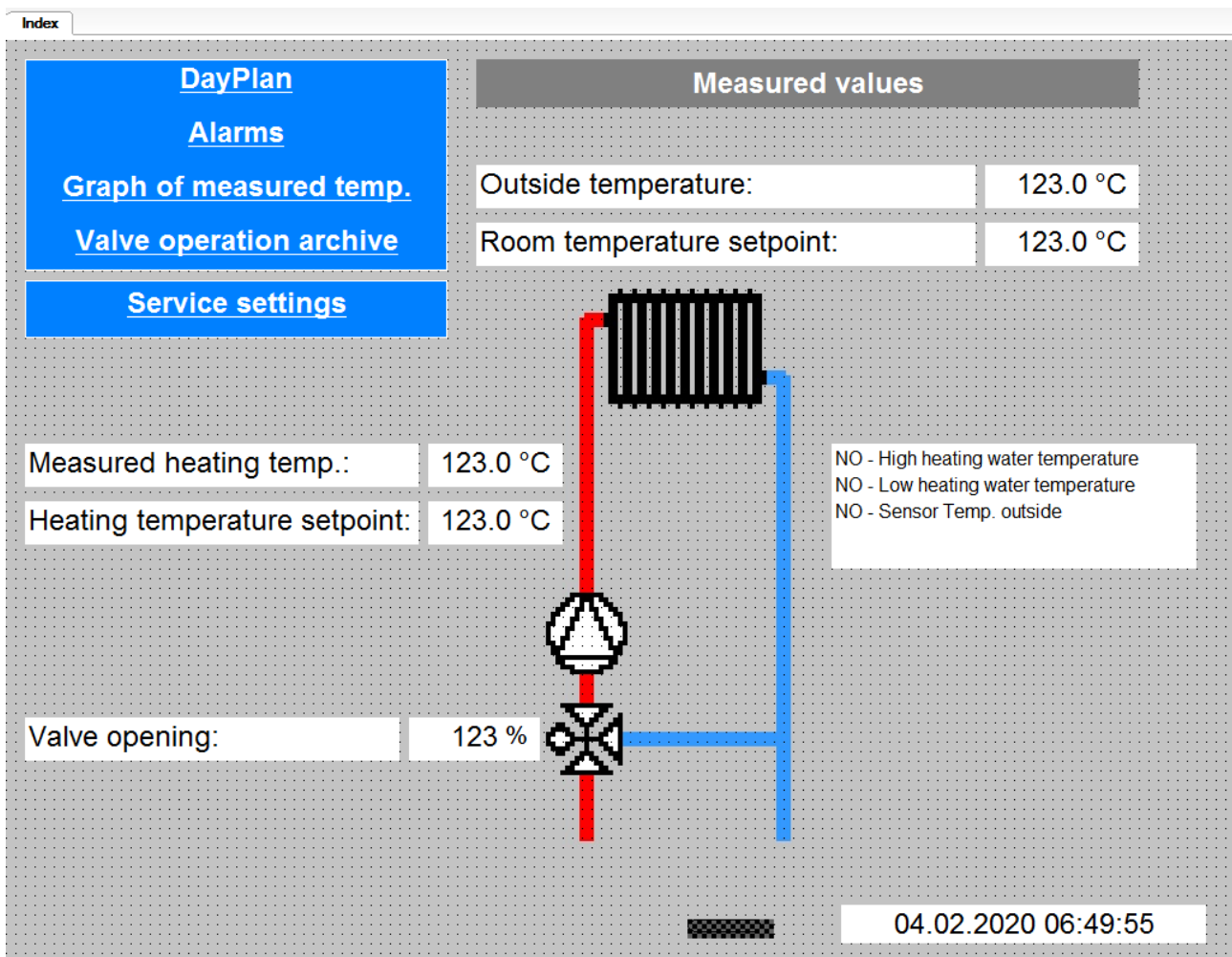


Fig. 40 – Position and final appearance of the Menu and AuthLink elements

4.3.9 The user login button

To log a user in, use a `LoginButton` element. Drag a `LoginButton` element from the “Toolbox” window and drop it onto the screen (lower left corner of the page).

Edit the `LoginButton` element by double-clicking it. In the “Parameters” tab, there is default text that acts as the label of the button. The default text can be edited. Leave the default settings of the `LoginButton` “Style” tab without changes. After that, confirm the settings in the `LoginButton` “Properties” window by pressing the “OK” button.

Finally, adjust the size of the `LoginButton` element by using the sizing handles as required.

4.3.10 Displaying text according to level of authentication

Text appearing according to the authorisation level can be implemented using the `AuthLabel` element. Drag an `AuthLabel` element from the “Toolbox” window and drop it onto the Index screen.

Edit the `AuthLabel` element by double-clicking it. Leave the default values (text for individual authorisation levels) in the “Parameters” tab unchanged. In the “Style” tab, set the desired font and text justification within the `AuthLabel` element.

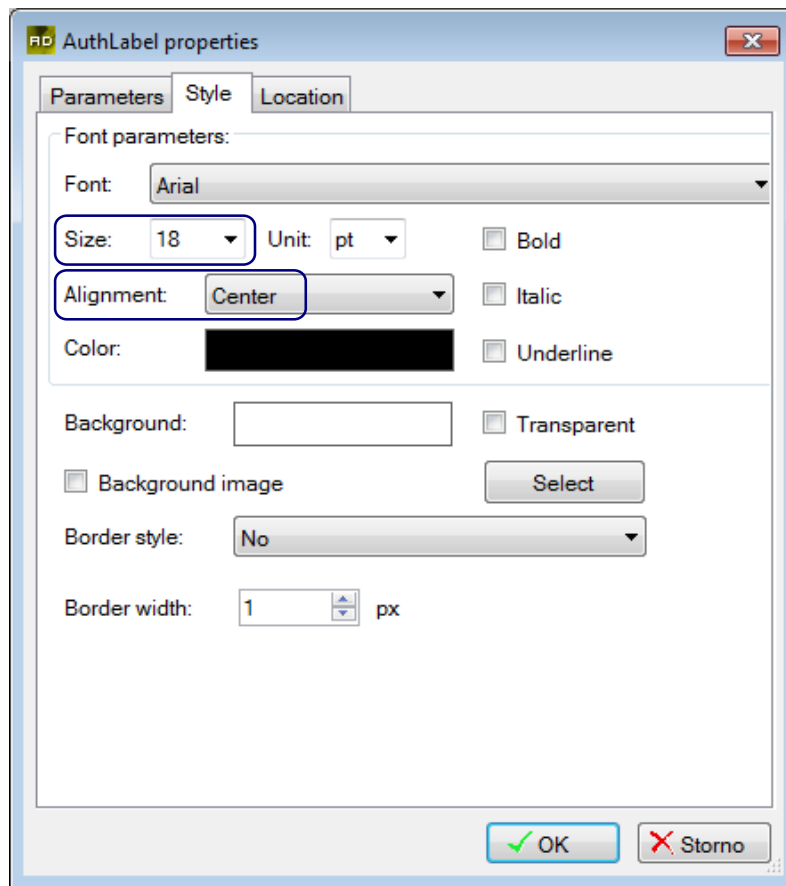


Fig. 41 – AuthLabel element appearance settings

After that, confirm the settings in the `LoginButton` “Properties” window by pressing the “**OK**” button.

Finally, adjust the size of the `AuthLabel` element by using the sizing handles as required.

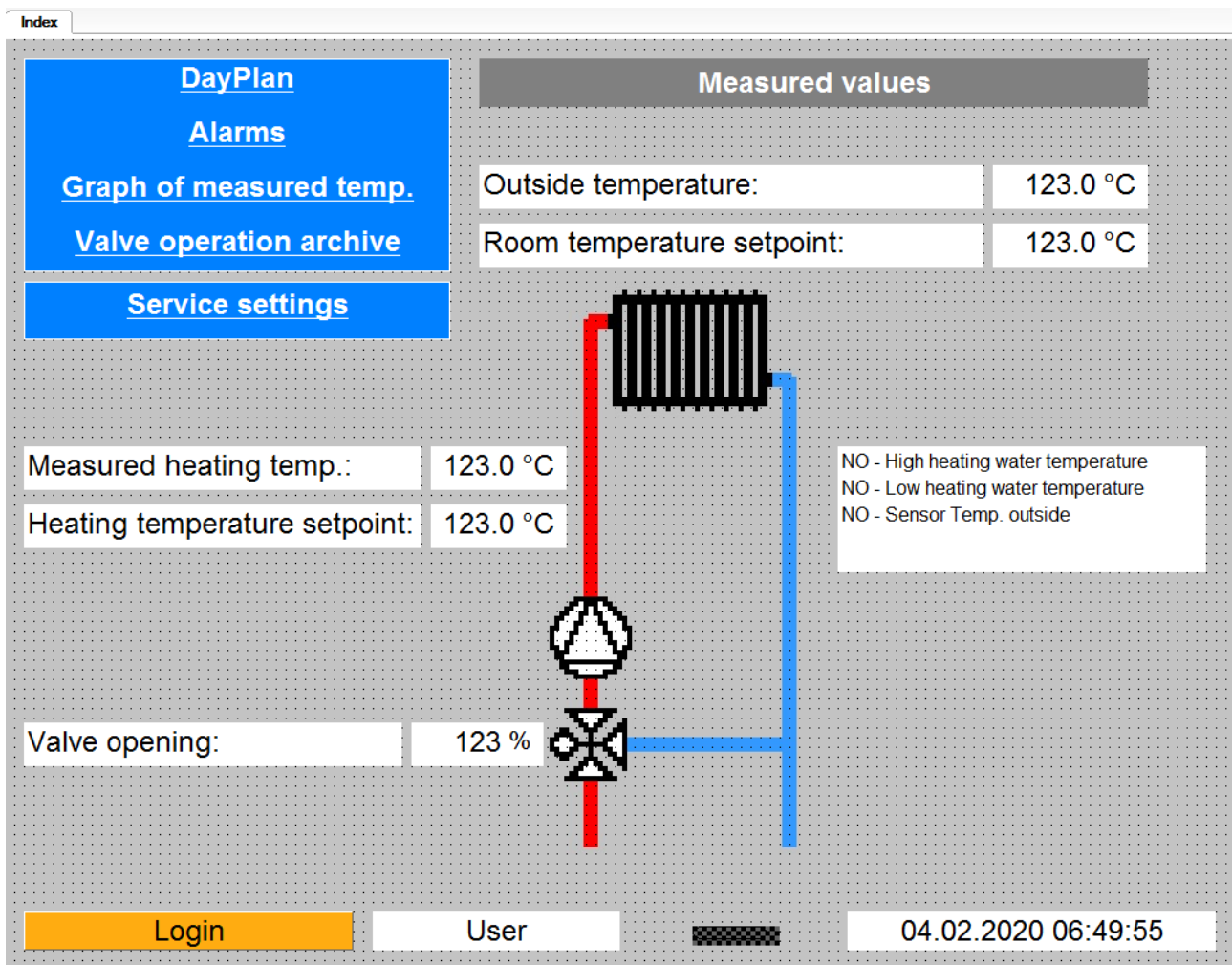


Fig. 42 – Final appearance of the Index page

4.3.11 Displaying/editing the time plan

To display/edit the time plan saved into the station, use a **DayPlan** element. Visualise the Day plan of the station on the DayPlan web page. Therefore, double-click the DayPlan page in the “Project” window to open it. Drag a **DayPlan** element from the “Toolbox” window and drop it onto the required position.

Double-click the **DayPlan** element to open the “DayPlan properties” window – use it to configure the element. In the “Parameters” tab, click the “**Select**” button to select first the variable with matrix of values and then the variable with time intervals. Choose a display format for values in “Values format” field and format for time in “Times format” field. Use “Fixed width cells” and “Fixed height of cells” fields to set the required dimensions of cells.

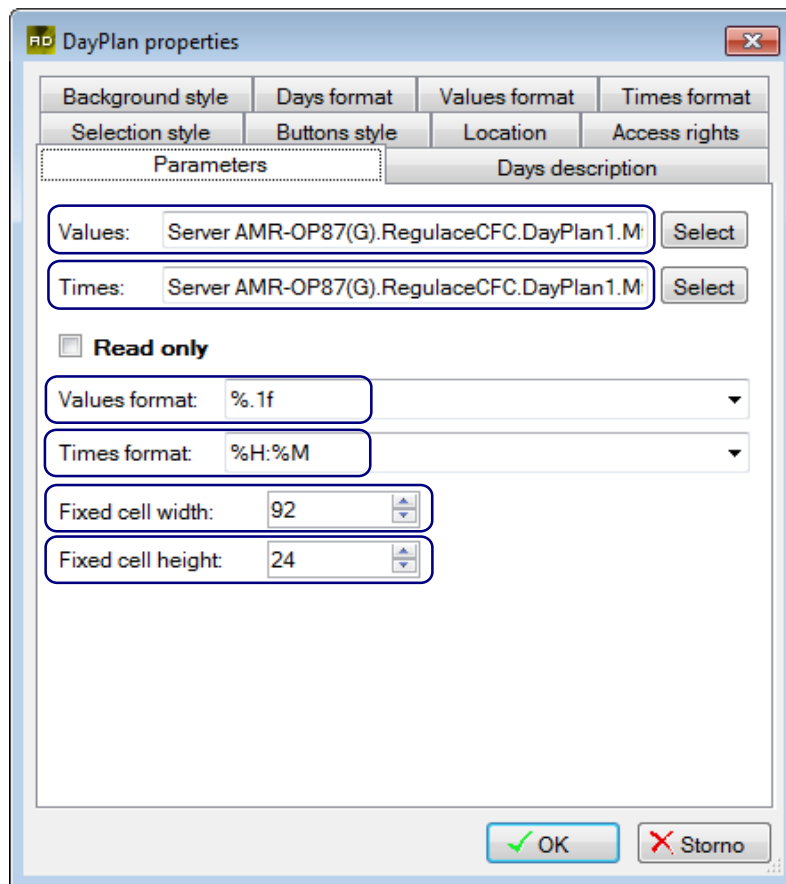


Fig. 43 – Settings DayPlan element basic parameters

Note

Should you require the time plan to be read-only, check the “Read only” option in the “Parameters” window.

In the “Days description” tab, it is possible to edit labels of individual days of the week and of a holiday. For the purpose of this example, the pre-defined values are acceptable.

In the “Style” tab, it is possible to edit the style of borders, background and fonts. Leave the settings in the “Style” tab unchanged and confirm the “DayPlan properties” window by pressing the “OK” button.

Note

There can be only one DayPlan element displayed per page.

Adjust the size of the element by using the sizing handles as required.

Finally, place a `Label` element onto the DayPlan page and change its text to “Dayplan of the room temperature”. Next, place a `Link` element onto the screen – it will lead back to the Index page. Edit the `Link` element by double-clicking it. In the “Parameters” tab, adjust the displayed text and, in the “address Link” section, set the link to the Index page.

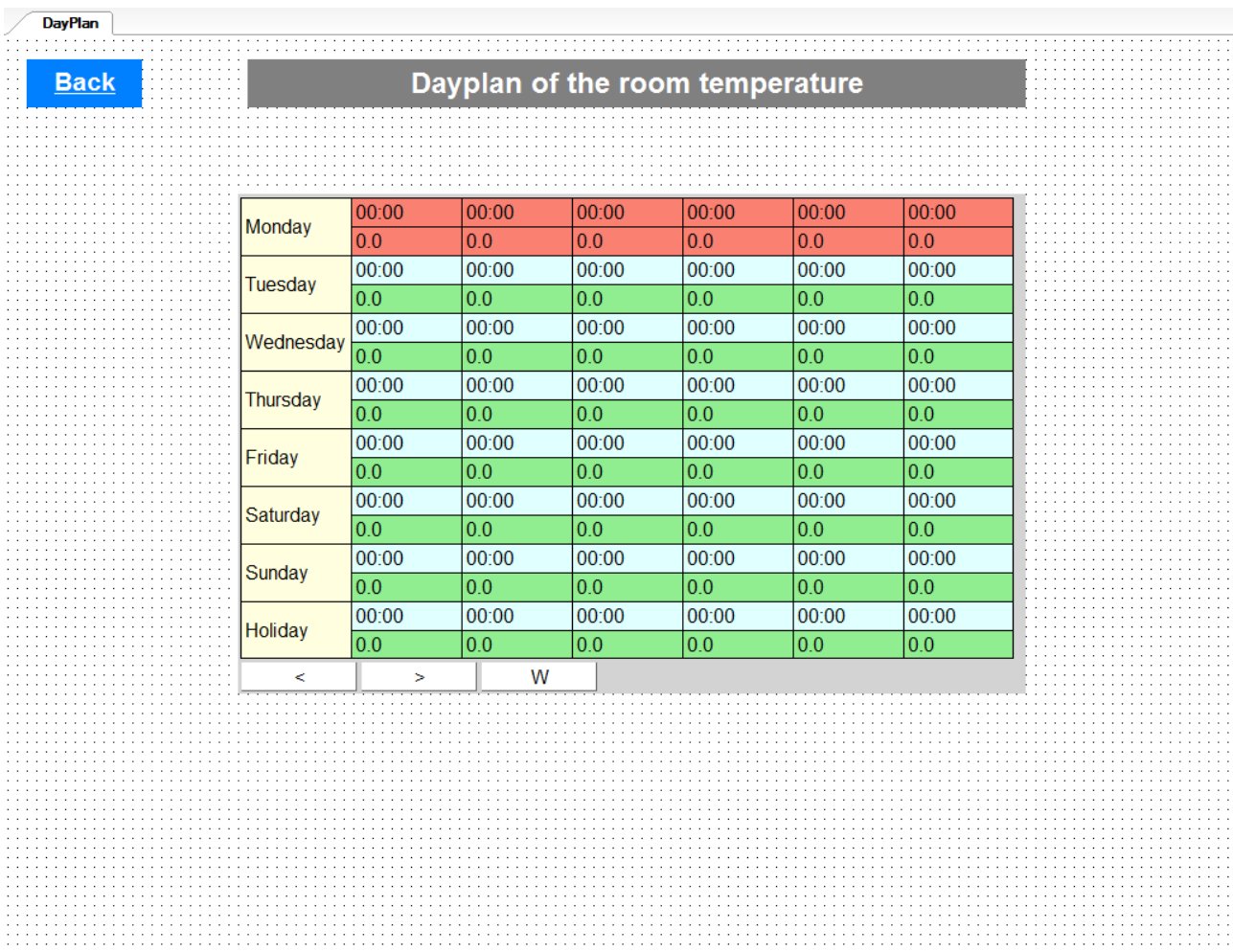


Fig. 44 – Final appearance of the page for displaying and editing the time plan

4.3.12 Displaying and acknowledging alarms

To display alarm states, use elements that can change appearance – display a different image or text – depending on a boolean value (True/False). To display text according to the state of a boolean value, use an `SCaseLabelBit` element. To display an image according to the state of a boolean value, use an `SCaseImageBit` element.

For the purposes of the example, display the various text fields and images according to current alarm states. Drag an `SCaseLabelBit` element from the “Toolbox” window and drop it onto the Alarms screen. Double-click the `SCaseLabelBit` element and select the required variable in the “Bit” tab. Next, in the “Bit:” field, select the variable bit the element should react to.

In the “Parameters” tab, define the text the label will display. Total of three `SCaseLabelBit` elements will be needed – define the following texts for the `Server AMR-OP87 (G) .Alarm1.Alarm` variable.

Bit	True value text	False value text
0	High heating water temperature	OK
1	Low heating water temperature	OK
2	Outdoor temperature sensor fault	OK

To set the appearance of the `BitGroupView` element according to individual states, use the “Style True” and “Style False” tabs.

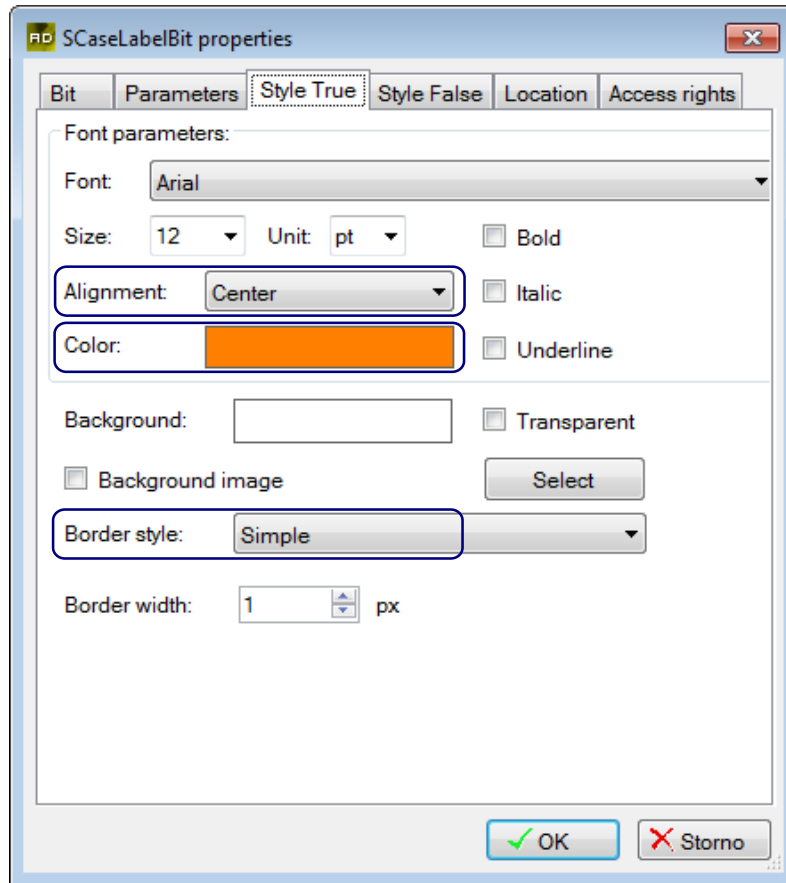


Fig. 45 – Settings of the True value bit appearance

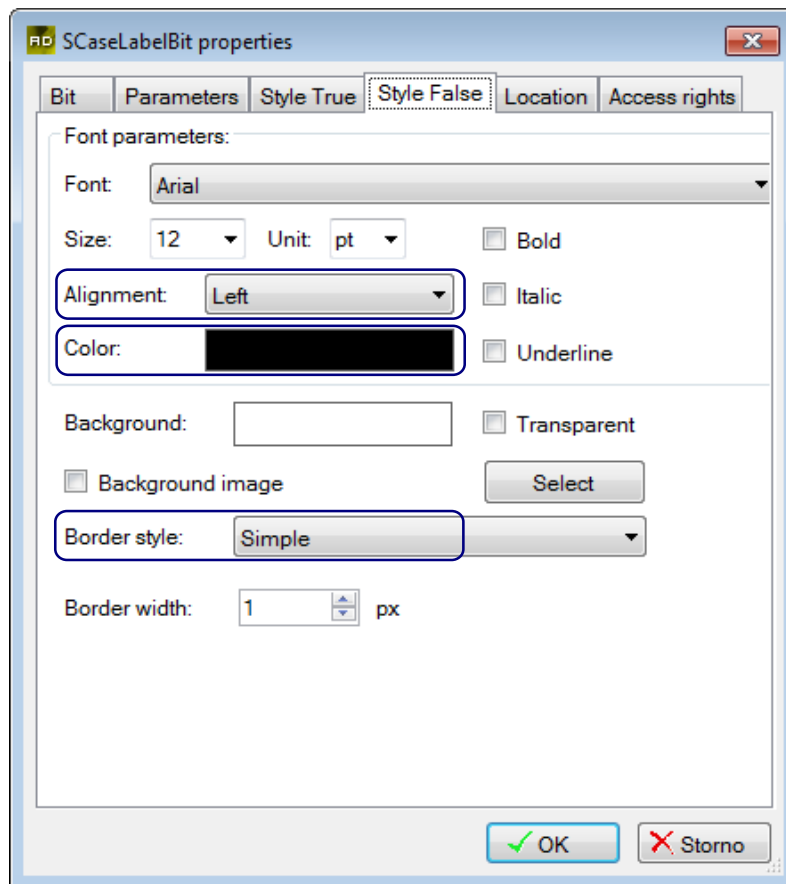


Fig. 46 – Settings of the False value bit appearance

Confirm your settings by pressing the “OK” button. Finally, adjust the size of `SCaseLabelBit` elements by using the sizing handles as required.

To display an image according to the state of a boolean value, use an `SCaseImageBit` element. Drag three `SCaseImageBit` element from the “Toolbox” window and drop them onto the Alarms screen. Double-click the `SCaseLabelBit` element and select the required variable in the “Bit” tab. Next, in the “Bit:” field, select the variable bit the element should react to. The variable and the bit are the same as with the `SCaseLabelBit`.

In the “Parameters” tab, define the images the element will display. Select the “Local” option (to choose an image that is directly in the web server) for both False value and True value. Next, click the “Select” button to open the pictures importer. In the AMiT library, select **Indicators** and then the image for False value and another one for the True value. Confirm your selection by pressing “Select picture and exit”. Confirm your settings by pressing the “OK” button.

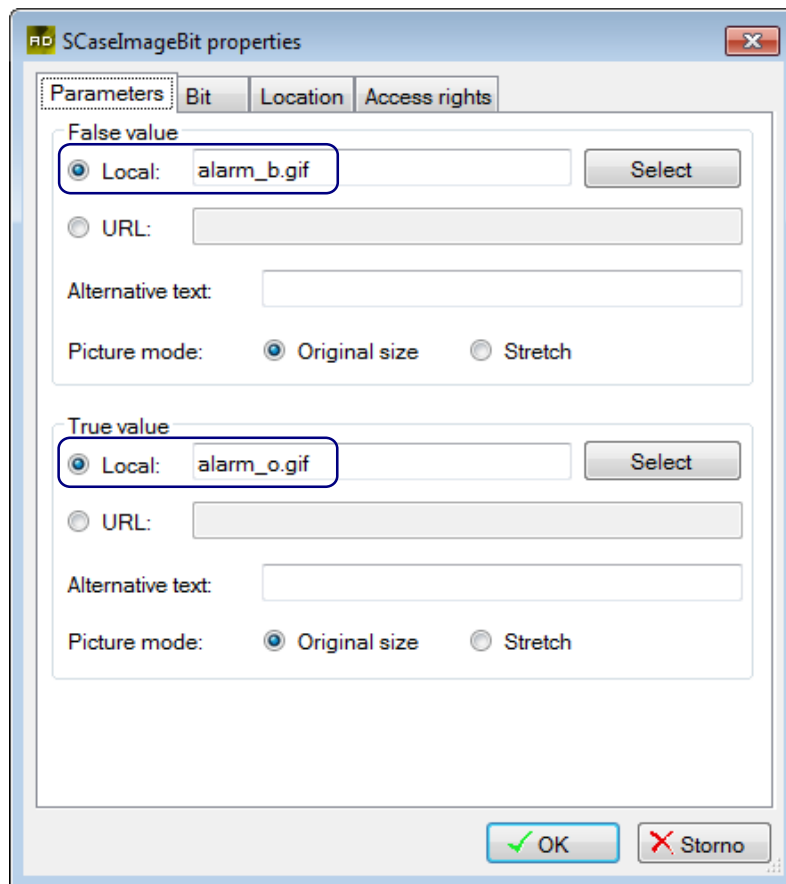


Fig. 47 – Setting images for True and False values

Finally, adjust the size of `SCaseLabelBit` elements by using the sizing handles as required.

To acknowledge the values, use a `SwitchButton` element – it is used to set the variable bit to True/False. Drag a `SwitchButton` element from the “Toolbox” window and drop it onto the Alarms screen. Double-click the `SwitchButton` and select the `Server AMR-OP87 (G).Alarm1.AckAll` variable in the “Bit” tab.

In the “Parameters” tab, define texts the element will display for False/True value of the bit. Leave the default settings of `SwitchButton` element appearance settings in “Style True” and “Style False” tabs.

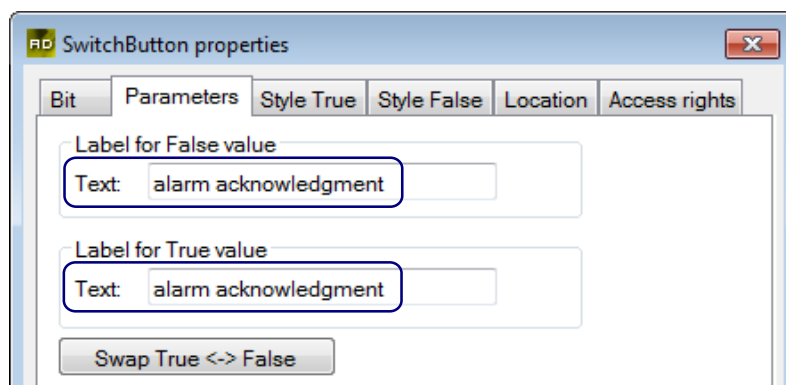


Fig. 48 – Setting text for True and False values

Finally, adjust the size of the `SwitchButton` element by using the sizing handles as required.

Finally, place a `Label` element onto the page and change its text to “Alarms and alarm acknowledgement”. Next, place a `Link` element onto the screen – set it to lead back to the Index page.

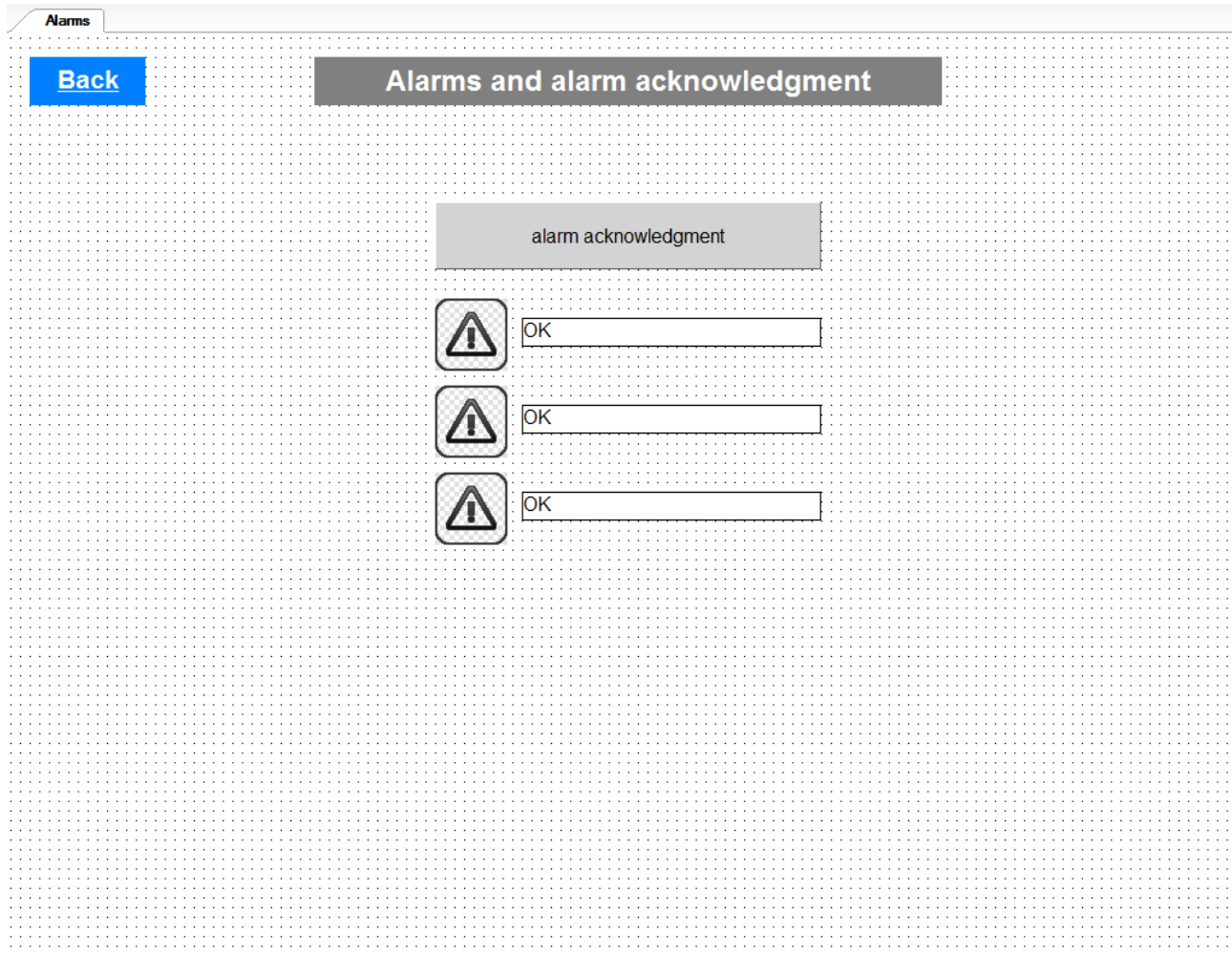


Fig. 49 – Final appearance of the page for displaying and acknowledging alarms

4.3.13 Displaying archive data in a graph

To display archive data – data saved in the station – as a graph, use a `LineGraph` element. Display the graph with archive data on a separate web page called Graph. Double-click the Graph page in the “Project” window to open it. Drag a `LineGraph` element from the “Toolbox” window and drop it onto the required position.

Double-click the `LineGraph` element to open the “LineGraph properties” window – use it to configure the element. In the “Parameters” tab, use the “**Select**” button to select a variable that represents the archive index and a matrix with dates of individual instances of archiving. Lastly, set the number of rows the `LineGraph` element is supposed to display.

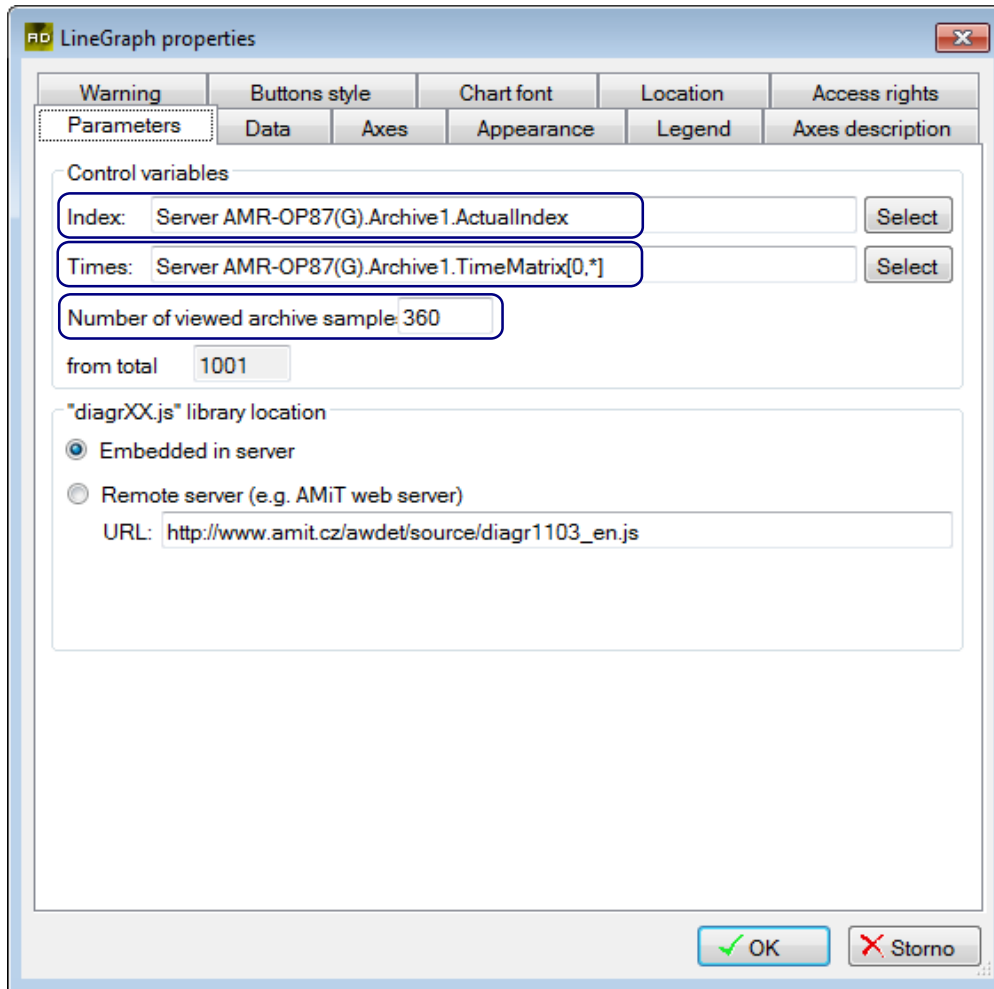



Fig. 50 – LineGraph element parameters settings

In the “Data” tab, use the  button (add a variable) to select a matrix row with the archive values. In this case, these are rows 0 and 1 of the **Archive1.FloatValueMatrix** matrix. Furthermore, set the legend label for individual graph curves. To set the title text, double-click the text in the “Title” column of the “Data” tab. Follow similar steps to set the colour of the graph curve.

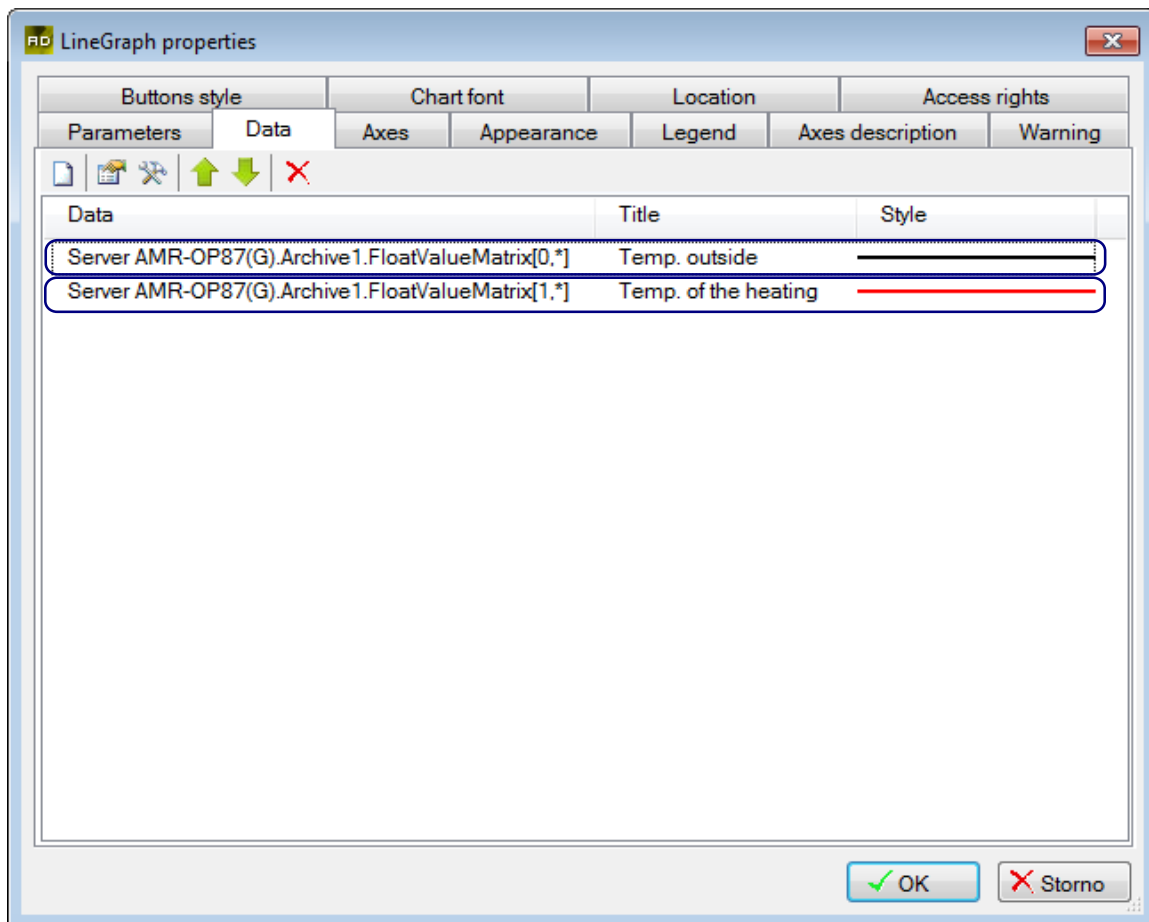


Fig. 51 – Selecting a matrix with archive data and setting the appearance of the graph

In the “Appearance” tab, set the graph name to “Archive of measured temperature”. Leave the settings in of other tabs unchanged and confirm the “LineGraph properties” window by pressing the “**OK**” button. Adjust the size of the element by using the sizing handles as required.

Note

There can be only one graph-displaying element per page.

Finally, place a `Label` element onto the Graph page and change its text to “Graph of measured temperature”. Next, place a `Link` element onto the screen – set it to lead back to the Index display.

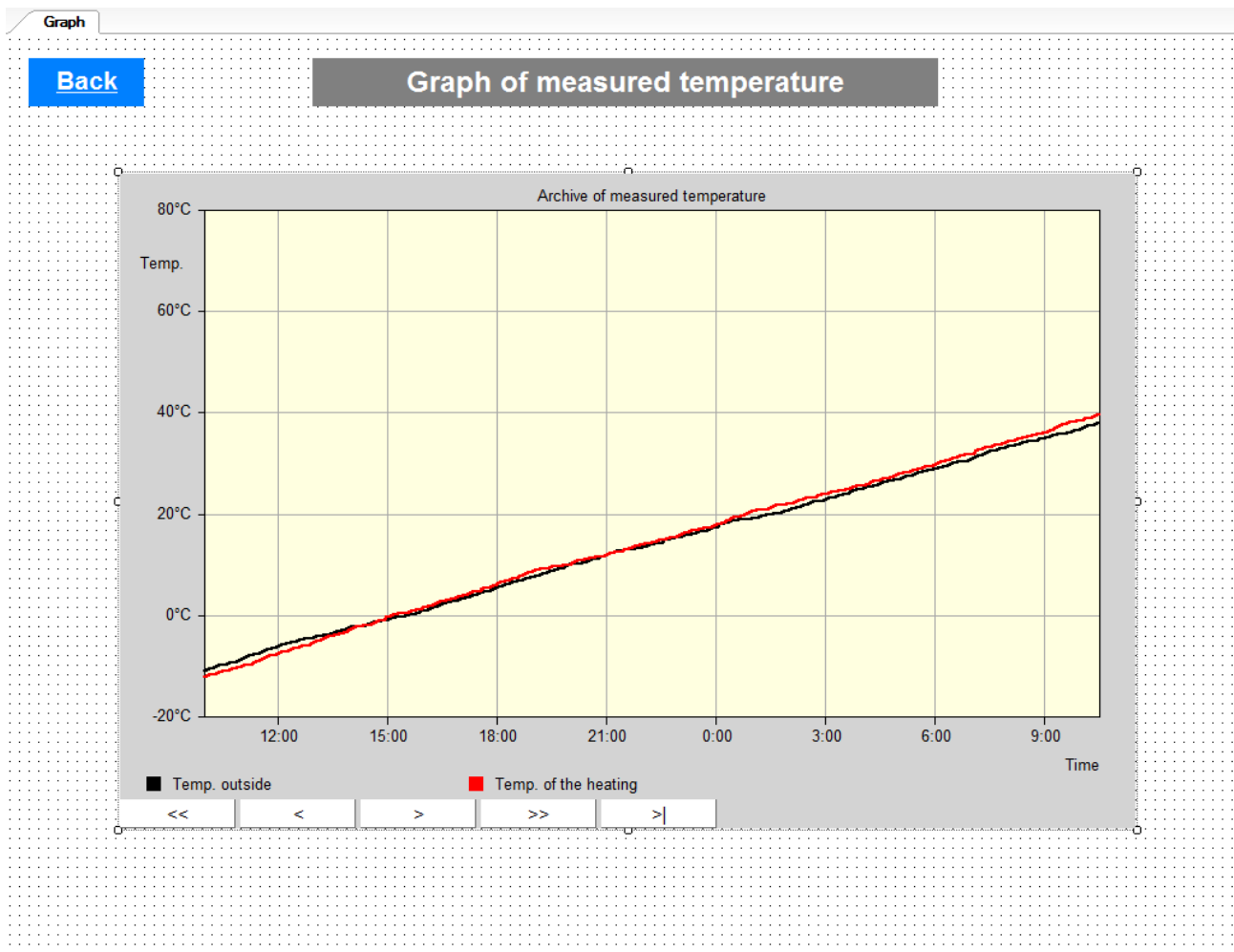


Fig. 52 – Final appearance of the page for displaying graphs

4.3.14 Displaying archive data in a table

To display archive data – data saved in the station – as a table, use an **ArcView** element. Visualise the archive data of the station on the Archive web page. Double-click the Archive page in the “Project” window to open it. Drag an **ArcView** element from the “Toolbox” window and drop it onto the required position.

Double-click the **ArcView** element to open the “ArcView properties” window – use it to configure the element. In the “Parameters” tab, use the “**Select**” button to select a variable that represents the archive index and a matrix with dates of individual instances of archiving. Lastly, set the number of rows the **ArcView** element is supposed to display.

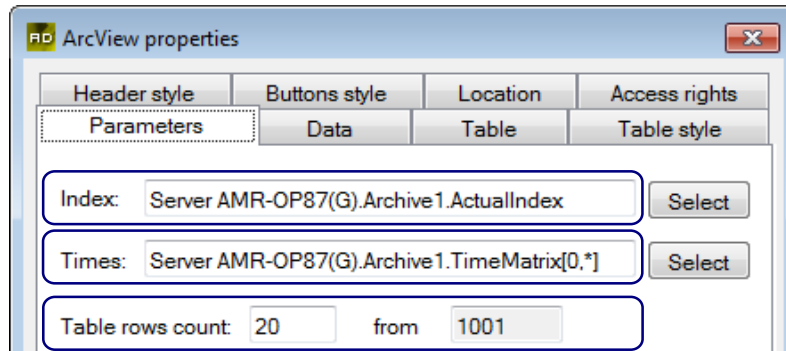



Fig. 53 – ArcView element parameters settings

In the “Data” tab, use the  button (add a variable) to select a matrix row with the archive values. In this case, it is line 0 of the `Archive1.IntValueMatrix` matrix. Furthermore, set the title of the **ArcView** element column that will display the archive data. To set the title text, double-click the text in the “Title” column of the “Data” tab. Change the text to “Valve”. Similarly, it is possible to change the format of the displayed data in the “Format” column.

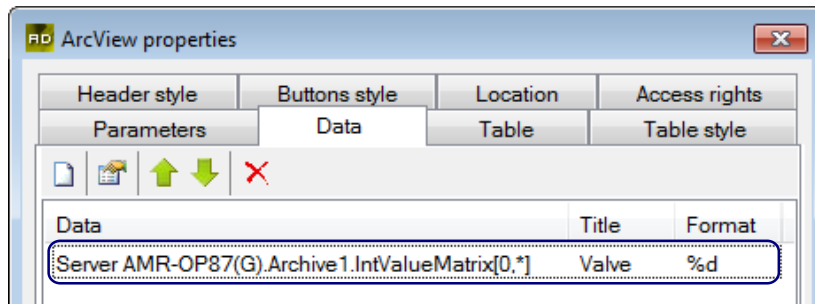


Fig. 54 – Selecting a matrix with archive data and setting the appearance of the graph

In the “Table” tab, check the “Show “Age” Column” option and adjust the settings of the delimiting lines of the table with the “Lines placing” drop-down menu. Leave the rest of the parameters unchanged.

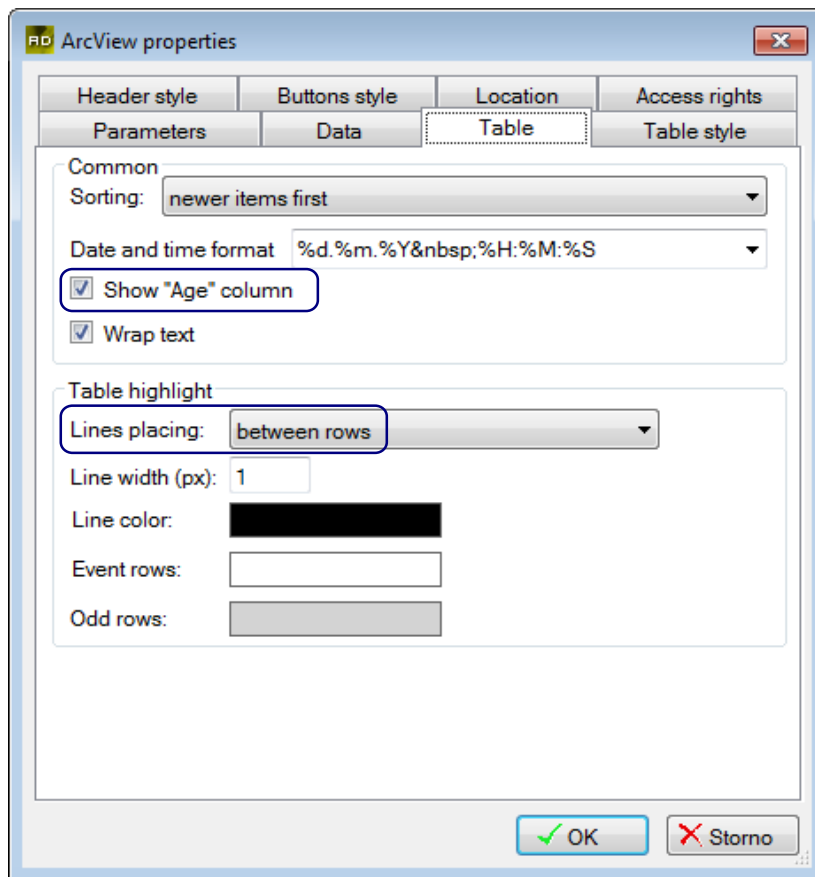


Fig. 55 – Table appearance settings

Leave the settings of other tabs unchanged and confirm the “ArcView properties” window by pressing the “**OK**” button.

Adjust the size of the element by using the sizing handles as required.

Note

There can be only one archive-displaying element per page.

To describe individual states of the valve, use a **MultiLineLabel** element – it is used to display several lines of text utilising HTML formatting tags. Drag a **MultiLineLabel** element from the “Toolbox” window and drop it onto the Archive screen. Edit the **MultiLineLabel** element by double-clicking it. In the “Parameters” tab, define texts with HTML formatting tags.

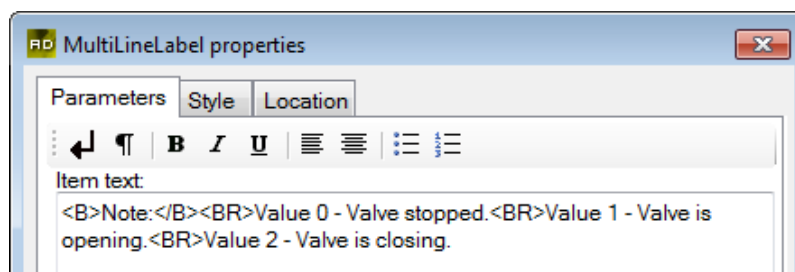


Fig. 56 – Associating a variable to the MultiLineLabel

Leave the settings of the `MultiLineLabel` “Style” tab without changes. Confirm your settings by pressing the “OK” button.

Adjust the size of the element by using the sizing handles as required.

Finally, place a `Label` element onto the Archive page and change its text to “Valve operation archive”. Next, place a `Link` element onto the screen – set it to lead back to the Index display.

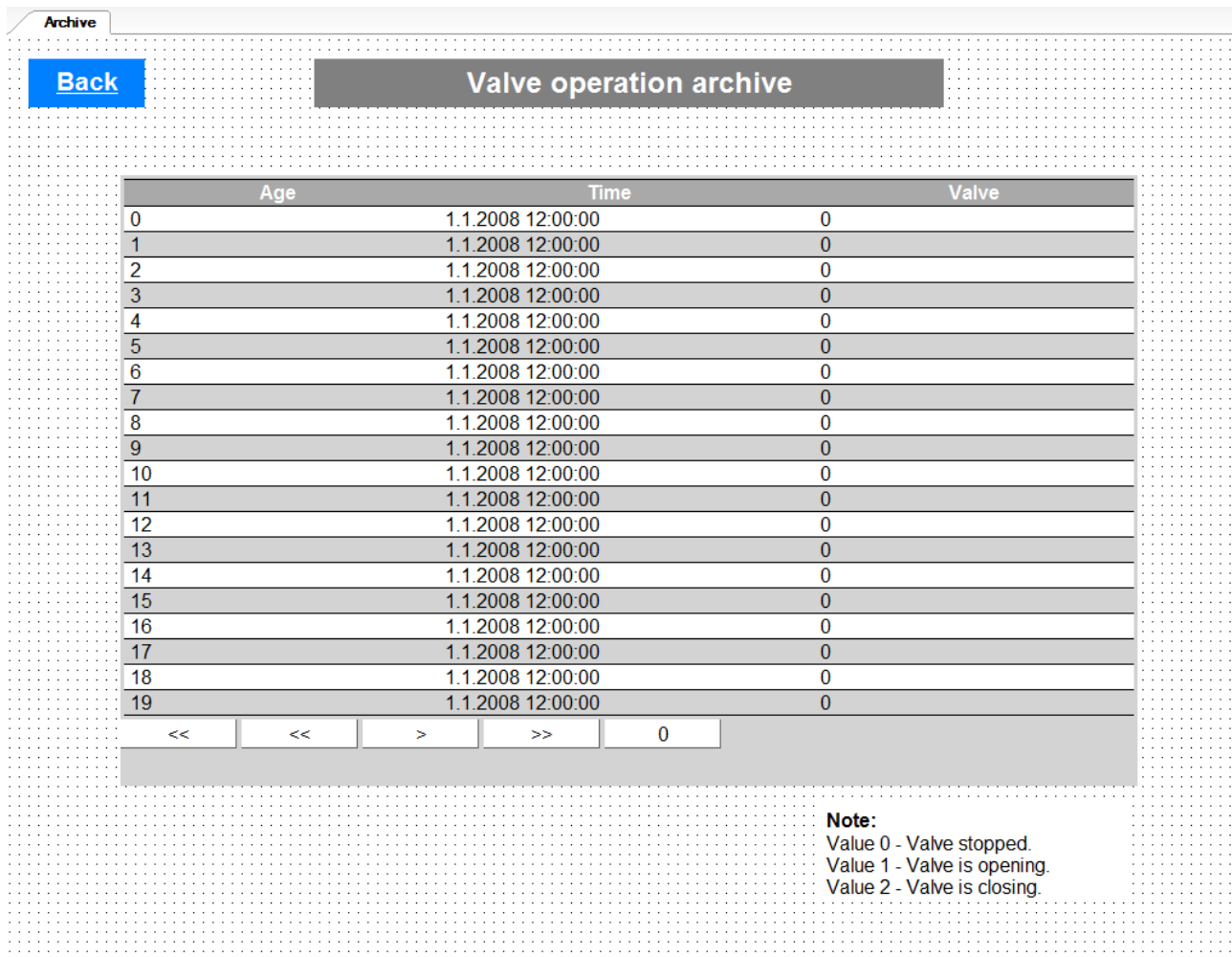


Fig. 57 – Final appearance of the Archive page

4.3.15 Displaying the “Setting service” page to users with higher authentication

Configuration of service parameters will be accessible via the Service page. The user will get to the screen via the `AuthLink` element located on the Index page. Double-click the Service page in the “Project” window to open it. Drag a `Label` element from the “Toolbox” window and drop it onto the Service screen. Next, place two `Link` element onto the screen. Set the first one to lead back to the Index page and the second one to refresh the Service page.

Use `HorizontalLine` elements (will display as simple horizontal/vertical lines with definable thickness) to visually divide the page into sections. Drag three `HorizontalLine` elements from the “Toolbox” window and drop them onto the Service screen. Adjust the size of the elements by using the sizing handles as required.

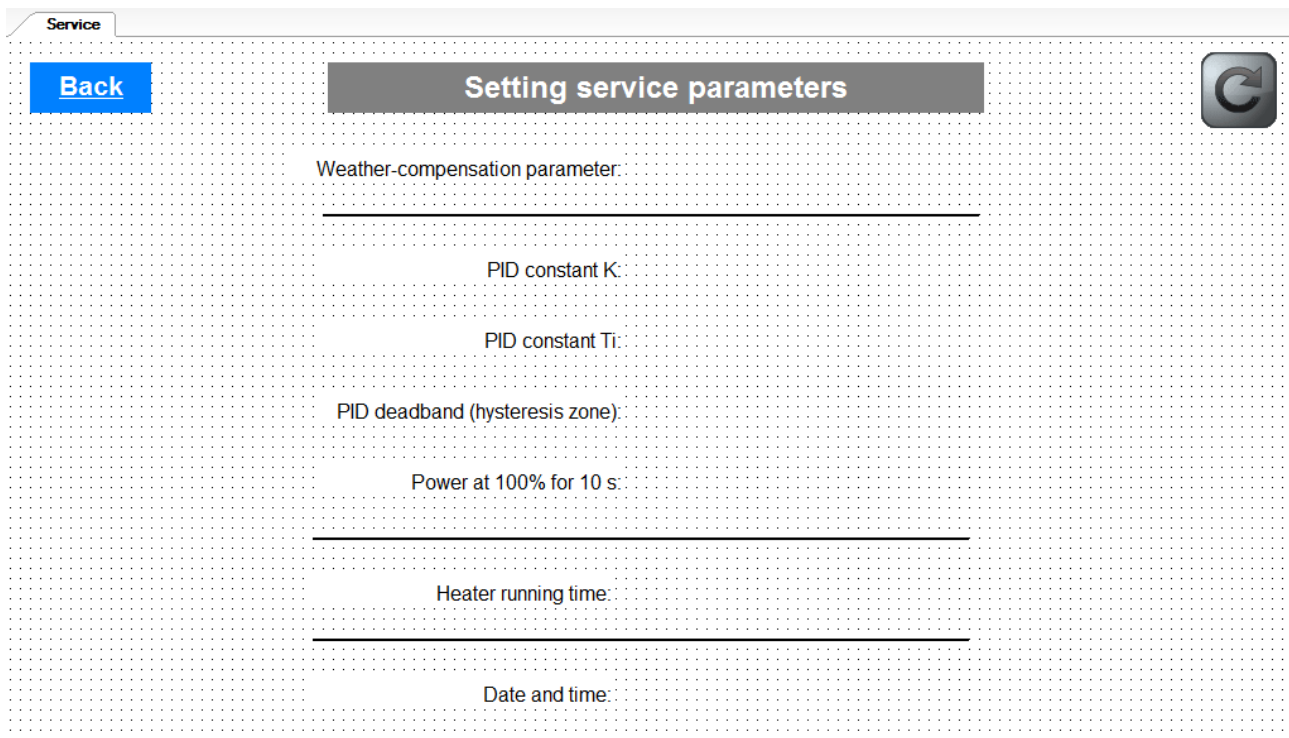


Fig. 58 – Position of elements on the Service page

To edit a variable value, use a **NumericEditButton** – it already contains a confirm button tied to the editing field. Drag four **NumericEditButton** elements from the “Toolbox” window and drop them onto the Service screen. After positioning them, double-click them to open the “NumericEditButton properties” window. Navigate to the “Variable” tab and “**Select**” the variables that are supposed to be edited by the individual **NumericEditButtons**. Select these variables:

Text	Variable
Weather-compensation parameter	Server AMR-OP87(G).RegulaceCFC.EqLine1.K
PID amplification	Server AMR-OP87(G).RegulaceCFC.Pid1.K
PID integration	Server AMR-OP87(G).RegulaceCFC.Pid1.Ti
PID deadband	Server AMR-OP87(G).RegulaceCFC.Pid1.DeadBand

In the “Parameters” tab, format of the displayed variable can be changed using the “**Change**” button. Pressing the “**Change**” button opens the “Number format selection” window – use it to set the format. In the “Button” section of the “Parameters” tab, set the appearance of the button located in the right part of the **NumericEditButton** element. To change the button label, adjust the “Text” field (type in “Store”) and, in the “Size” field, select 40 % to adjust the size ratio of the button to the rest of the **NumericEditButton** element. In case of the **NumerEditButton**, it is possible to set bounds to the edited variable value – do so in the “Bounds” section of the “Parameters” tab. For the weather-compensation constant, set the bottom boundary to 0.5 and the upper boundary to 5. Leave the rest of the **NumericEditButton** elements without boundaries.

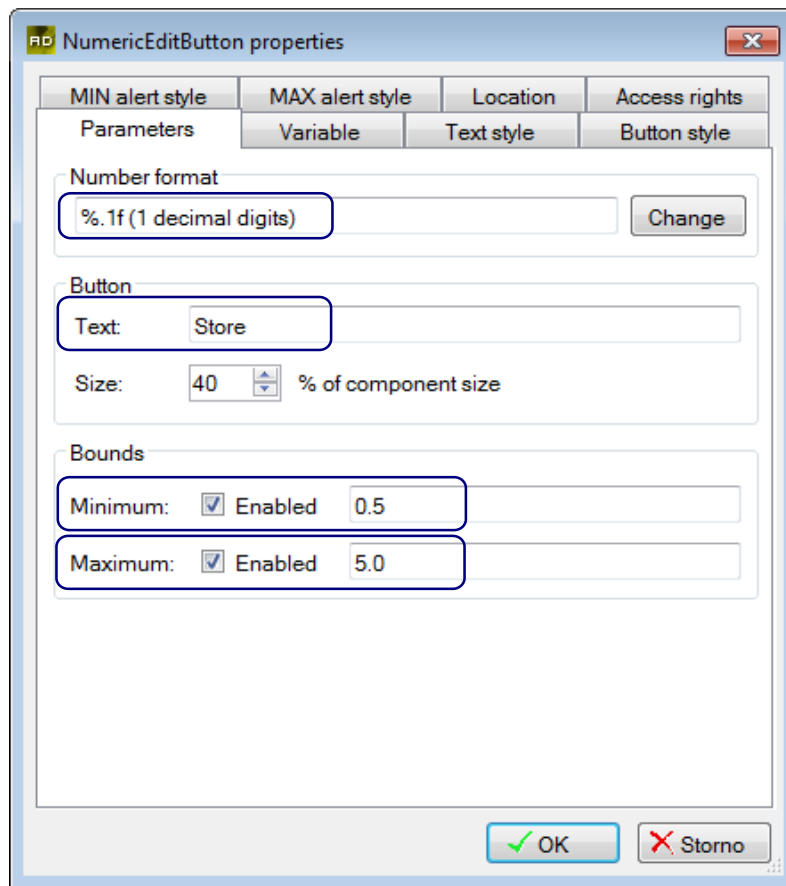


Fig. 59 – Setting display parameters for NumericEditButton element

Change the appearance of the editing/button part of the **NumericEditButton** as required. The default appearance of both parts is satisfactory – leave them unchanged. Confirm your settings by pressing the “**OK**” button.

Caution

It is recommended to implement automatic page refresh only for pages without editing fields. During a refresh, all unsaved changes will be lost and overwritten by original values.

Adjust the size of the element by using the sizing handles as required.

To set the power of the machine to 100 % for 10 s, use a **SwitchButton** element – it is used to set the variable bit to True/False. Drag a **SwitchButton** element from the “Toolbox” window and drop it onto the screen. Double-click the **SwitchButton** and select the **Server AMR-OP87 (G) .@Manual** variable in the “Bit” tab.

In the “Parameters” tab, define texts the element will display for False/True value of the bit. Leave the default settings of **SwitchButton** element appearance settings in “Style True” and “Style False” tabs.

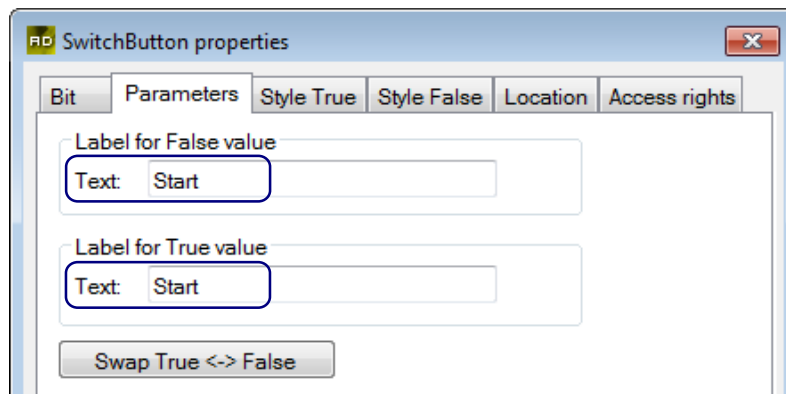


Fig. 60 – Setting text for True and False values

Finally, adjust the size of the `SwitchButton` element by using the sizing handles as required.

To display operating hours of the heating element, use the `NumericView` element. Drag a `NumericView` element from the “Toolbox” window and drop it onto the screen. Double-click the `NumericView` and select the `Server AMR-OP87 (G) .RegulaceCFC.HourRun1.RunTimeVal` variable in the “Variable” tab. Leave the settings of other tabs unchanged and confirm the “NumericView properties” window by pressing the “OK” button. Adjust the size of the element by using the sizing handles as required.

To reset operating hours of the heating element, use the `SwitchButton` element. Drag a `SwitchButton` element from the “Toolbox” window and drop it onto the screen. Double-click the `SwitchButton` and select the `Server AMR-OP87 (G) .RegulaceCFC.HourRun1.Reset` variable in the “Bit” tab. In the “Parameters” tab, define texts the element will display for False/True value of the bit. Leave the default settings of `SwitchButton` element appearance settings in “Style True” and “Style False” tabs.

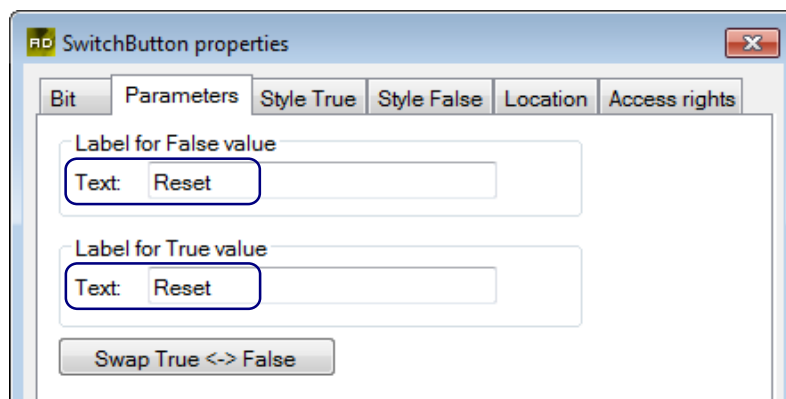


Fig. 61 – Setting text for True and False values

Finally, adjust the size of the `SwitchButton` element by using the sizing handles as required.

To set date and time, use the `DateTimeEditButton` element. Drag a `DateTimeEditButton` element from the “Toolbox” window and drop it onto the screen. Double-click the element and select the `Server AMR-OP87 (G) .DateTime.NowLong` variable in the “Variable” tab.

In the “Parameters” tab, adjust the settings of format of the displayed date and time by using the “**Change**” button. Pressing the “**Change**” button opens the “Number format selection” window – use it to set the format. In the “Button” section of the “Parameters” tab, set the appearance of the button located in the right part of the `DateTimeEditButton` element. To change the button label, adjust the “Text” field (type in “Store”) and, in the “Size” field, select 40 % to adjust the size ratio of

the button to the rest of the `DateTimeEditButton` element. Leave the settings of other tabs unchanged and confirm the “Date`TimeEditButton` properties” window by pressing the “**OK**” button. Adjust the size of the element by using the sizing handles as required.

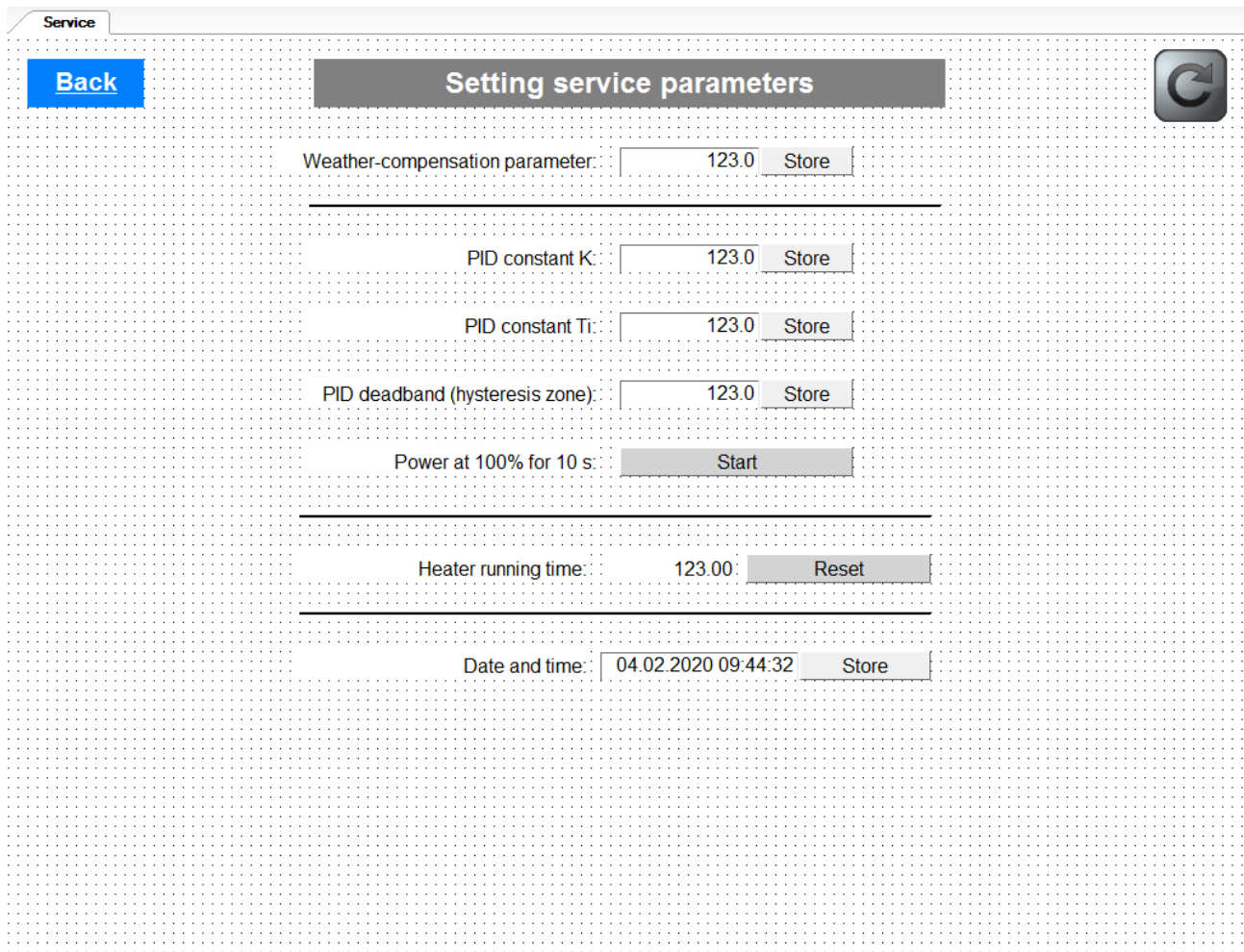



Fig. 62 – Final appearance of the Service page

4.3.16 Displaying the “Setting service” page to “user”

User will be redirected from Index to the NoLogin page via an `AuthLink` element. Double-click the NoLogin page in the “Project” window to open it. Place a `Label` element onto the page and change its default text to the following: “You do not have permission to access this website.” Using the centring icons –  (located in the toolbar) – position the element so that it lies in both the horizontal and the vertical centre of the page.

Next, place a `Link` element onto the page – set it to lead back to the Index page.

5 Setting parameters of the web server

It is possible to set the parameters required for correct operation of the web server directly in the AWDet IDE.

5.1 Factory settings

The web server comes with pre-defined communication parameters. The values and steps for factory reset are stated in operation manuals for individual devices.

5.2 Connecting to the web server from a PC

When connecting to the web server from a PC for the first time, observe the following steps:

- ◆ Connect the web server to the same network as the PC. When connecting to the PC directly, set the PC IP configuration without using a DHCP server.
- ◆ In the AWDet IDE, find the web server by using the “Tools/Find station in network” option in the upper toolbar.
- ◆ Set the communication parameters in the AWDet IDE according to the found web server.

5.2.1 Connecting a PC to the web server

It is possible to connect a PC to the web server using several methods:

- ◆ By using an active element (switch, router, etc.) by using a patch cable (see the application note AP0037 – Principles of Ethernet network usage).

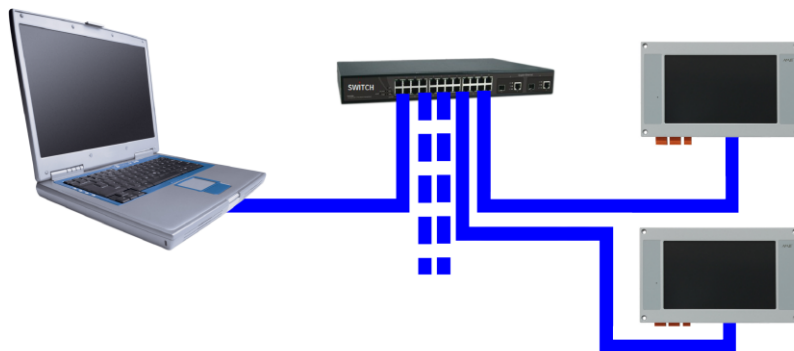


Fig. 63 – Connecting a PC to the web server via an active element

- ◆ Connecting the two directly using a crossover cable (see the application note AP0037 – Principles of Ethernet network usage).

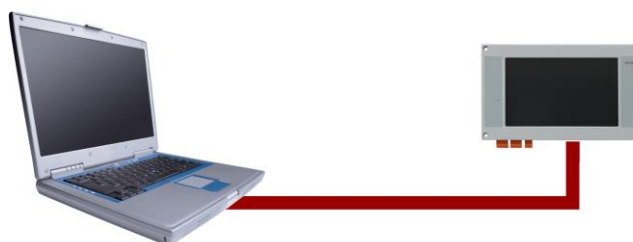


Fig. 64 – Connecting a PC directly to the web server with a crossover cable

When connecting directly to the web server, it is necessary to set the PC IP to a fixed value without using a DHCP server (see application note AP0006 – Communication in Ethernet network).

5.2.2 Setting parameters for communication in a network

To connect AWDet IDE with the web server, it is necessary to set correct communication parameters in AWDet. The corresponding settings window can be accessed through “Upload/Communication settings”.

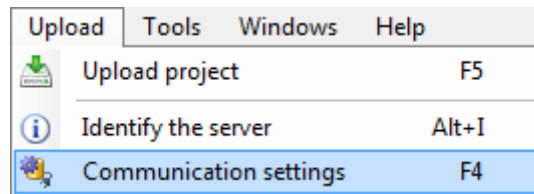


Fig. 65 – Where to find the communication settings window

After navigating to the menu, a familiar window opens – “AWDet – Communication settings”. This time, instead of the “Offline mode”, use the menu to link AWDet to the web server running station in the Ethernet network. Having the PC and the station web server in the same network, highlight the “IP address” field by clicking it and click the button. It opens the “Find station on network” window. In the window, there is a list of all detected stations in the same network as the PC running the AWDet IDE – even in cases where the web server is in a different IP space than the PC.

Note

Whether the PC finds a station located in a different IP space than the PC largely depends on the settings of a router (in case the PC connects to the server via one). When a router is set to block so-called UDP frames broadcast (default setting), the stations in different IP space won't be found.

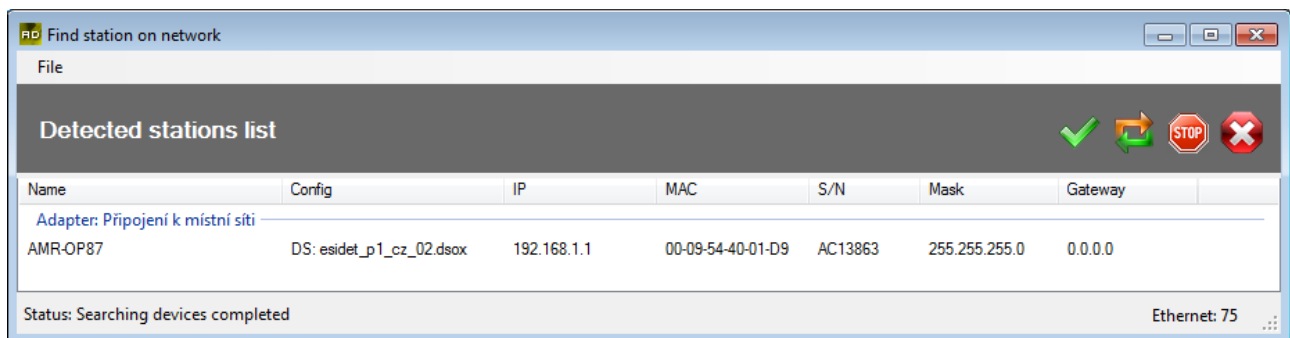


Fig. 66 – Finding stations in the same network as the PC

To find one station between all the found stations in the “Find a station on network” window, see the columns with IP address, serial number and MAC address. Both the serial number and the MAC address (or its part) of the station are on the nameplate of the station. Furthermore, it is possible to change IP parameters of the stations in the “Find a station on network” window. To actually change the parameters, right-click a station and select “Ethernet settings”. In the “Ethernet Settings” window, it is possible to set the IP address, subnet mask and the default gateway. In this case, the station is not in the same IP space as the PC. It is therefore needed to change its IP configuration. Set the IP address to a value that belongs to the same IP space as the PC (in this case, the IP address of the PC is 192.168.168.79).

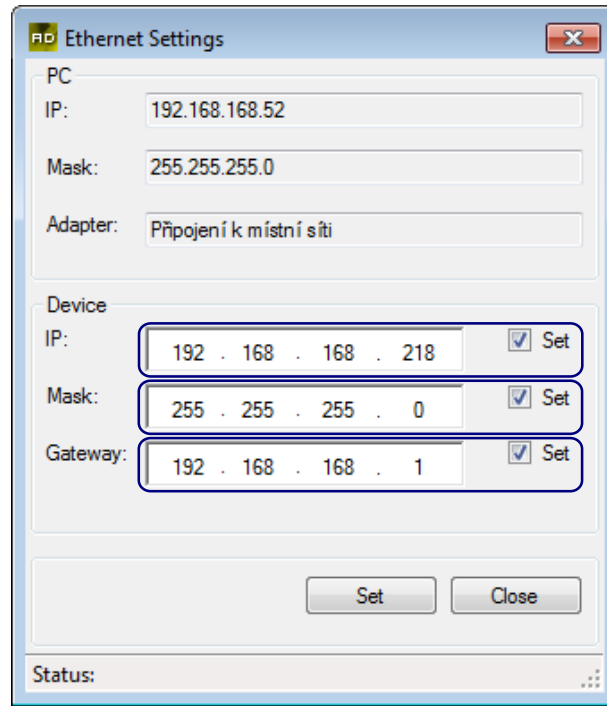


Fig. 67 – Setting IP parameters of the web server

Note

To change IP settings for PseDet control systems, it is necessary to carry out certain steps (e.g. setting CFG or DIP switches).

In the “Find station on network” window, select a **AMR-OP87** station by double-clicking it. The IP address field in the “Ethernet Settings” window automatically fills with the IP address of the selected station. Next, change the True flag of the Offline mode to False. Set ports according to the following picture.

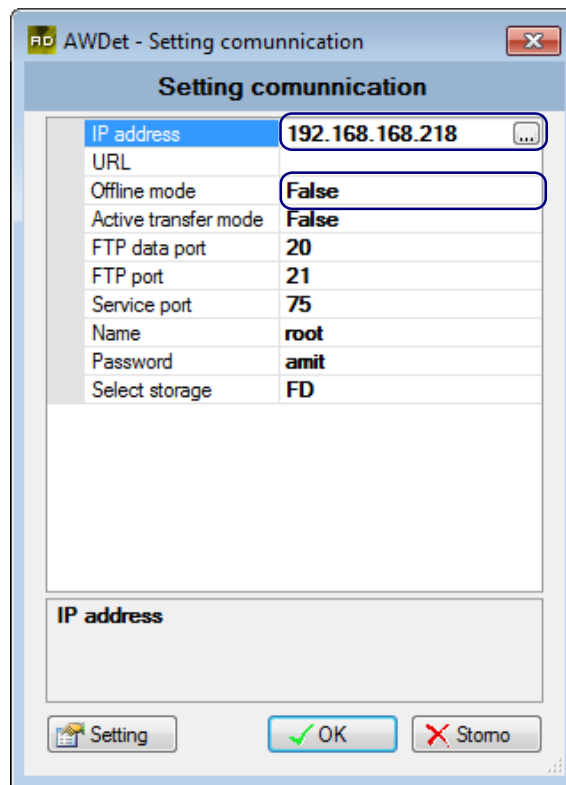


Fig. 68 – Setting communication parameters for connection with the web server

Confirm your settings by pressing “OK”.

Note

If the station doesn't appear in the list of found stations even though the router allows UDP broadcast frames to pass (or the connection is not established via a router), the problem may be caused by PC firewall (apart from the Windows native firewall, antivirus software usually comes with a firewall as well). In such case, disable firewalls altogether or create an exception for AWDet for Ethernet network communication.

After setting station communication parameters, carry out the station server identification procedure – click the “Upload/Identify the server” option in the toolbar.

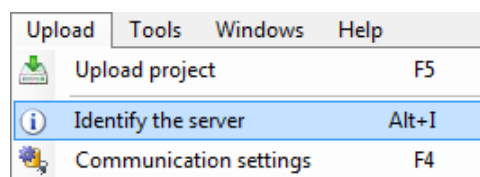


Fig. 69 – Web server identification option

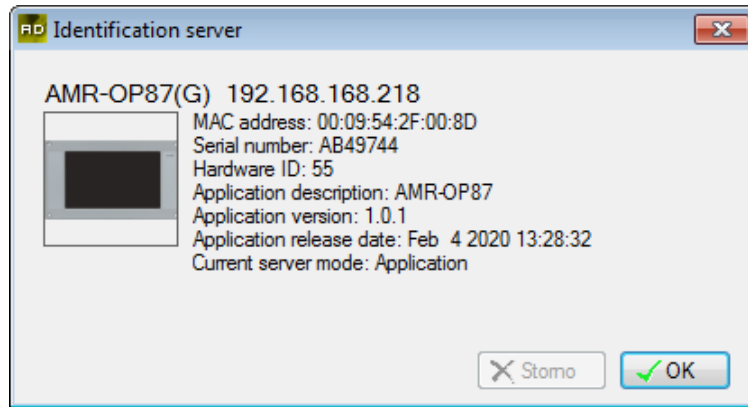


Fig. 70 – ID of the server with newly set parameters

Note

Should the procedure fail, change the “Active transfer mode” in the “Communication settings” to True.

6 Compiling and uploading the application to the server

Compiling the application creates the web site for the server. To start the compilation procedure, navigate to “Project/Compile project” or press the **F6** key. After the project is successfully compiled, the “Server used space” window displays the required capacity of the server and the buttons for uploading the application to the server.

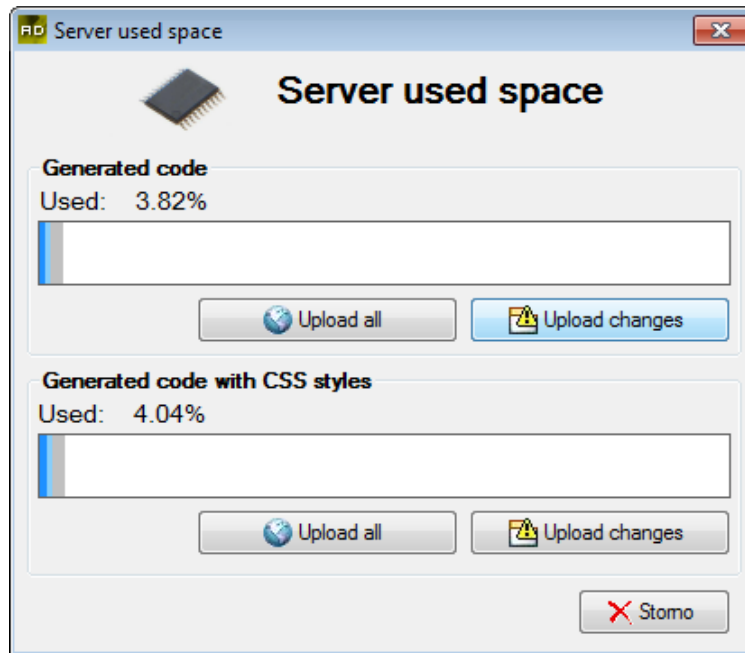


Fig. 71 – The capacity statistics window

Note

*Basic difference between a Generated code and a Generated code with CSS styles is where the style information of used elements is stored. In case of code without CSS style files, all style info is stored within the *.hta files – this, however, causes the files to grow in size which, in turn, lengthens the responsiveness of the web site for every site refresh. In the second case, the style information is stored separately in external *.css files. Further information is stated in the AWDet IDE help.*

To upload the project for the first time, press “**Upload all**”. After pressing the button, the previous content of the web server is deleted and the new application is uploaded to the server.

The “Messages” window shows the progress of the procedure. After the application is fully uploaded, an informative window with the result of the process appears.

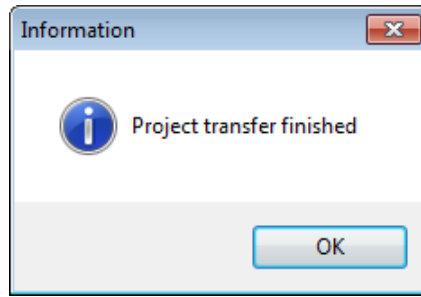


Fig. 72 – Application successfully loaded to the web server

If the process finished successfully, open a web browser and type the IP address of the web server into the browser address field.

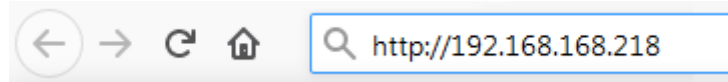


Fig. 73 – Entering the web server IP address to the web browser address field

After entering a correct IP address, the web server asks for authentication. The login window may differ one browser from another.

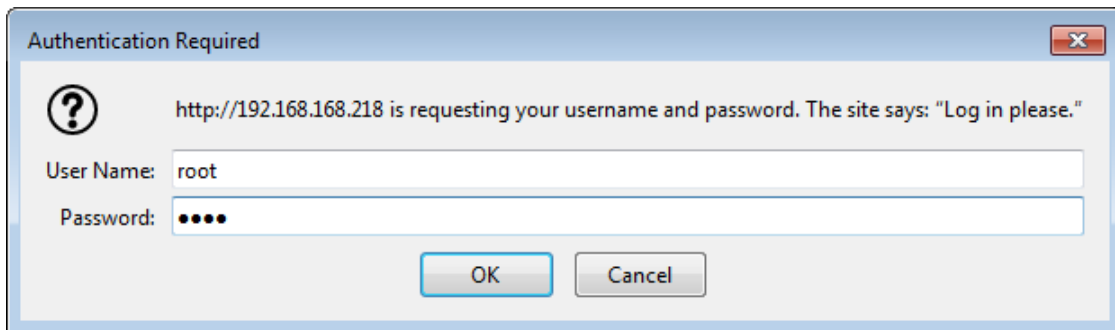


Fig. 74 – Authentication in the web browser

Use “root” as a username and “amit” as a password. After successful authentication, the web site is displayed.

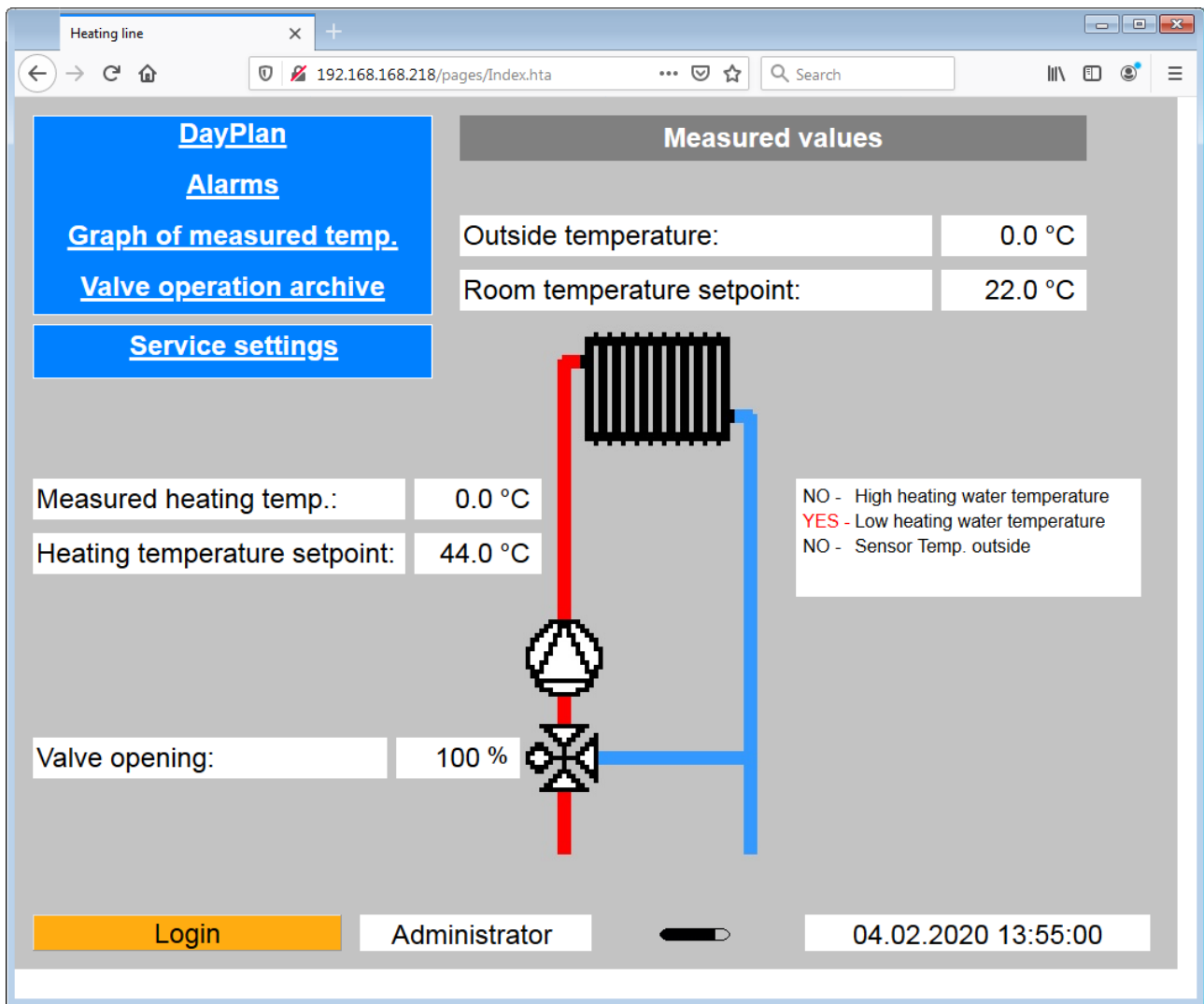


Fig. 75 – The previously created web site, now displayed in the browser

Note

In case a different port was used during configuration of the web server – different than the http standard port 80, e.g. 60 – it is necessary to add this port to the IP address while connecting to the web server through a browser. The address with a port would look like this: "http://192.168.168.120:60".

7 APPENDIX A

7.1 Importing screens from a DetStudio project

This function is used to generate a web site visually similar to screens in a given DetStudio project. The DetStudio IDE features libraries with images that can be used for screen design for individual terminal types. Some of them lack an equivalent for web server applications altogether, others are only similar. That is why the import function creates only look-alike pages, not identical ones. When creating a DetStudio project that may be used to generate a web site – using the “Importing screens from a DetStudio” feature – it is recommended to use images from the WebCompat library.

To use the function, it is first necessary to create a new project – navigate to “File/New project”. Prior to importing screens from DetStudio, it is necessary to link the server to the station according to chapter 4.2 “Binding a server with a station” in order to maintain the links of variables to imported elements. It is possible to check the “Import screen” option already while configuring the server in the “AWDet – Server configuration” window. Second possibility is to import screens via “Tools/Import Screens from DetStudio” option.

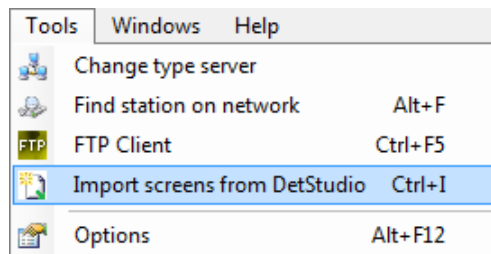


Fig. 76 – Importing screens from a DetStudio project

Clicking the function opens the “Import Screens from DetStudio” window. In the window, it is possible to adjust the imported screens in terms of size by using the “Zoom import screen” option (the value of the ratio may be a whole number only).

The language option is reserved for multilingual DetStudio projects. It determines the language variant the AWDet project will import and display in the generated elements.

If default settings were used, the import function will process only those screens that do not contain scripts in the DetStudio project design. To allow scripts being imported, expand the “Advanced settings” section and uncheck the “Only load screens without script” option. In the list of pages for importing the DetStudio project screens, the script containing pages are yellow.

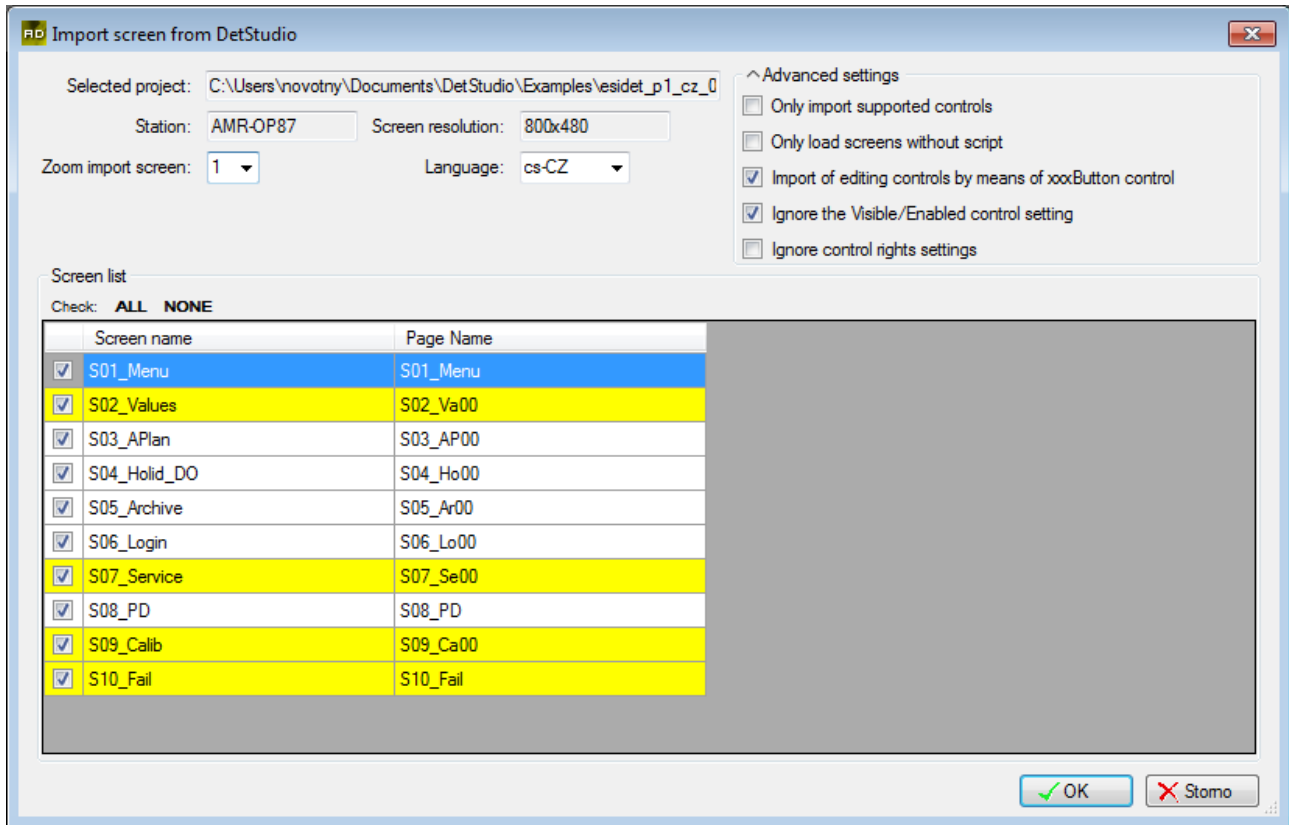


Fig. 77 – Importing screens from a DetStudio project

Further information for the advanced settings is in the AWDet help.

After confirming the settings by pressing “**OK**”, the selected screens are imported into the AWDet project.

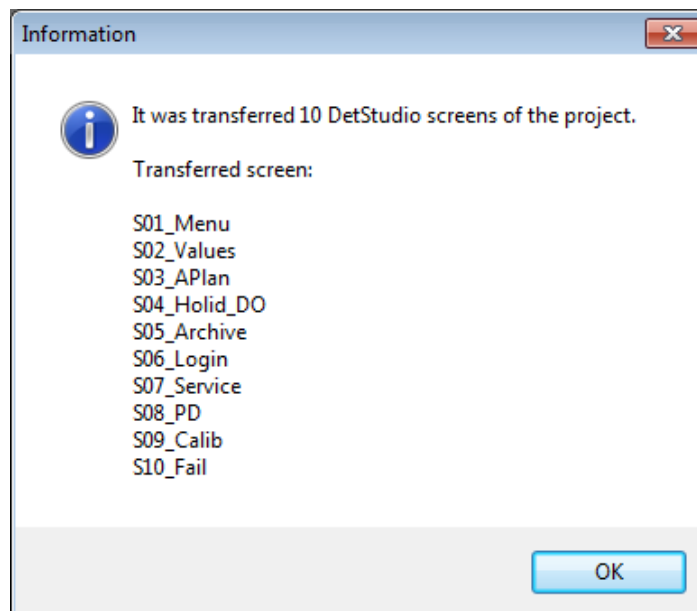


Fig. 78 – Result of importing screens from a DetStudio project

8 APPENDIX B

8.1 Setting AMR-CP4x/DM as AWEB

To set **AMR-CP4x/DM** as **AWEB**, it is necessary to load it with a special application. The control system then acts as **AWEB**. To load the application into the **AMR-CP4x/DM** control system, use the **AppLoader** programme. The **AppLoader** programme is available at www.amitautomation.com

When creating a project, press the “**Select**” button to change the type of the server. Pressing the “**Select**” button opens a window with a list of servers – choose **AMR-CP4x/DM** from the “Converter” section.



Fig. 79 – The webserver type selection window

When the **AMR-CP4x/DM** control system with **AWEB** firmware is used, the programmer needs to define communication of the system and the web server. **AMR-CP4x/DM** can communicate with control systems either via serial interfaces (DB-Net protocol communication) or via Ethernet (DB-Net/IP protocol communication). Further information on defining communication between a converter and a control system is in the AWDet help.

Apart from the web server functionality, **AMR-CP4x/DM** as **AWEB** can be used also as:

- ◆ a converter – Ethernet to RS232,
- ◆ a gateway to RS485, DB-Net based network.

8.1.1 Converter – Ethernet to RS232

The web server can be used as a one-way interface between Ethernet and RS232 (RS485). I.e. when using a PseDet control system with an Ethernet interface, it is possible to connect it to **AMR-CP4x/DM** as **AWEB** and the communicate with the control system via **AMR-CP4x/DM**.

8.1.2 Gateway to RS485 network

When there is a whole network of control systems that communicate with one another via DB-Net protocol, the web server can be used as a gateway to the network – i.e. to communicate with individual control systems of that network.

9 Appendix C

9.1 Setting communication via the internet

In the majority of cases, it will be necessary to communicate with the web server via the internet. In those cases, the web server will be behind a router and it will be necessary to configure it.

To demonstrate this, imagine a network with IP address range 192.168.XXX.XXX. This local network is connected to the internet via a router with a static IP address 74.08.25.5. In this network, there is a web server with an IP address 192.168.168.205 communicating over an HTTP port 80 and at FTP ports 20 and 21. The local address of the router is 192.168.168.1.

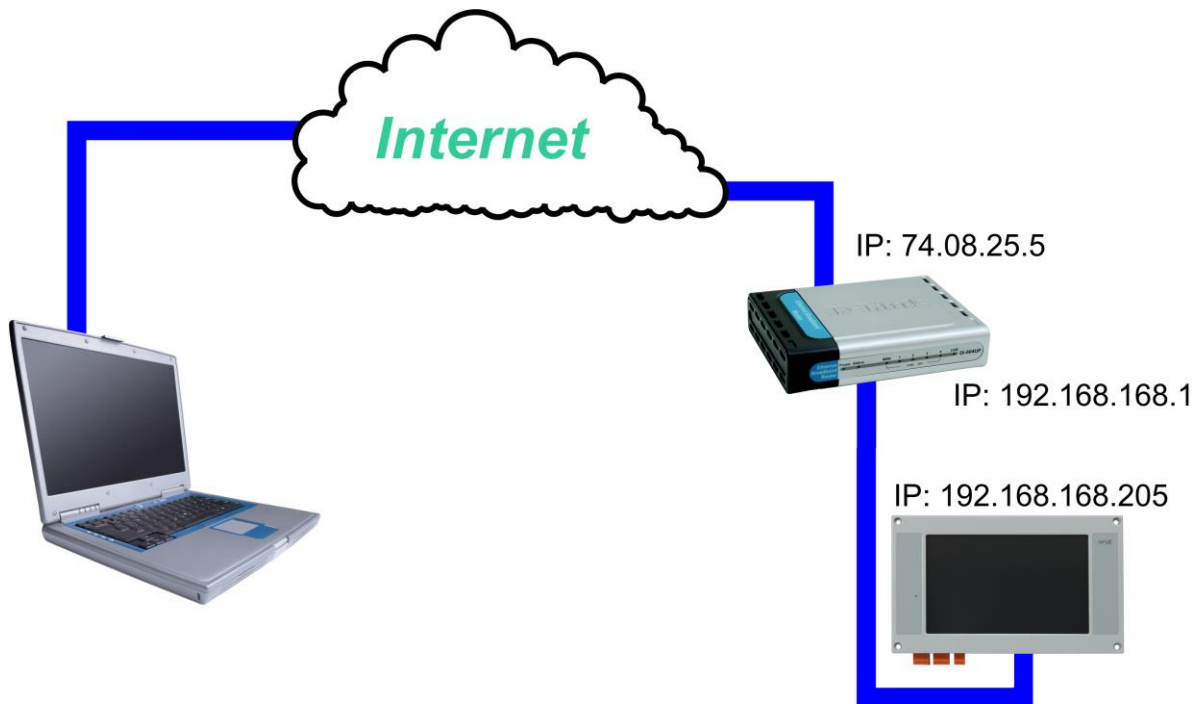


Fig. 80 – Communication with the web server over the internet

To enable communication over the internet, it is first necessary to activate NAT (address translation) for pre-defined ports. The number of ports required for this depends on the number of services required by the specific project:

- ◆ viewing the web site – activate NAT for web server HTTP port 80,
- ◆ uploading the web site – activate NAT for web server FTP ports 20 and 21,
- ◆ identification of the web server – activate NAT for web server UDP port 75.

An example with NAT configured for all previously mentioned ports (via web interface of the router) is in the following picture.

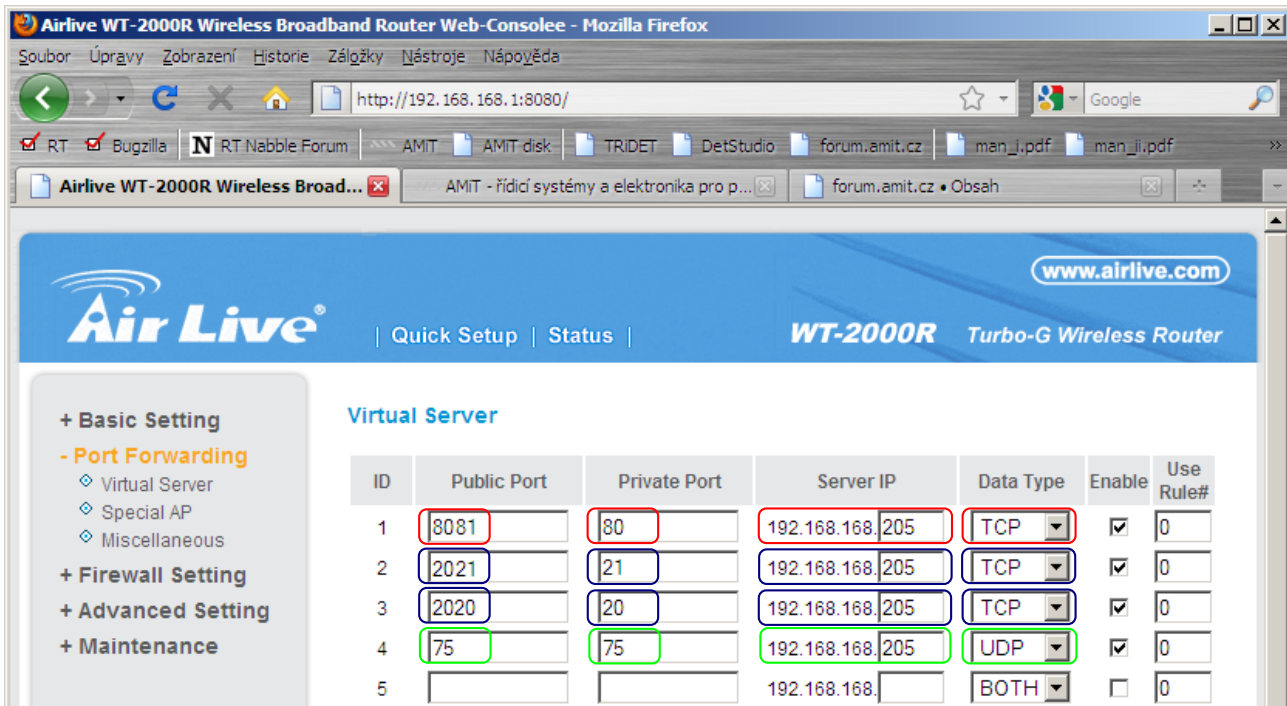


Fig. 81 – Example of NAT configuration for a web server in a router interface

Note: red is NAT configuration of HTTP (viewing the web site), blue is NAT configuration of FTP ports (uploading the web site) and green is NAT configuration of the UDP port which is used for identification of the web server in the network (“**Identify**” button in the “Communication parameters” window).

Use the “Public Port” column to define the port of the web server. It will be necessary to append this port to the public IP address when accessing the web server from the internet. In the “Data Type” column, it is necessary to set TCP or UDP packets depending on the used service (or to set “BOTH”).

In case a default gateway was not defined in the web server (the router address in the local network – 192.168.168.1), it is necessary to set it up.

After setting up a correct gateway, enter the public, static IP address of the router into the browser and append the port number for NAT-enabled http communication.

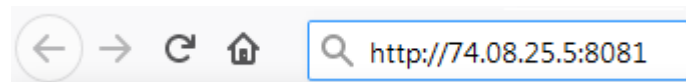


Fig. 82 – Entering the web server public IP address with port number to the web browser

Note

Default port number for the FTP data port is one below the FTP command (control) port. In case a different setting is required, it is necessary to set it up by unchecking “Parse FTP data port” in the “Properties” window that opens after pressing the “**Settings**” button in the “Communication settings” window.

10 Appendix D

10.1 Web server definition for remote stations

10.1.1 EsiDet stations

It is necessary to insert the DbNet object into the EsiDet station project and to define the remote stations the server is supposed to communicate with. Do that in the “Remote station” window that opens after double-clicking the “Communication/Remote controllers” in the Project window of DetStudio. Add a new remote station by pressing **“Add project file”**.

	Remote controller	File	Connection
✓	EthStan1Adr1	D:\Projekty\EthStan1Adr1.dso	Ethernet 192.168.1.1, Adr:1
✓	EthStan2Adr1	D:\Projekty\EthStan2Adr1.dso	Ethernet 192.168.1.2, Adr:1
✓	EthStan3Adr2	D:\Projekty\EthStan3Adr2.dso	Ethernet 192.168.1.3, Adr:2
✓	RsStan4Adr2	D:\Projekty\RsStan4Adr2.dso	Adr:2
✓	RsStan5Adr3	D:\Projekty\RsStan5Adr3.dso	Adr:3

Fig. 83 – Remote station definition in DetStudio

After defining network of stations in DetStudio, it is necessary to use the saved project as a source file for import while configuring AWDet server in the “AWDet – Server configuration” window. Note that it is necessary to check the “Import remote station” option. The import itself will occur automatically. Remote stations are displayed as a tree in the “Project” window.

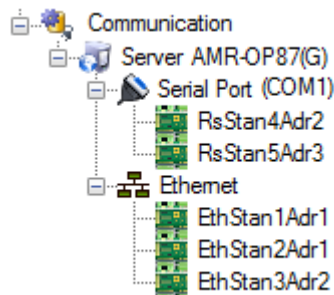


Fig. 84 – Remote stations in the “Project” window

10.1.2 PseDet stations and PseDet “W” stations

It is necessary to insert the DbNet object into the PseDet (“W”) station project and to define the remote stations the server is supposed to communicate with. Do that in the “Remote controller” window that opens after double-clicking the “Communication/Remote controllers” in the Project window of DetStudio. Add a new remote station by pressing **“Add project file”**. In case of PseDet stations, remote stations can communicate only via serial interface.

Importing a source file into the AWDet project is the same as for the EsiDet stations.

11 Technical support

The AMiT Technical Support Department provides all information regarding AMiT web server parametrization. The Technical support is best contacted via e-mail at **support@amit.cz**.

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