

FUP XL

User Manual (Last updated 2016-08-31)

Technology for intelligent buildings



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Note:

We are pointing out that the software and hardware names and brand names of the respective companies used in this manual are generally protected by brand, trademark or patent laws.

NEW System requirements

To use the software appropriate minimum requirements relating to the operating system and the PC components must be met.

Operating systems

- Windows 7 Professional SP1 (64-bit)
- Windows 7 Ultimate SP1 (64-bit)
- Windows 8/8.1 Professional (64-bit)
- Windows 8/8.1 Enterprise (64-bit)
- Windows 10 Professional (64-bit)
- Windows 10 Enterprise (64-bit)
- Windows Server 2008 R2
- Windows Server 2012 und Windows Server 2012 R2



This software can only be installed on PCs running with a 64-bit bases Windows Version.

PC components

PC components	Requirement (minimum)	Recommendation
Processor	Dual Core	Quad Core
Web Browser	Internet Explorer 10	Internet Explorer 11
Drive	DVD-ROM	DVD-ROM
Working memory	8 GB RAM	≥ 12 GB RAM
Free hard drive space (File system: NTFS)	10 GB	50 GB SSD
Screen / graphic card	1024 x 768 Pixel, True Color	Full HD, True Color
Interfaces	1 free USB-Port	2 free USB-Ports, serial interface or adapter (USB↔Serial)
	je nach verwendeten OPEN Komponenten wird benötigt: bei OPEN SRU: 1 zusätzlicher USB-Port bei OPEN EMS / COSMOS OPEN: TCP/IP (Netzwerkkarte)	
additional software	.Net Framework 3.5	



Firewall:

If the firewall prevents the program from starting, the guidelines of the IT network must be checked and adapted if necessary.



If Internet Explorer does not fulfill the necessary conditions, an appropriate update can be run via the Microsoft website. For this update, the product key of the operating system should be available.

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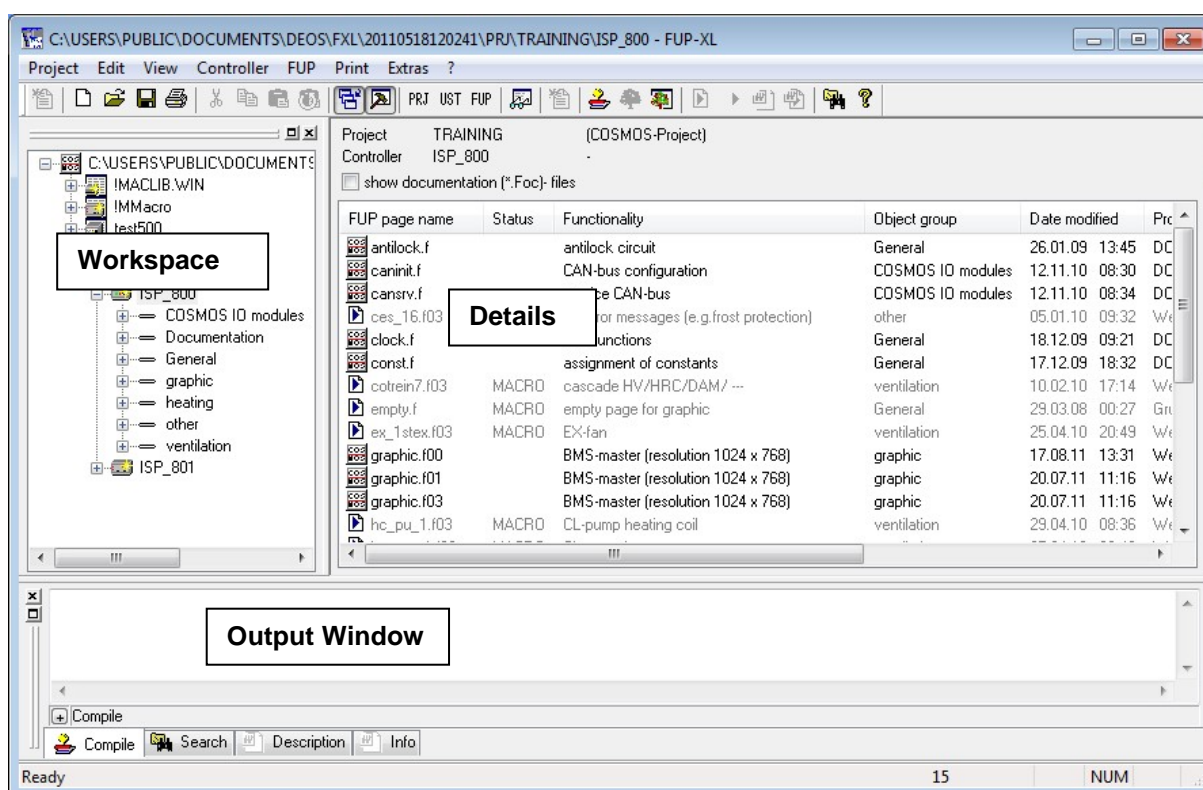
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1. General

FUP XL is the development tool for all COSMOS – control systems (with the exception of COSMOS single room controller „SRC“).

Control programs for COSMOS control systems will be created visually on FUP pages without previous knowledge of any programming language. Function modules and parts alleviate the introduction into graphical programming. Thereby pre-assembled macros disburden the programming and reduce the required time. FUP XL programs can simply be uploaded to the controller with just one mouse click. Controllers are grouped to projects for simple and clear management. The *workspace* allows a fast access to your projects and programmed controllers. Information about the current *workspace* will be displayed at *details*. Potential nonconformities during the creation of control programs will be listed up in the *output window*.



While creating controller programs you can make individual text based and/or graphical layouts by integrated editors. These layouts are automatically linked to the created controller program. The layouts will be used for control purposes by the OPENweb or OPENview and for further visualization. The simulation permits a simple and effective test of your created control programs.

The Software is build-up of the following main program parts:

- **FUP XL**
FUP XL is used to manage and organize projects, controllers and the according FUP pages.
- **FUP Editor**
 - **FUP Page Editor**
Programs will be created on FUP pages by using modules, lines and basic modules. Modules are pre-assembled program functions and will be visualized as boxes on the FUP pages. Input parameters will be visualized left and output parameters right of the box. Therefore the data flow is from left to right. Several modules can be placed on one FUP page. The in- and outputs of the modules will be connected by lines so that a logical functional program is created. By using basic modules like constants, inputs, displays, etc. you can draw constant or variable allocations.

- **HTML Editor**

By using the HTML Editor the text layout will be created. Each text element can be positioned and changed user-defined. The text layout is used for visualization in the FBG (remote operator device) / LSD (Local Service Device), the VT100 emulation and the HTML view of the OPENweb / OPENview. A FUP page can contain up to 10 HTML pages.

- **TUP Editor**

The page layouts of the TUP will be created by using the TUP-Editor. Text elements as well as graphic elements can be implemented into the pages. Each element can be positioned and changed user-defined.

- **Graphic Editor**

The graphic layout will be created by use of basic elements and graphic elements. Each graphic element can be positioned and changed user-defined. The graphic layout is used for the graphical HTML view of the OPENweb / OPENview. A FUP page can contain up to 50 graphic pages.

2. About this manual

It is necessary to have knowledge of the operating system “Microsoft Windows” and control engineering to work with FUP XL.

Definitions

FUP-page

A function chart with the file extension ***.Fxx** is a FUP page.

Notice *FUP file extensions:* For numbering reasons the extension is freely adjustable. Windows identifies files by the extension. Therefore FUP pages have the additional extension ***.FUP**. This additional extension will not be displayed in the workspace. Depending on the configuration of your explorer this extension will be shown or hidden.

Documentation FUP Page

Files with the extension ***.foc** are documentation FUP pages by which the OPENweb can automatically create a project documentation online with all parameterized and current values.

Macro FUP Pages

In the further course of the introduction the macro FUP pages will be named *macro* and the source of the macros will be named *macro-source*.

Module library

The module library contains the basic elements and the modules.

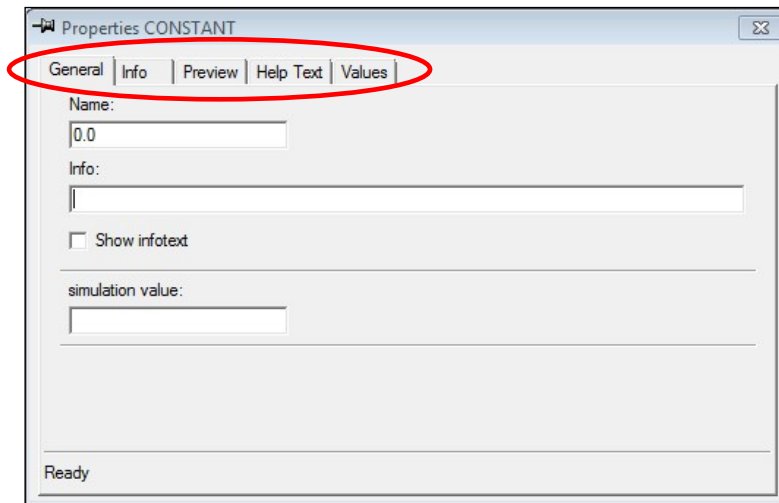
Controller

You can create multiple controllers in one project. They will be labeled according to the selected hardware (e.g. COSMOS 500 OPEN). In the further manual they are called *controller* independent of the selected type.

Tabs

Tabs enable the user to browse quickly to a lot of information. Information belonging together will be summarized on one tab for a better overview. A tab will be opened with a click on it.

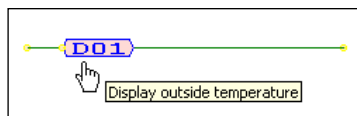
Example



Tooltip

Tooltip is a text, which is displayed at the mouse cursor while staying over an element.

Example



Mouse Operations

Most actions of FUP XL are performed by mouse.

Click

Position the mouse pointer over an element and shortly click the left mouse button.

Double Click

Position the mouse pointer over an element and click the left mouse button twice in quick succession.

Drag & Drop

Position the mouse pointer over an element and hold down the left mouse button. Then move the element to the desired position and afterwards let the mouse button loose.

Selection of several elements

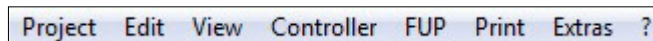
Position the mouse pointer next to an element and hold down the left mouse button. Then draw a frame around all desired elements and afterwards let the mouse button loose.

Context menus

FUP XL supports the right mouse button. It will open context menus. They are called like this because it provides menu functions according to the current situation or context.

Menus

Example



Open menus

Using the mouse:

Position the mouse pointer over a menu item. This will be emphasized. Then click the left mouse button to open the menu item.

Using the keyboard:

Press the [ALT]-button and the depending underlined letter to open the menu item.

Select menu functions

Using the mouse:

Position the mouse pointer over a menu item. Then click the left mouse button.

Using the keyboard:

Using the keyboard go up and down with the cursor-keys to the desired menu item and press the return-button. Sub menus can be opened and closed by using the right and left cursor-keys.

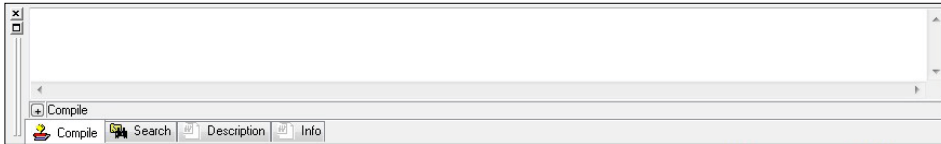
Some menu items can be opened by using shortcuts. The shortcut is shown right behind the menu item.

Notice

An info text to the selected menu item is shown in the status bar

Docking Windows

The docking windows can be moved to any position on the desktop. When moving a docking window to the application window it will change to a free repositionable window with an own header. When moving the docking window to one of the four sides of the application window it will be docked there and integrated to the window frame.



Undock docking window

Move away the docking window of the side of the window by clicking the twin-line.

Dock docking window

Move the docking window to the centre of one side of the window. The docking window can be set to each side.

Close docking window

Click the button  in the edge of the docking window.

Notice By clicking the headline of a free docking window twice it will be docked to the last docked position. Here it has to be regarded that the docking window must be smaller than the place which is available.

When moving the docking window and pressing the [CTRL]-button parallel, you will stop the automatically docking of the window.

Toolbars



The toolbar can be moved to any position of the window. When moving a toolbar to the application window it will change to a free repositionable window with an own header. When moving the docking window to one of the four sides of the application window it will be docked there and integrated to the window frame. You can change the size of the free moveable toolbar. By changing the size the symbols will be ordered new.

Undock toolbar

Move away the toolbar of the side of the window by clicking the line.

Dock toolbar

Move the toolbar to the centre of one side of the window. The docking window can be set to side.

Notice By clicking a moveable toolbar twice it will be docked to the last docked position.

When moving the docking window and pressing the [CTRL]-button parallel, you will stop the automatically docking of the window.

Resize a repositionable toolbar

Position the cursor to the side of the toolbar until the cursor design changes to a resize cursor. Now you can change the window size by holding the left mouse button pressed and moving the mouse. If you have reached the desired size then let the left mouse button loose.

3. Setup

The following steps show how FUP XL has to be installed:

Step 1: Insert FUP XL CD into CD-ROM Drive

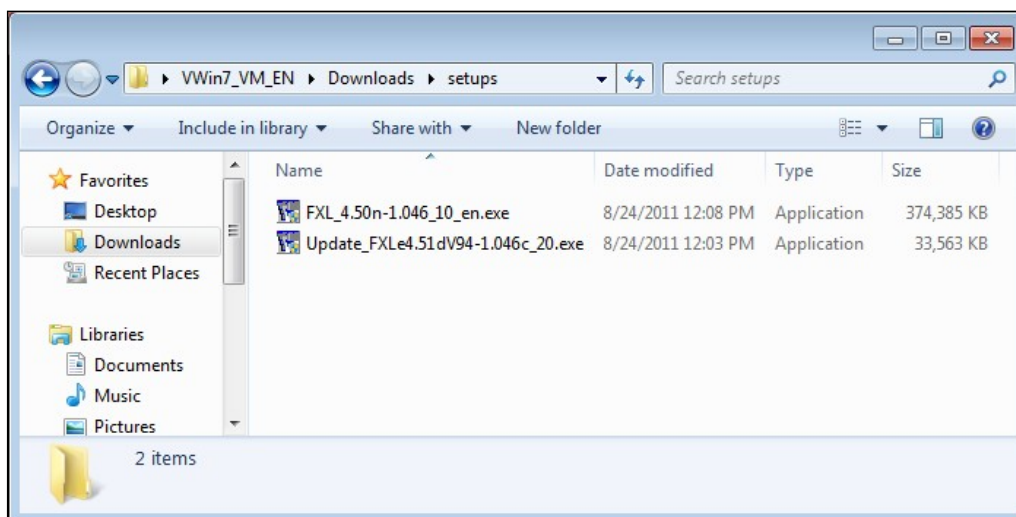
Please insert your *FUP XL* CD into your CD-ROM drive.

Notice The FUP XL setup will not start automatically as there are stored additional files on the CD.

Step 2: Start Setup

If you have a **FUP XL CD** at hand then start the program *FXL_x.xxyVxx-x.xxx_xx.exe* in the main directory of your CD by a double click.

If you have **downloaded the setup file** from the *DEOS Partner Section* then start the file you have downloaded by a double click.

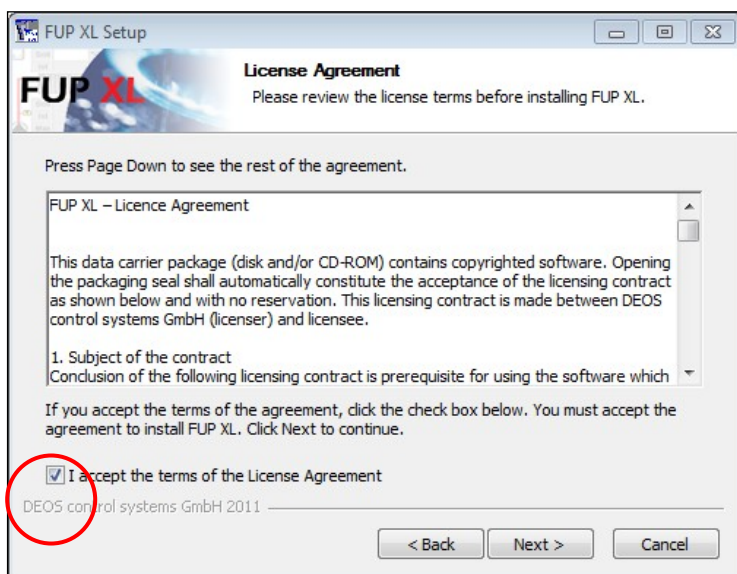


Step 3: Follow Instructions

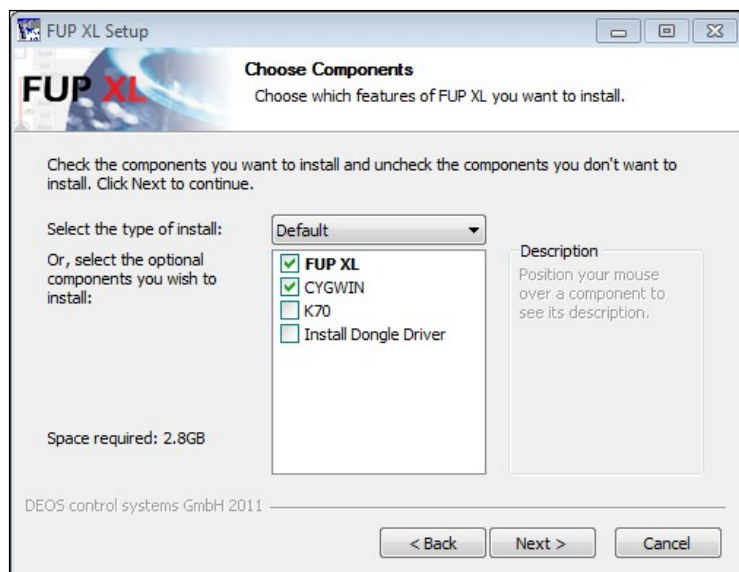
Follow the instructions. The installation wizard is started which will guide you through the installation.



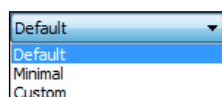
The license can be found in printed form at the end of this manual. To proceed you have to accept the license.



You select the components which should be installed afterwards.



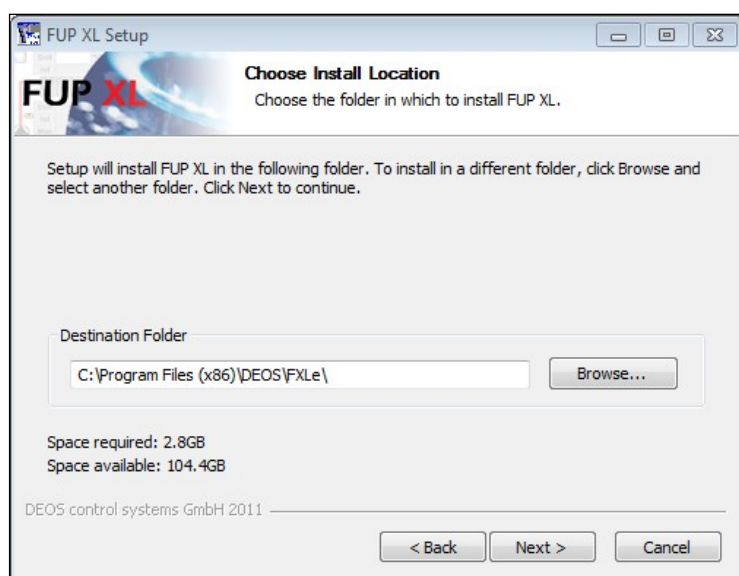
You can choose between the installation types *Standard*, *Minimum* and *Custom*.



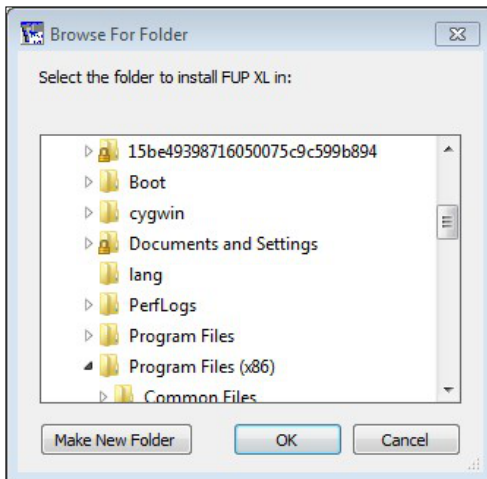
Option	Std.*	Min.*	U.d.*	Description
FUP XL	X	X		
CYGWIN	X			
K70				
Galep II				
Galep III				
Galep IV				
Dongletreiber				

* Std. = Standard, Min. = Minimum, U.d. = User defined

Please define the installation path. The default path is "C:\Program Files (x86)\DEOS\FXLe"

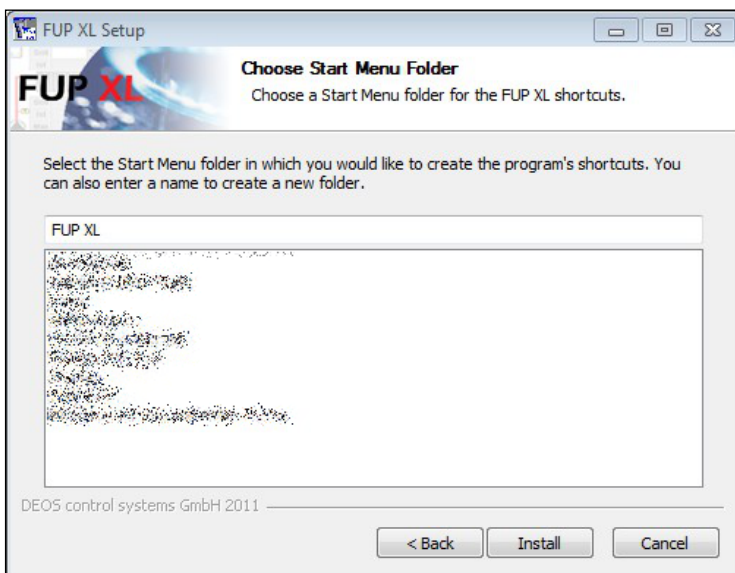


The installation path can be adjusted directly or set via *Search*.

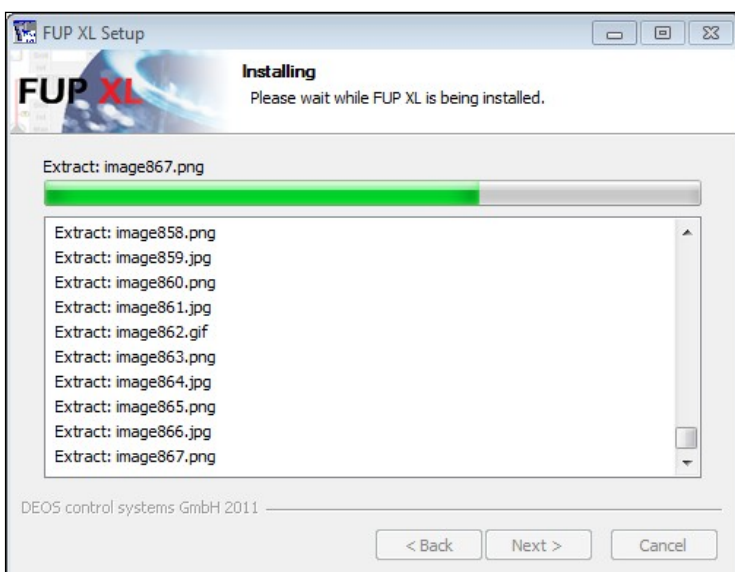


The installation path will be applied by *Next*.

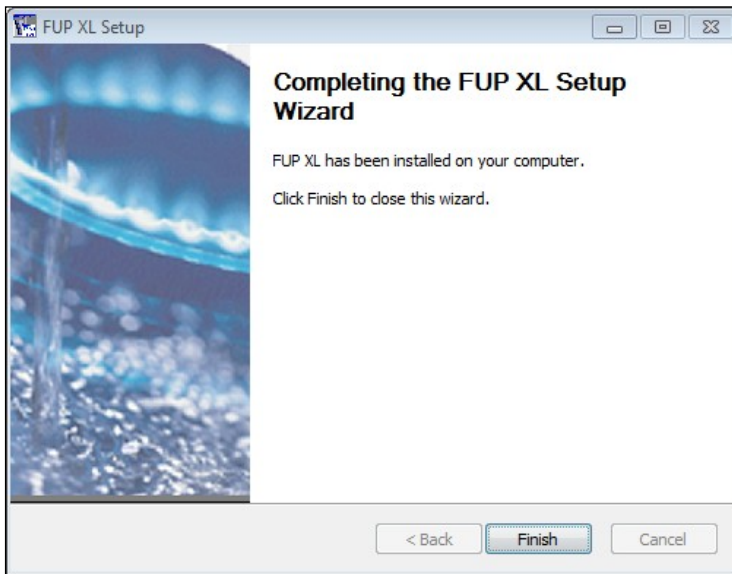
Afterwards you specify the name of the start menu directory and the program link.



Now start the installation by a click on the button *Install*



The last dialog will inform you about the success of the installation. Click on the button *Finish* to exit the setup.



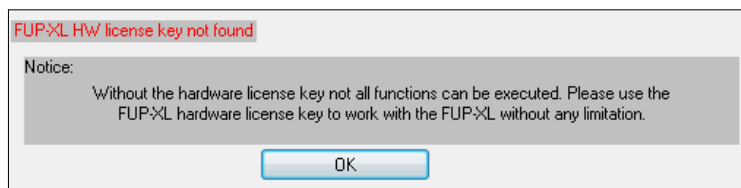
In case of errors during the installation please solve the errors and retry the installation. For queries call the hotline of the company DEOS control systems GmbH via the telephone number +49 (0)5971 91133-777.

4. Start FUP XL

After the installation a new *FUP XL* entry will be inserted into the start-menu. Start *FUP XL* by clicking on this new menu item.

The pages of the graphical visualization will be created by the FUP editor. The created pages will be displayed in the Internet Explorer. The visualization is realized by a graphic applet.

Notice FUP XL is limited without a registered hardware dongle. When starting the program the dongle will be checked. If the dongle is not found then an according message will be displayed which can be acknowledged by *OK*.

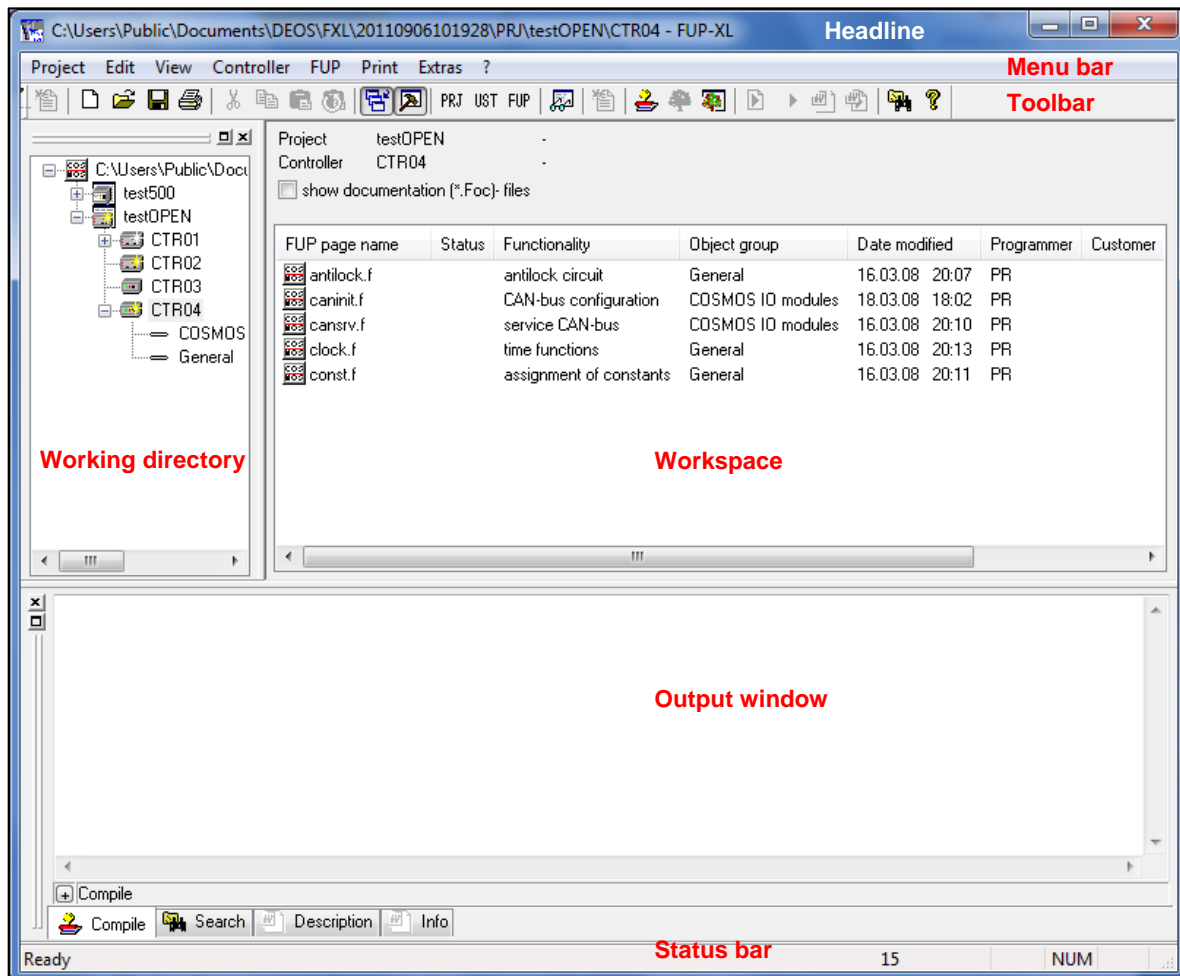


In case of working without a dongle you can use all program features except connecting to any controller. Therefore uploading programs is not possible.

5. FUP XL Main Program

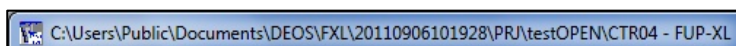
Screen layout

The FUP XL screen layout is separated into the areas *headline*, *menu bar*, *toolbar*, *working directory*, *workspace*, *output window* and *status bar*.



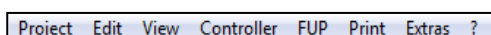
Headline

The headline provides information about the currently chosen working directory.



Menu bar

The menu bar provides access to the functions of FUP XL. If a function is not available because of a current constellation it is displayed disabled and cannot be called. A lot of functions are also available by the context menu.

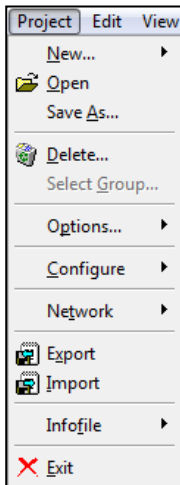


Notice

An information text is shown in the status bar about the currently selected menu entry.

Project

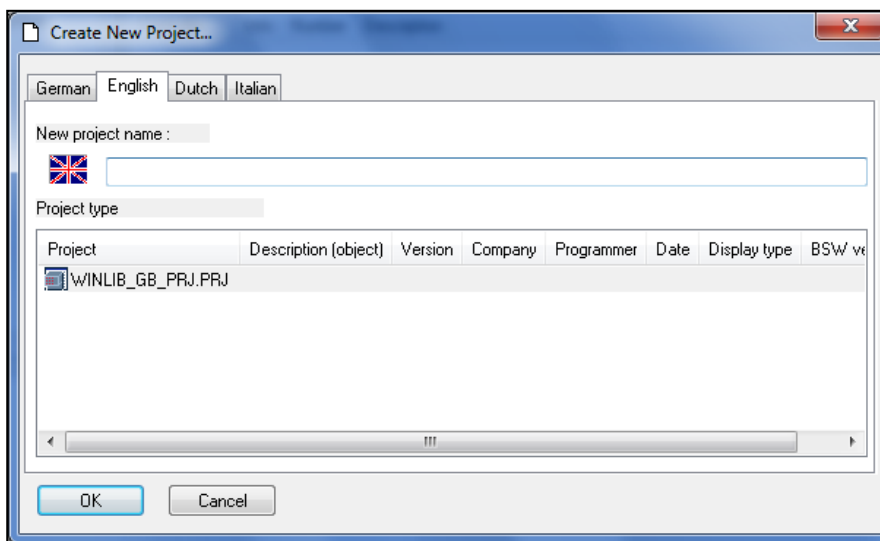
The menu structure of the menu project is setup as following:



Subsequently the menu entries including their submenus are explained.

New... - Project...

You can create a new project at “*Project* → *New...* → *Project...*”



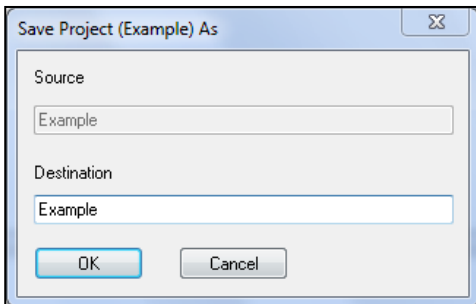
Please insert a project name into the input box “*New project name*”. The project name should not be longer than eight characters. The extension can have three characters. Umlauts, blanks and special characters are not allowed. Please select the required “*Project type*” and create the project by a click on *OK*.

Open

The function *Open* opens the workspace *projects*. The last handled project is marked. The menu item is available if the workspace *controller* or the workspace *FUP page* is opened. By using the cursor-keys you can select the designated project and by pressing the enter key you will open it.

Save as...

“Save as...” saves the selected project with a new name.

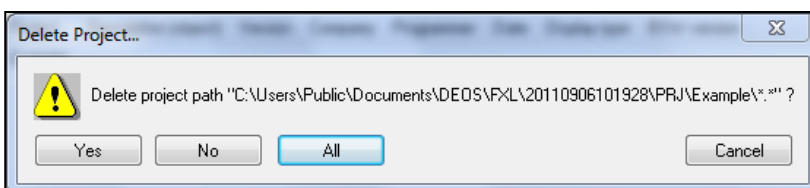
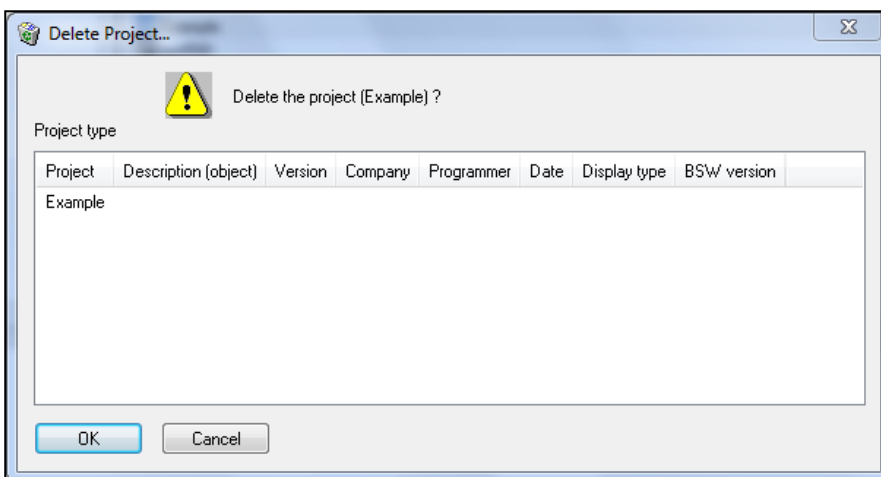


Please enter the project name of the new project into the input box “*Destination*”. The project name should not be longer than eight characters. The extension can have three characters. Umlauts, blanks and special characters are not allowed.

Multiple selections are possible by mouse (hold CTRL-button pressed and select the projects by mouse) or by the “*Select Group*” function. When using the multiple selections you have to enter a new name for each selected project.

Delete...

The currently selected project can be erased by „*Delete...*“.



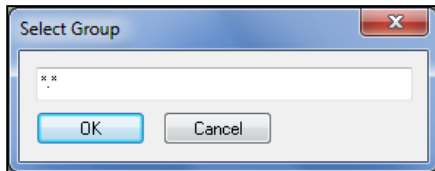
Please confirm the deletion process by *OK* and the security question with *Yes*.

Multiple selections are possible by mouse (hold CTRL-button pressed and select the projects by mouse) or by the “*Select Group*” function. All selected projects will be deleted. By the button “*Yes*” all projects will be deleted individually and by the button “*All*” the selected project will be deleted together.

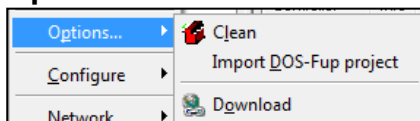
Notice Deleted projects will be moved to the *Recycle Bin*.

Select Group...

The function *Select Group...* is used to get a multiple selection of projects. The selection is proceeded accordant the entered syntax in the window *Select Group*.



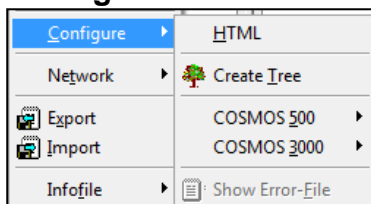
Options... - submenu



Clean

The function "*Clean*" will delete all automatically generated files.

Configure - submenu



HTML

The function "*HTML*" configures the current project (See chapter [HTMLConf](#)).

Create Tree

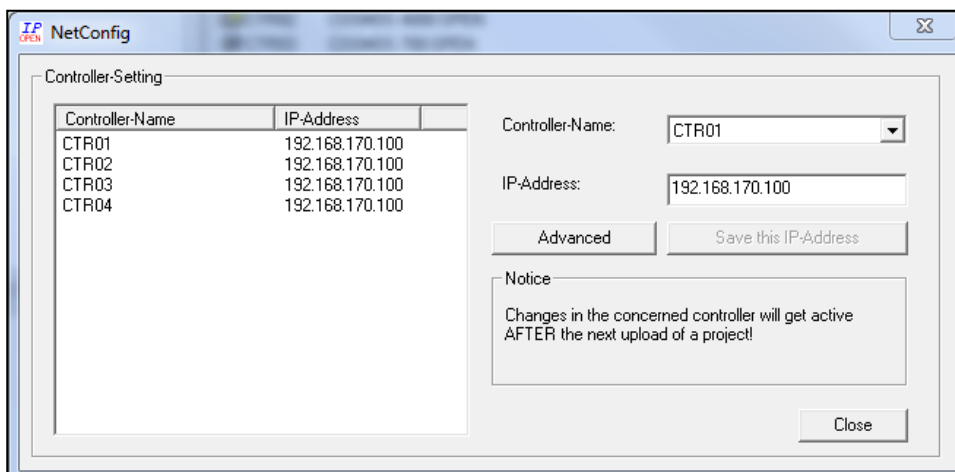
By the function "*Create Tree*" the pages in the CUI-tree will be managed (See chapter [CUI-tree](#)).

Network – submenu



IP-Settings

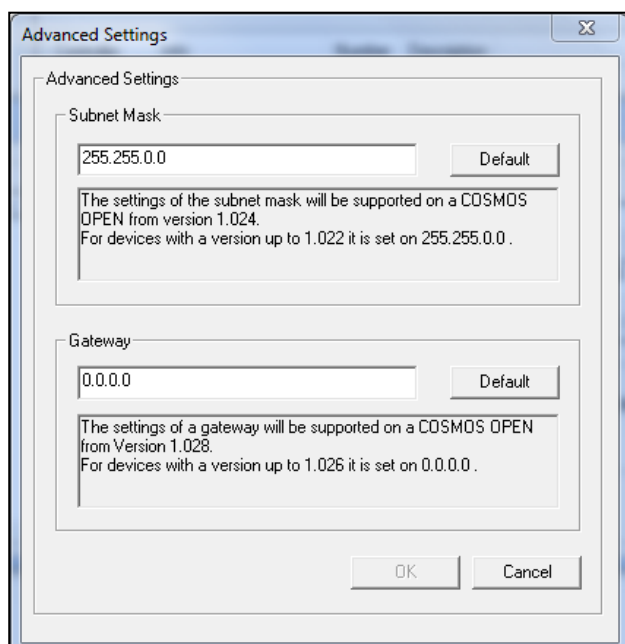
You can configure the IP-Addresses of the controllers here.



You can select a controller either by the list or by the Drop-Down menu. After selecting a controller you can enter a new IP-Address in the input box “IP-Address”. Please confirm the IP-Address by “Save this IP-Address”.

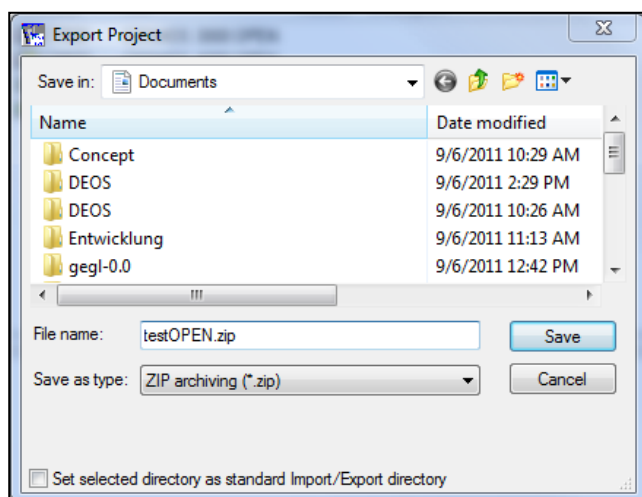
The set IP-Address will be used after loading and restarting the controller (See chapter *Load OPEN EMS*).

You can get to further settings by the button „Advanced“. You can configure the subnet mask and the gateway. Preset values can be loaded by the buttons “Default”.



Export

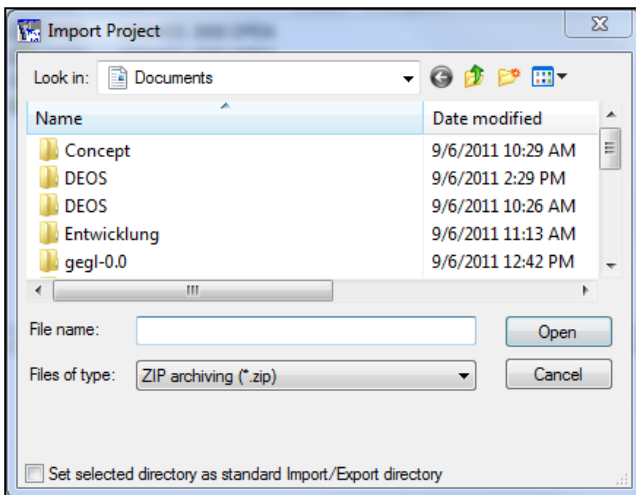
You can export a selected project as a ZIP-file.



Notice The import- and export-directory can be entered in the menu *Extras - Options* on the tab *Directories* under *Project archiving path*.

Import

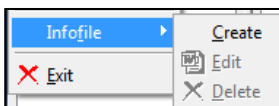
You can import a compressed project file (exported ZIP-file) into the working directory.



Notice The import- and export-directory can be entered in the menu *Extras - Options* on the tab *Directories* under *Project archiving path*.

Infofile – submenu

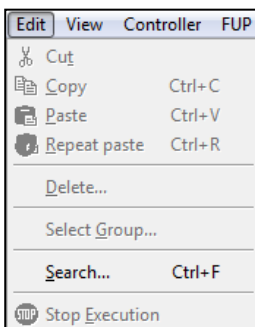
You can create (*Create*), edit (*Edit*) or delete (*Delete*) a project information file in Microsoft Word. This file is used for individual project specific information which are required by the user. Please follow the instructions.



Exit

You can exit *FUP XL* by this menu entry.

Edit



Cut

By the function “*Cut*” you remove the selection and put it into the clipboard.

Copy

The function “*Copy*” puts the selection into the clipboard.

Paste

The function “*Paste*” puts clipboard into the workspace (See chapter *FUP - Paste...*).

Repeat paste

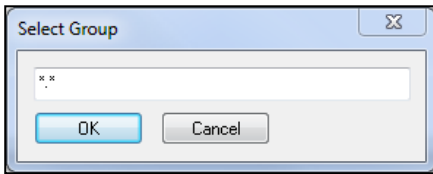
The function “*Repeat paste*” inserts the last copied FUP page into the workspace ignoring the current clipboard.

Delete...

The function “*Delete...*” erases the current selection. Multiple selections are possible by mouse.

Select Group...

The function *Select Group...* is used to get a multiple selection of projects. The selection is proceeded accordant the entered syntax in the window *Select Group*.



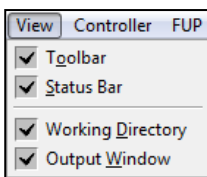
Search...

You can search for a character string in multiple files by the function “*Search...*”.

Stop Execution

This function aborts the execution of a current process.

View



Toolbar

This option fades the standard toolbar in or out.

Status Bar

This option fades the status bar in or out.

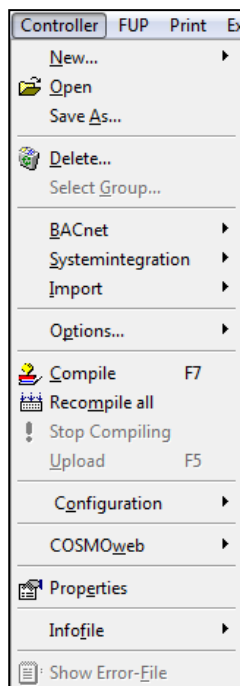
Working Directory

This option fades the working directory in or out.

Output Window

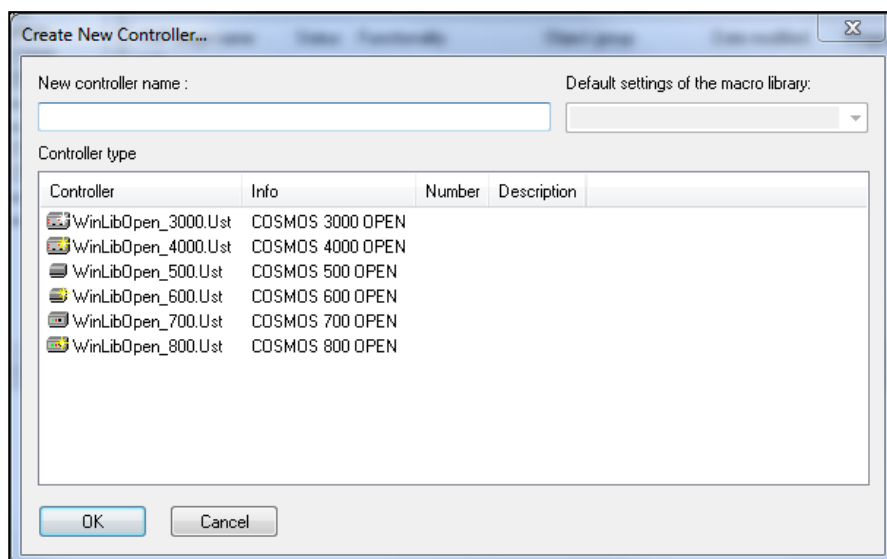
This option fades the output window in or out.

Controller



New... - Controller...

This function will create a new controller.



Please insert into the input box “*New controller name*” the name for the new controller. The name should not be longer than seven characters and should not have an extension. Umlauts, blanks and special characters are not allowed. Afterwards select the required “*Controller type*” please.

If a controller OPEN EMS which should use the macro library then the macro library has to be selected by the drop-down menu “*Create default settings of the macro library*” to create the preconfigured FUP pages directly. If no macro library is present then this is detected by the system automatically. Now you can create the controller by confirming the settings with **OK**.

Controller types:

OPEN EMS

A controller with its minimum configuration will be generated to the project by selecting a *WinLibOpen_xxx.UST*. The minimum configuration contains the service pages.

The following are available:

WinLibOpen_3000.UST - 
 WinLibOpen_3100. UST - 
 WinLibOpen_4000.UST - 
 WinLibOpen_4100. UST - 
 WinLibOpen_500.UST - 
 WinLibOpen_600.UST - 
 WinLibOpen_700.UST - 
 WinLibOpen_710. UST - 
 WinLibOpen_800.UST - 
 WinLibOpen_810. UST - 

SRU – Single Room Controller

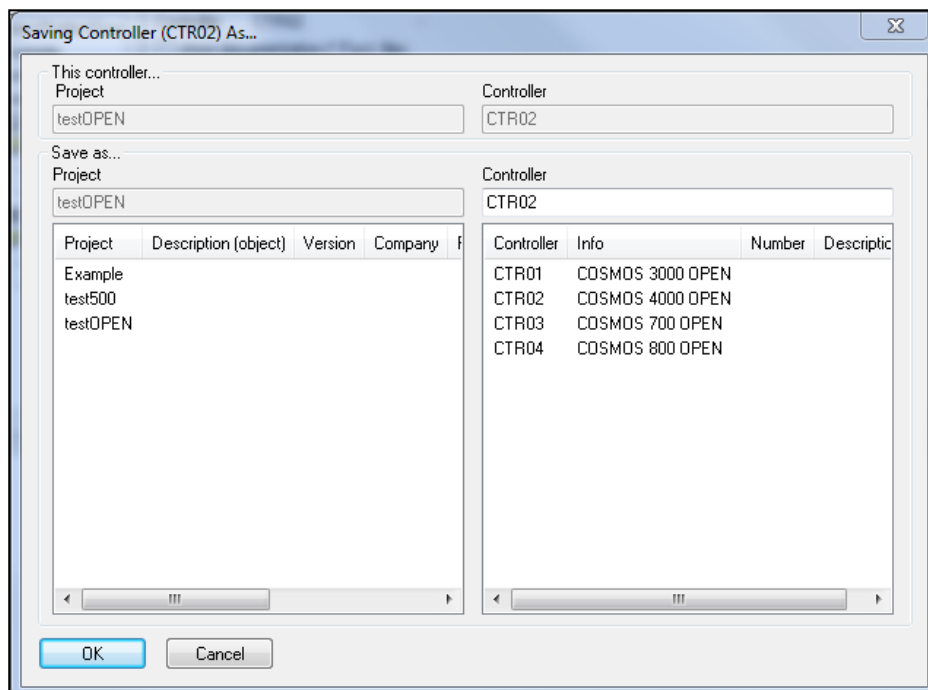
WinLib_SRU_01.UST - 

Open

The function *Open* opens the workspace *controller*. The menu item is available if it is opened the workspace *FUP pages*. The last handled controller is marked. By using the cursor-keys you can select the designated controller and by pressing the enter key you will open it.

Save As...

This function will save the selected controller with a new name.



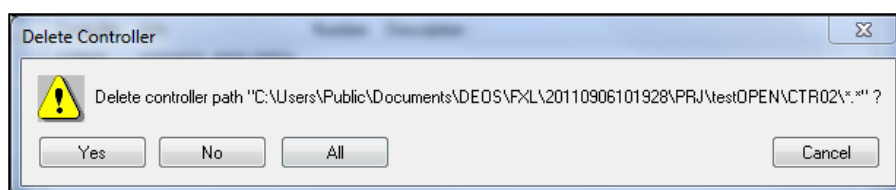
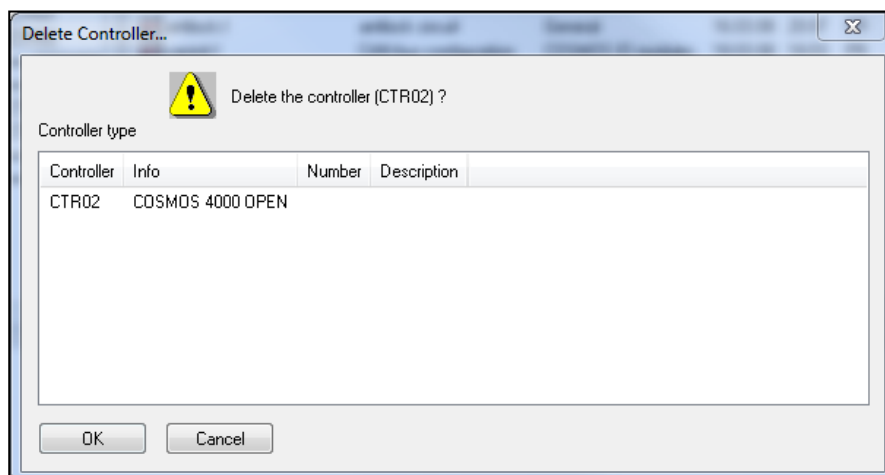
Select the project in which you want to save the controller at the left window area. Enter the new name of the controller into the field *Save as... - Controller* and save by a click on *OK*.

The name should not be longer than seven characters and should not have an extension. Umlauts, blanks and special characters are not allowed.

Multiple selections are possible with the mouse or the *Select Group* function. When using multiple selections you have to enter a new name for each selected controller.

Delete...

You can delete a controller by this function.



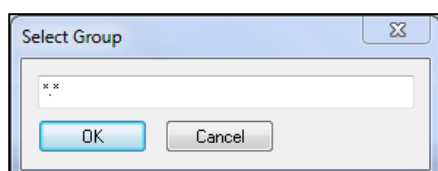
Confirm the deletion by *OK* and the security question by *Yes*.

Multiple selections are possible by mouse (hold CTRL-button pressed and select the projects by mouse) or by the *"Select Group"* function. All selected controllers will be deleted. By the button *"Yes"* all controllers will be deleted individually and by the button *"All"* the selected controllers will be deleted together.

Notice Deleted controllers will be moved to the *Recycle Bin*.

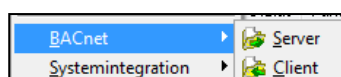
Select Group...

The function *Select Group...* is used to get a multiple selection of projects. The selection is proceeded accordant the entered syntax in the window *Select Group*.



BACnet – submenu

You can configure the BACnet Server or BACnet client here.



(See chapter *BACnet*)

Server

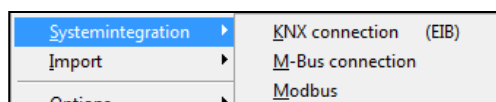
This function will configure the BACnet-Server.
(See chapter *BACnet - Server*)

Client

This function will configure the BACnet-Client.
(See chapter *BACnet - Client*)

System integration – submenu

Here you can find functions to parameterize the connection of a COSMOS controller to protocols like KNX (EIB), M-BUS or Modbus.



KNX connection (EIB)

This function configures the KNX connection.
(See chapter *System integration - KNX connection (EIB)*)

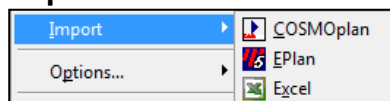
M-Bus connection

This function configures the M-Bus connection.
(See chapter *System integration - M-Bus connection*)

Modbus

This function configures Modbus.
(See chapter *System integration - Modbus*)

Import - submenu



Excel

With FUP XL-Version 1.044 the Excel-Import is implemented. You can now easily import Excel-files into FUP XL. Thereby all service pages of the COSMOS IO modules and all error messages will be created automatically. The IO-identifiers will be used for the automatic creation of the service pages and error messages. Therefore the manual work to enter all IO-identifiers for the service pages and to enter all texts of the error messages is no more needed. Additionally it is secured that the same identifiers are used in the service pages and error message text like they were defined in the Excel-file.

A template file is required to read the individual Excel-file. You have to place the templates for the Excel-Import in the FXL-subdirectory **Import**. The template file complies with the format of the Excel-file which you want to import. You have to deposit keywords in the according fields in the template file. Not all keywords have to be inserted into the template file. If keywords in the template file are set then they will be required in the Excel-file which you want to import. Therefore if you set the keyword {Klemmenkurztext} in the template but leave the according field in the Excel-file empty then the FBG5-text will be empty like in the Excel-file.

Keywords	Explanation	Mandatory	Notice
{Schaltplanbezeichnung}	Circuit diagram identifier	- no -	
{CPUNummer}	CPU- number	- no -	1 ,2 ,3 ... (if in the same list are the IO-modules of multiple controller)
{CANNummer}	CAN- number	- no -	1 or 2 (2 is optional and only possible for OPEN EMS 3000 and OPEN EMS 4000)

with two CAN-interfaces)

{Modultyp}	Type of the module	- yes -	valid values: DI16, DI16R, DO8R, DO8RH, DO8T, DO8TH, DI8DO8T, AI8, AI8AO4, AI8AO8H, AO4, AO4H
{Moduladresse}	Address of the module	- yes -	1, 2, 3 ...
{Klemmentyp}	Type of the terminal	- yes -	valid values: DI, DO, AI, AO,
{Klemmennummer}	Number of the terminal	- yes -	valid values: 0, 1, 2, 3 ...
{Klemmenbezeichnung}	Identifier of the terminal	- yes -	The same guidelines are valid as for the identifiers of the <u>EPlan- Import</u>
{Klemmenkurztext}	Short text of the terminal	- no -	FBG5 - texts or LSD - texts
{Klemmenlangtext}	Long text of the terminal	- no -	tooltip-texts for the graphic
{KlemmenKBkurztext}	KB - short text of the terminal	- no -	standardized 8 – digit additional information text for the terminal identifier according to KB
{FUPblattmakro_kopieren}	Copy set macro	- no -	valid value e.g. !MAKBIB.WIN\V0004\fbhrfpu1.f\$x

Notice

The ODBC-driver of Excel has to be installed because the Excel-file will be imported via the ODBC-interface. Additionally it is **mandatory that in an Excel-column in line eight a text is inserted** to recognize the column type as text by the ODBC-driver and therefore avoid misinterpretation of columns.

Guidelines of the terminal identifiers

The terminal identifiers should be named systematically to achieve a better administration of the project. Each part of the structure can be separated by a '\'.
Example *subsection\controller group\identifier*

boiler house\boiler1\operation pump 1
boiler house\boiler1\error pump 1

This structure will be reused later in the IO-list of the macro editor.

Error messages for digital terminals will be detected automatically. If the last part of the structure begins with the word 'error' or if it ends with '(EM)' then an error message will be generated automatically.

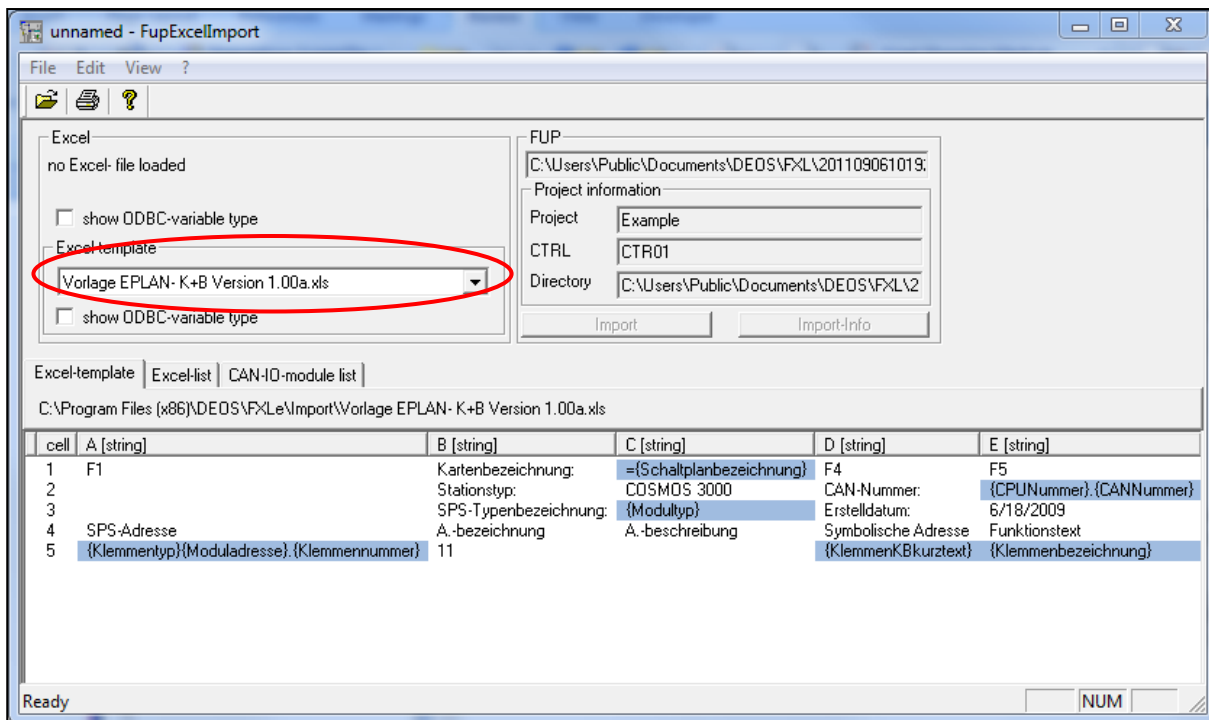
Sensor types of analog terminals will be detected automatically by the additional text '(...)' [text in brackets]. Every analog terminal identifier has to end with a text in brackets for the sensor type.

Accepted values:

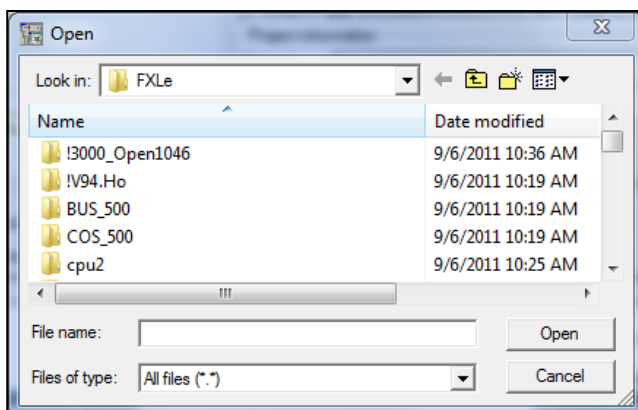
(Reserve)	input unused
(34)	10 mV/K sensor
(17)	0V .. 10V sensor
(117)	0% .. 100% sensor

Import Excel

First you have to select the Excel-template from the FUP-directory "Import".

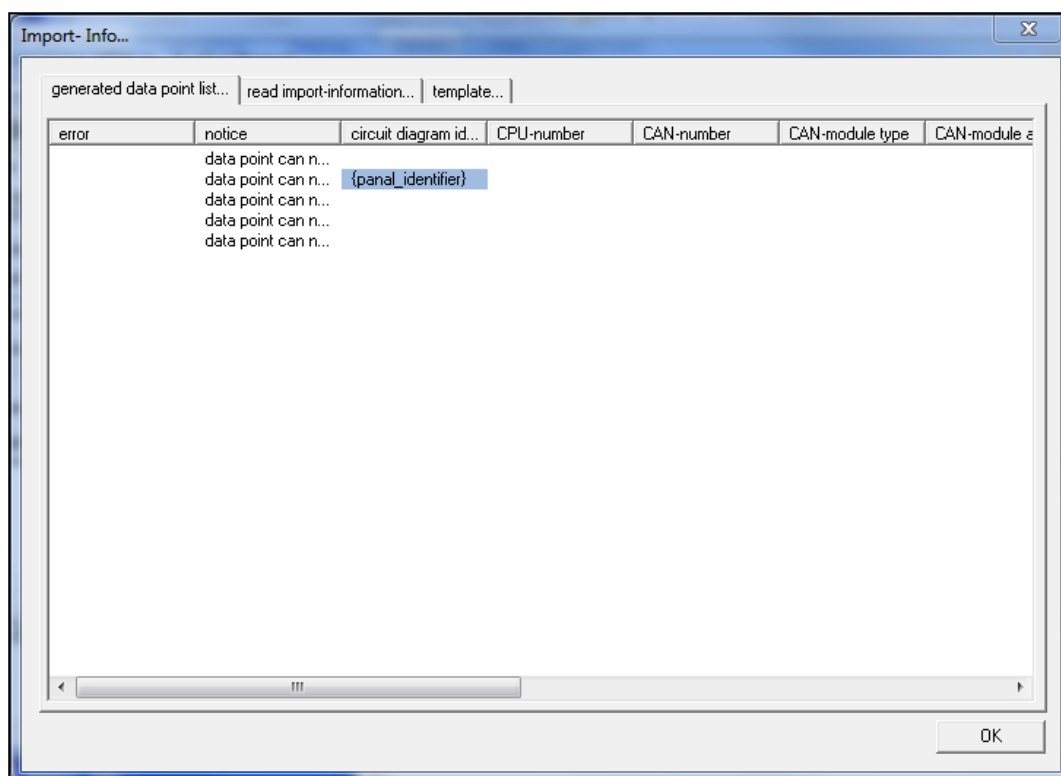


Now you have to open the workspace where the Excel-file is located which you want to import and select it. Confirm the selection by *Open*.

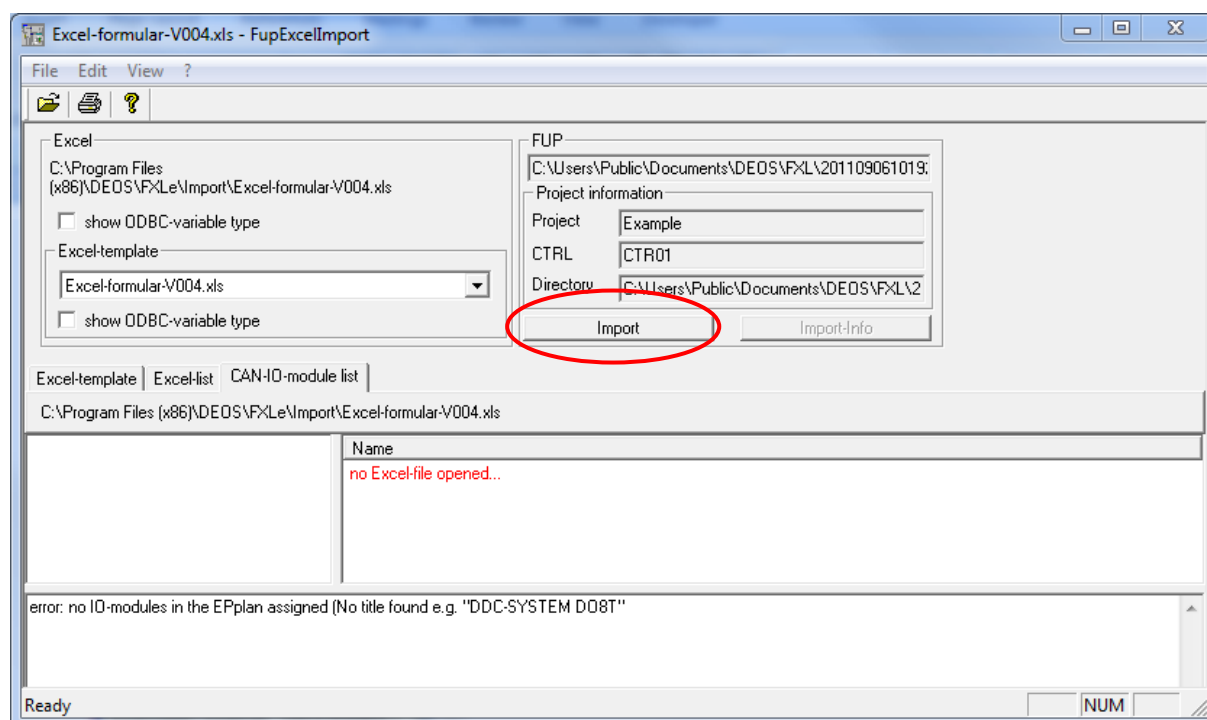


The warning about too long names can be confirmed by *OK*.

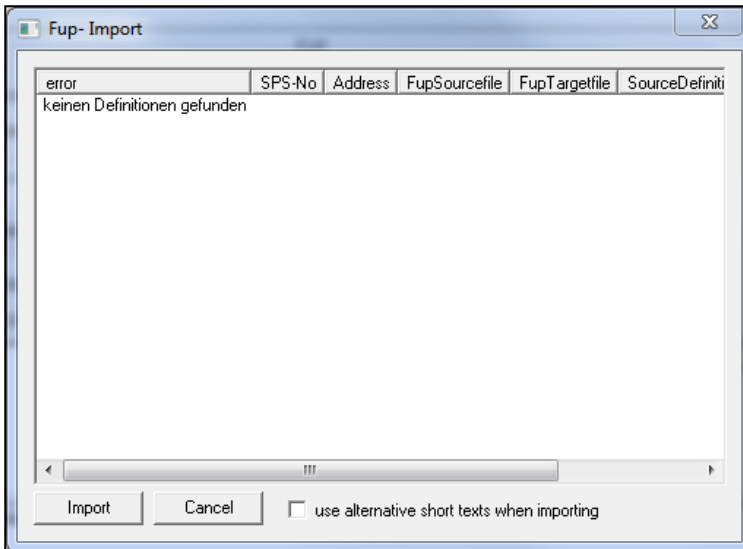
Now the *Import - Info...* window appears. Here is information about the read Excel-file and the used template displayed. Confirm this by *OK*.



After reading the Excel-file import it into the FUP XL by the button *Import*.



Confirm the import by a click on *Import*.



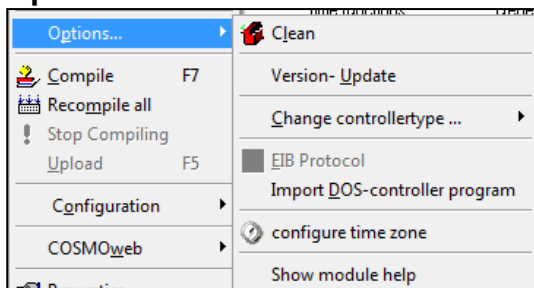
The number and kind of pages will be displayed now. Please confirm this dialog with **OK**.

Close the Excel-Import. In your project the imported pages will be displayed.

Notice If the Excel-file is changed then you can import the file or single modules again. You have to recognize the following:

- The set **cross references** in the IO-FUP pages will remain like they are defined in the macro definition file. If outputs are moved in the Excel-file this will not be recognized by the Excel-Import. You have to move the set cross references manually.
- **COSMOS IO modules** which are deleted from the Excel-list will not be recognized. You have to delete them in FUP XL manually.
- Changed **COSMOS IO module addresses** will not be recognized. Cross references of the FUP pages have to be changed manually. If the COSMOS IO module types change by the address change it will not be recognized by the FUP XL Excel-Import. After the import for the same address multiple COSMOS IO module types will be created. COSMOS IO module types which are not valid have to be deleted manually.
- **Error messages** will only be automatically created if the complete Excel-file is imported. Thereby error message FUP pages named *ERROR2.F00* to *ERROR2.F99* will be created. When importing again these error message FUP pages will be recreated. Changes error message text or cross references will get lost. If error message FUP pages were created later then these pages will be overwritten. If the less error messages are required and therefore less error message FUP pages then you have to delete the ones which are no more required manually.

Options... – submenu



Clean

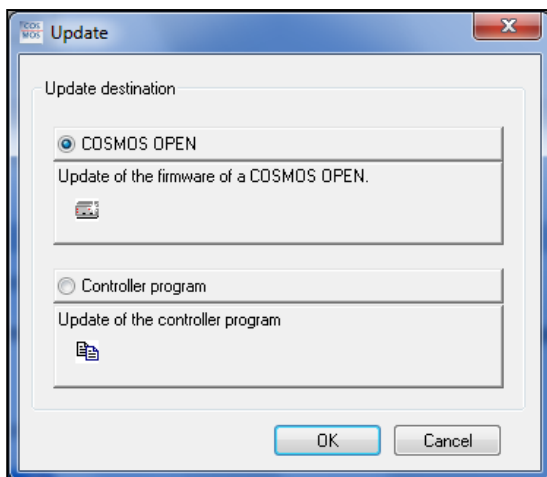
This function will delete all automatically created files.

Version-Update

You can update the controller to the current version by this function.

You have to differentiate between the **firmware** on the OPEN EMS and the **controller program** on the PC.

Please select the desired function and confirm by **OK**.

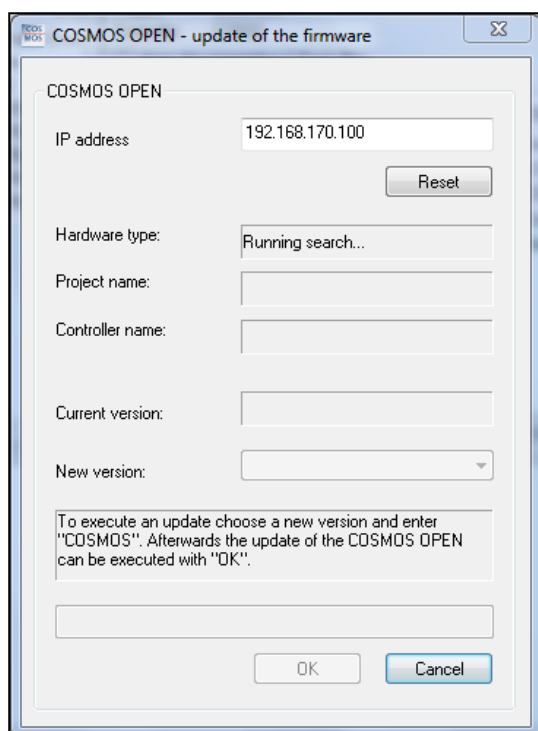


OPEN EMS

Update the **firmware** on the OPEN EMS.

Please enter the IP-address of the controller at "*IP-Address*". Now some information will be provided about this controller and the present project.

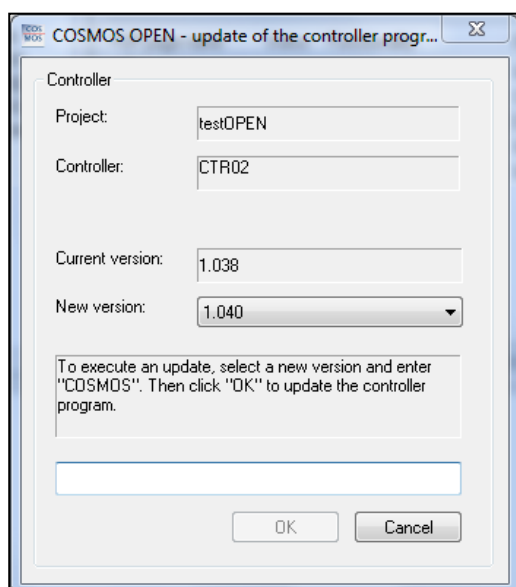
The current firmware will be displayed at "*Current version*". Please select the new firmware version by the drop-down menu "*New version*" and confirm the selection by entering **COSMOS** into the input box and apply the update by **OK**.



Controller Program

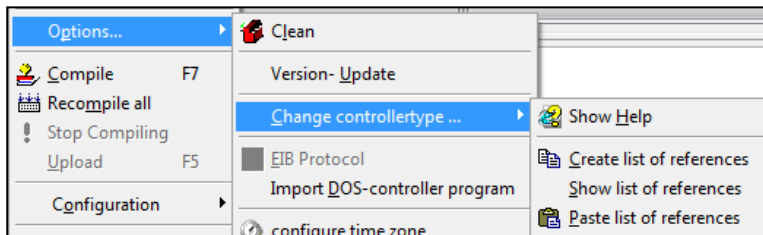
Update of the **controller program** of the OPEN EMS on the PC.

Information about the controller program and the present project will be displayed. The current version of the controller program is displayed at "*Current version*". Please select a new controller program version at the drop-down menu "*New version*" confirm the selection by entering *COSMOS* into the input box and apply the update by *OK*.



Change controller type...

You can change the controller type of a OPEN EMS by this menu.



Show Help

This function will provide help about *Change controller type...*

EIB connection

This function configures the EIB-connection (valid until version 1.040).

(See chapter *Appendix– EIB connection*)

Configure time zone

To configure the desired time zone a connection to the OPEN EMS must be established.

Tab – Time zone



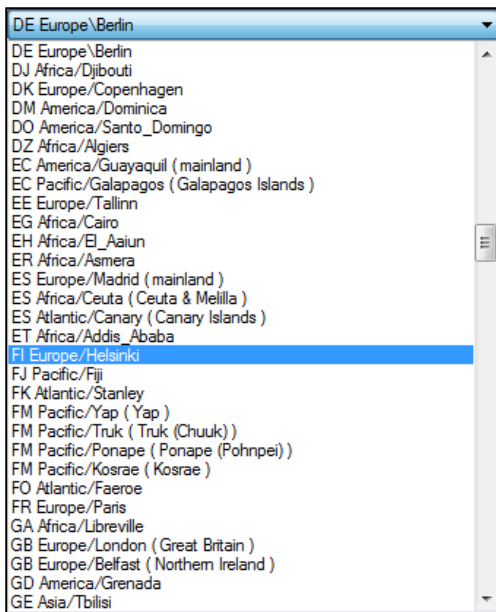
Drop-down menu of the time zone

Information about the currently set time zone of the OPEN EMS

Control buttons

Drop-down menu of the time zone

In the drop-down menu you can select the desired time zone. The time zones are sorted according to ISO 3166. Thereby for every country a 2-digit character code is assigned.



The current time zone matches

The current time zone will be displayed below the world map. It might happen that the currently set time zone on the OPEN EMS matches to multiple options. In this case all matching time zones will be displayed.

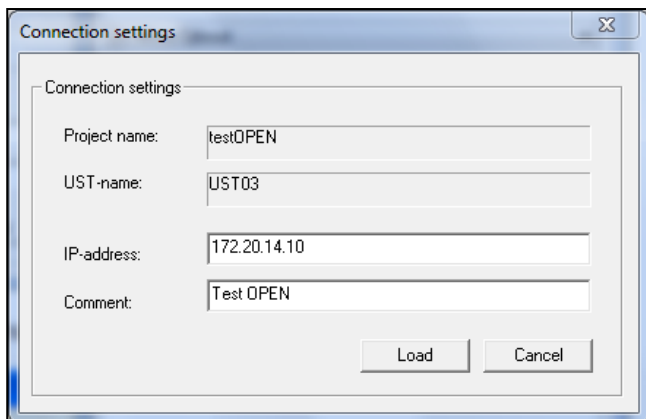
Reload

If you click on the button *Reload* then the time zone of the OPEN EMS will be detected again.

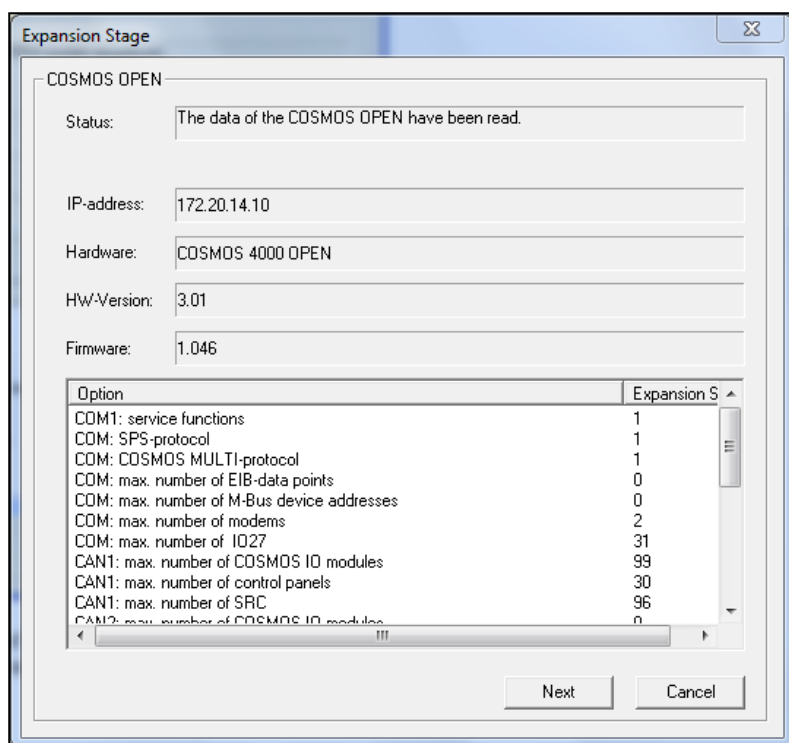
Apply

If you want to upload a time zone to the OPEN EMS you have to select one in the drop-down menu. By a click on the button *Apply* the time zone will be uploaded to the controller.

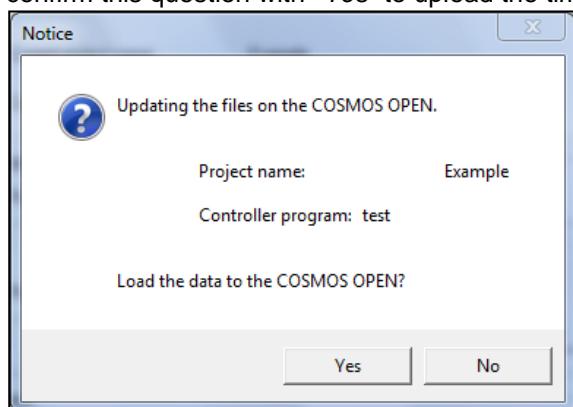
To do so the program *Idopen* will be started. In the first dialog you get information about *Project-name*, *Controller name*, *IP-Address* as well as a *comment* about the project for control reasons.



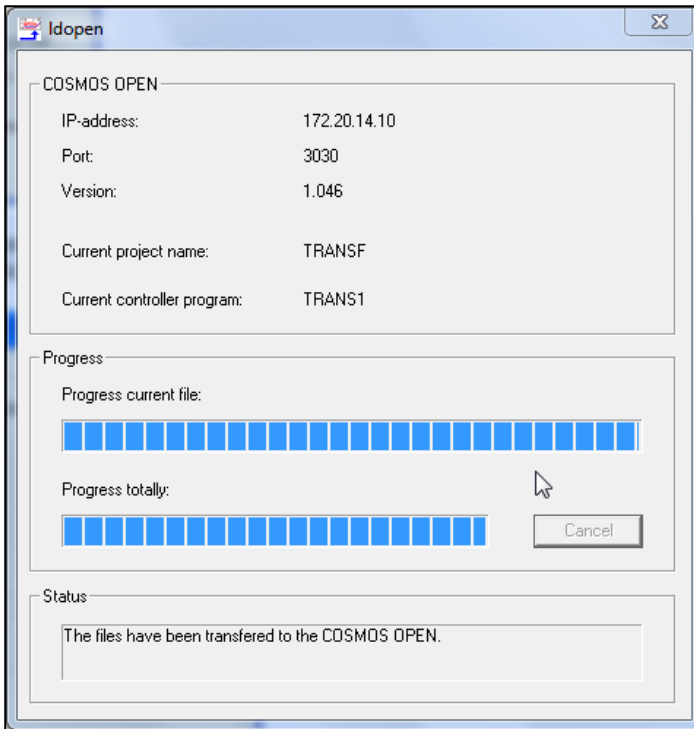
The following dialog will show information about the OPEN EMS.



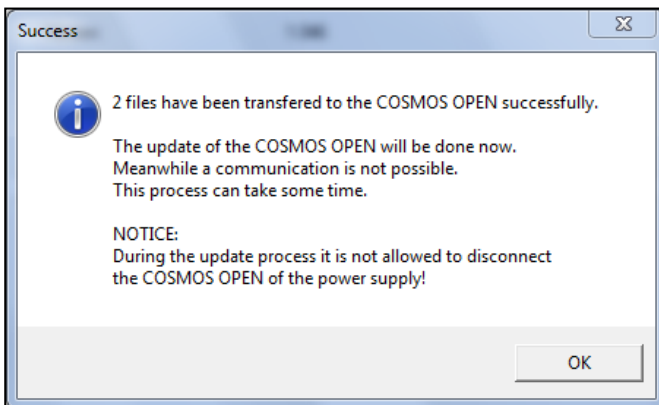
After you have clicked on *Next* you have to confirm the question whether the data should be uploaded. Please confirm this question with “Yes” to upload the time zone.



The following dialog provides information about the loading process. You can abort the process by a click on *Cancel*.



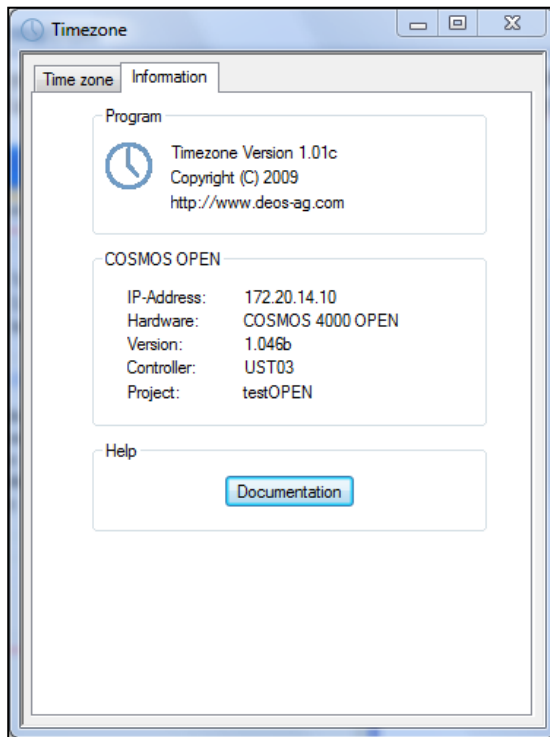
If the upload was successful the following dialog appears and the OPEN EMS restarts automatically.



After the restart the time zone is changed.

Tab – Information

At *information* you can get an overview about the current setting with which the OPEN EMS will loaded as well as further information about the program “*Timezone*”.



By a click on the button *Documentation* the according help to configure the time zone will be opened.

Show module help

This will show all module help files in an HTML-form in the Internet Explorer.

Compile

Only the changed data of the controller will compiled to a loadable program.
Error will be shown in the output window.
The compiler which is called depends on the used hardware.

Recompile all

The complete controller will be recompiled to a loadable program.

Stop compiling

This function will cancel the current compilation process.

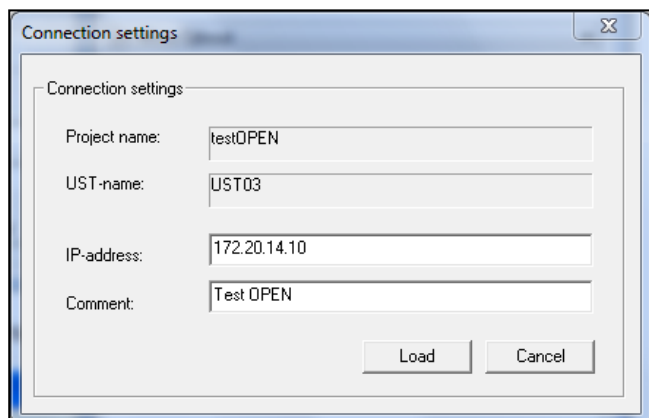
Upload

Depending on the controller type (COSMOS 500, OPEN EMS) you want upload to a different loading program will be called.

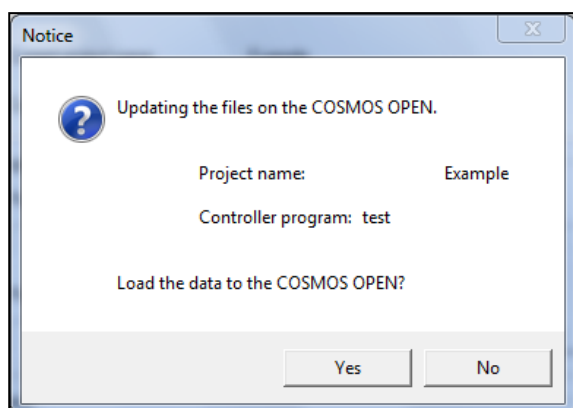
Load OPEN EMS

This function loads the generated controller program to the controller.

Enter the IP-Address of the OPEN EMS into the input field *IP-Address*.
An optional comment can be entered in the input field *Comment*.

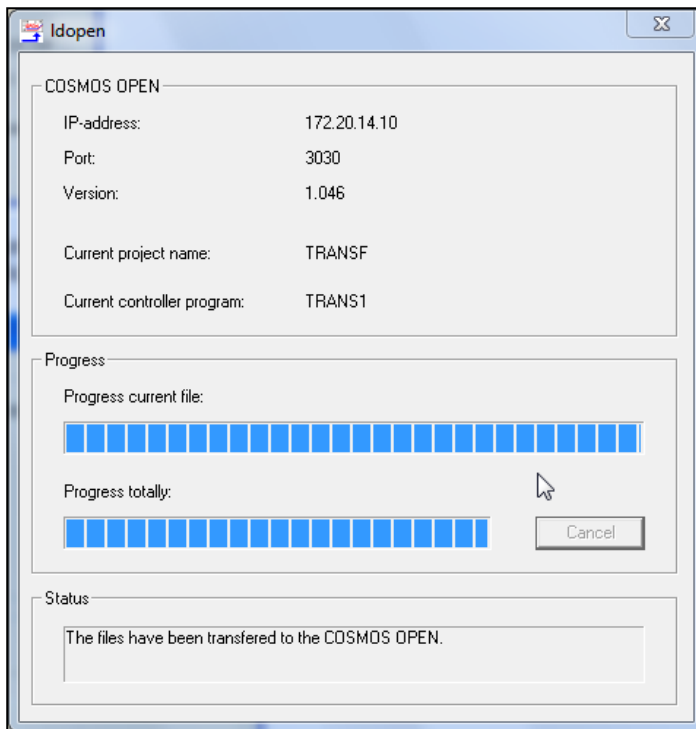


Start uploading by clicking the button *Load*.
Now you will get information about the program you want to load.

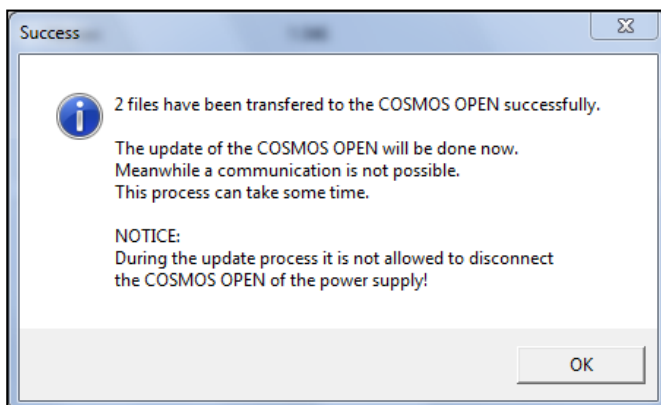


Upload the program to the OPEN EMS by clicking the button *Yes* on the window. **Thereby you will overwrite the existing program** in the OPEN EMS. By clicking the button “No” the process will be aborted.

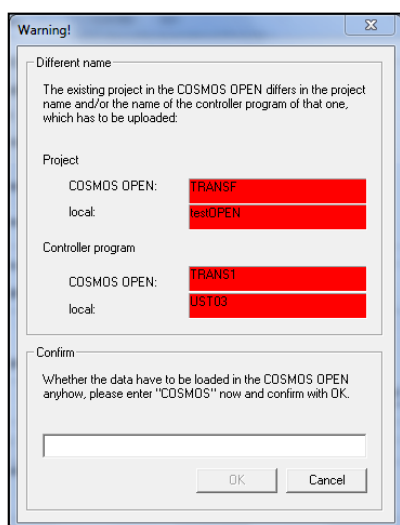
In the opening window you will get information about the loading process. By clicking the button *Cancel* the loading process will be aborted.



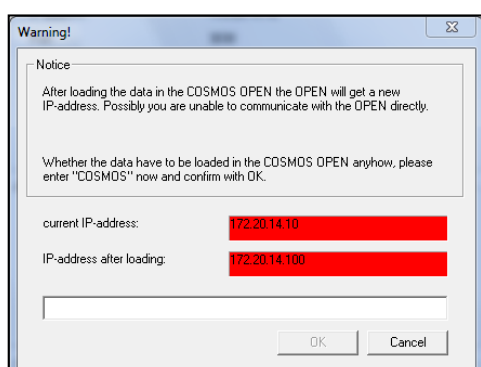
After successful uploading you will get following message.



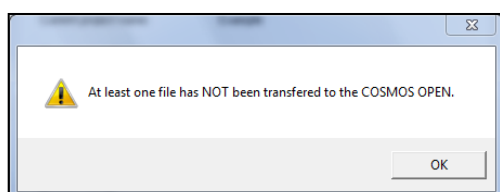
Notice If you try to upload the program of another UST, you will get following notice window.



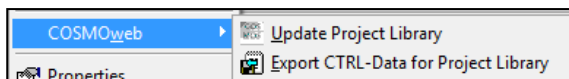
If you want to upload the program anyway, please enter *COSMOS*. By clicking the button *OK* the program will be uploaded to the OPEN EMS. **Thereby you will overwrite the existing program** in the OPEN EMS. By clicking the button *Cancel* the process will be aborted. If you try to upload the program to a OPEN EMS with another IP-address as the IP-address the UST got after starting, you will get a notice window.



If you want to upload the program anyway, please enter *COSMOS* and confirm the upload of the program to the OPEN EMS by clicking the button *OK*. **Thereby you will overwrite the existing program** in the OPEN EMS. By clicking the button *Cancel* the process will be aborted. After uploading the files to the OPEN EMS it will get a new IP-Address. Possibly you cannot communicate directly with the OPEN anymore afterwards. If there is no connection to a OPEN EMS, you will get following notice:



OPENweb - submenu



Update Project Library

This function updates in the project library OPENweb (See chapter *OPENweb*).

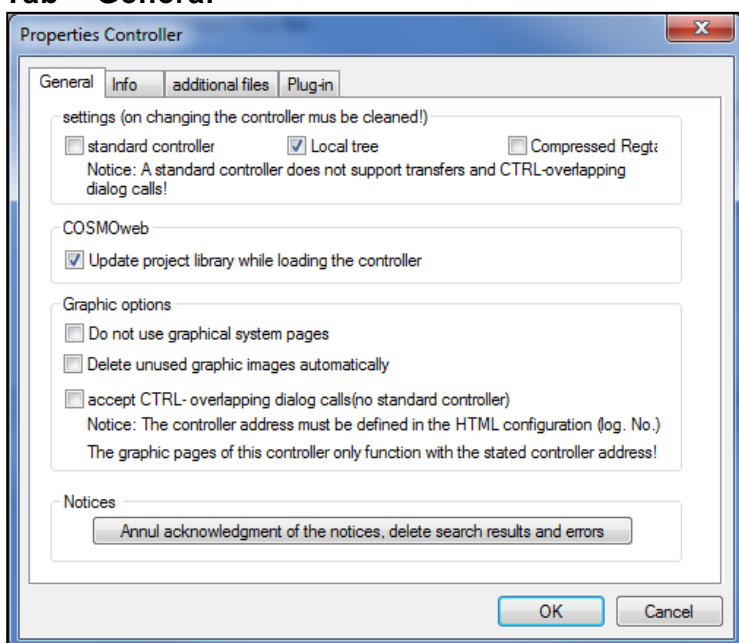
Export CTRL-Data for Project Library

You can export the OPENweb-project library into the set directory (See chapter *OPENweb*).

Properties

The properties of the controller will be listed here.

Tab – General



Settings

Standard controller You can change the IP-Address of the standard controller later by OPENweb/OPENview.

Notice A standard controller does not support transfers and CTRL-overlapping dialog calls!

Local Tree (only configurable for COSMOS BASICline)

You can create a local tree for this controller if this option is set (*Controller – HTML (local) – create tree*). You can set the menu structure of the tree here.

Compressed RegT only for COSMOS BASICline)

If this option is enabled then the pretexts of HTML-elements are no more independent elements of the type *FEST*. Thereby the *Regtab* gets smaller.

OPENweb

Update project library while loading the controller

If FUP pages with graphic pages are stored in the controller, the OPENweb project library will be updated while loading the controller.

Graphic options

Do not use graphical system pages

If this option is enabled then only the text pages of the system pages are used.

Delete unused graphic images automatically

If this check is set, all unused graphic images will be deleted while compiling the controller.

Accept CTRL-overlapping dialog calls (no standard controller)

CTRL-overlapping dialog calls on graphic pages can be resolved if this option is enabled.

Notice

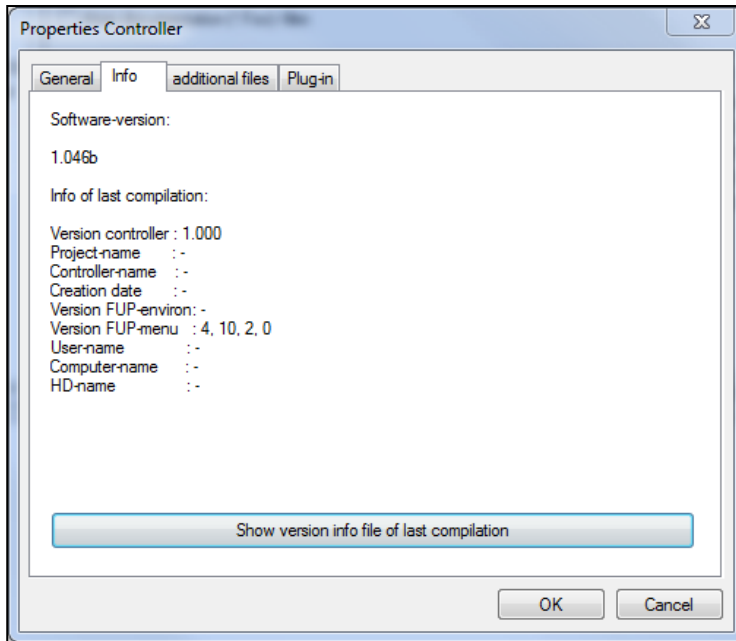
The controller address must be defined in the HTML configuration (log. No.). The graphic pages of this controller only function with the stated controller address.

Notices

Annul acknowledgment of the notices, delete search results and errors

By clicking this button all notices, errors and search results will be deleted in all FUP pages of the controller.

Tab – Info



Software-Version

This displays the current software-version of the controller.

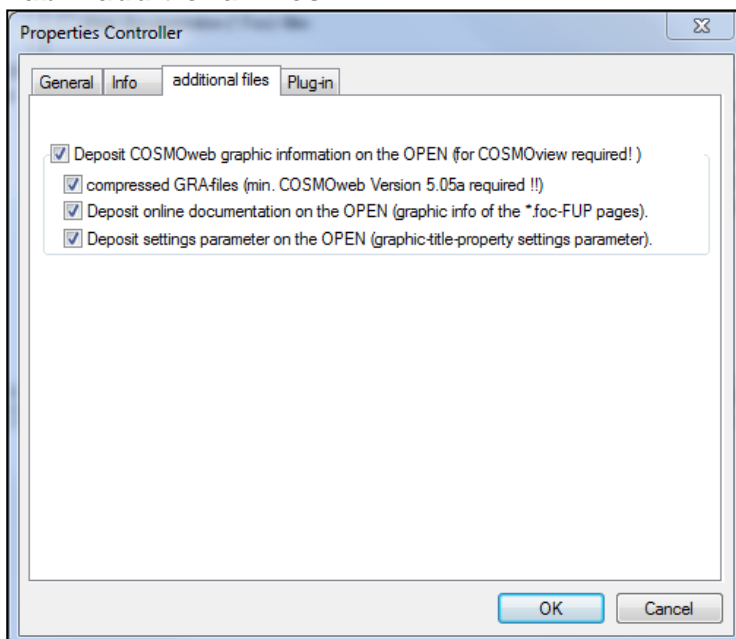
Info of last compilation

This displays information about the last compilation. To this belongs information about the controller version, the project name, the controller name, the creation date, the version of the FUP-environment, the version of the FUP-menu, the user-name of the software, the computer-name of the user as well as the HD-name, where the program is stored.

Show version info file of the last compilation

This displays the information file, which belongs to the version the controller has been compiled the last time.

Tab – additional files



By disabling the options you can minimize the memory demands of the controller program. This can be done if a program cannot be loaded to the OPEN anymore. The graphical visualization of the OPENview will no longer work then. Therefore you can vary the size of the graphical information by the following options:

Deposit OPENweb graphic information on the OPEN

If this option is enabled then **all** selected information for the graphical visualization will be uploaded to the COSMO OPEN. OPENweb can create the visualization from this data when reading it.

Compressed GRA-files

If this option is enabled then the compressed graphic files will be deposited on the OPEN.

Notice These files can only be interpreted by a OPENweb Version 5.05a or higher.

Deposit online documentation on the OPEN

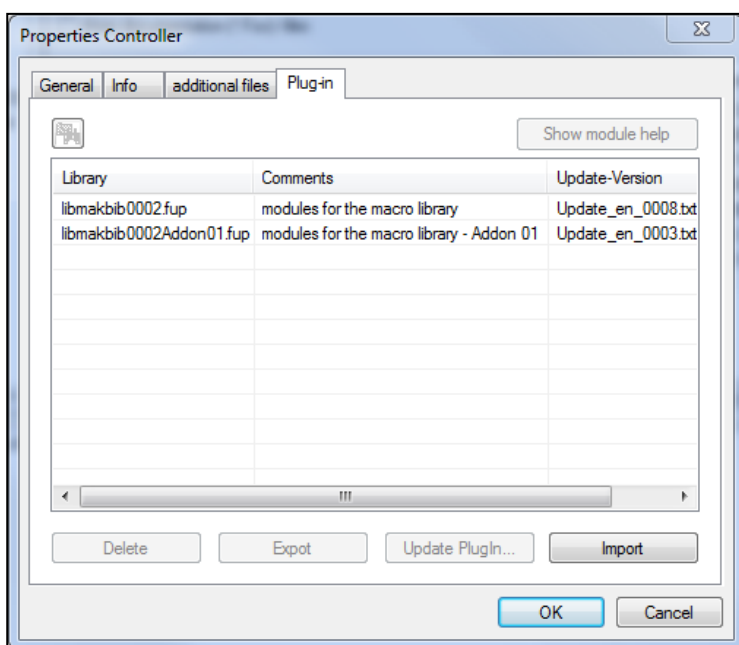
The pages of the online documentation of the MACLIB graphic library will be deposited on the OPEN. If this option is enabled the online documentation will be deposited in the file *grafik.zip*.


Deposit settings parameter in the OPEN

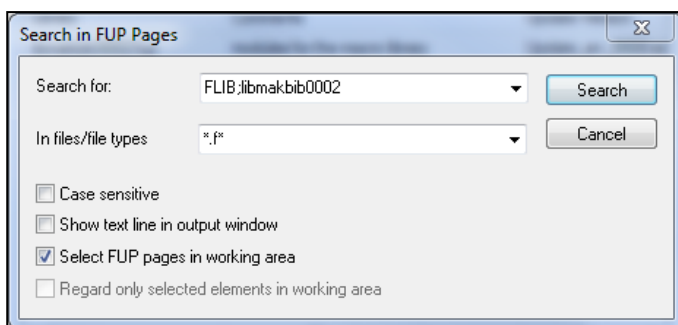
If this option is enabled then the pages *settings parameter* will be deposited in the file *grafik.zip*.

Tab – Plug-in

Plug-in is a library of FUP-modules which can be added to a controller.



By the button  you can search in the FUP pages for the search string entered in *Search for*:



They will be shown in the output window of FUP XL.

Show module help
Delete

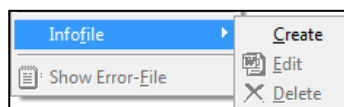
Shows all module helps in the Internet Explorer which belong to the PlugIn.

Deletes the Plug-in from the controller.

- Export** Exports the Plug-in from the controller to a hard drive.
- Update Plug-in...** This option is used to update the selected Plug-in to a newer version which you can select in an according dialog window.
- Import** Imports a Plug-in from a hard drive to the controller.

Infofile – submenu

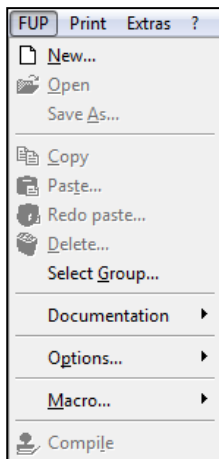
You can *Create*, *Edit* or *Delete* a controller information file in Microsoft Word. You can deposit individual project specific information desired by the customer. Please follow the instructions.



Show Error-File

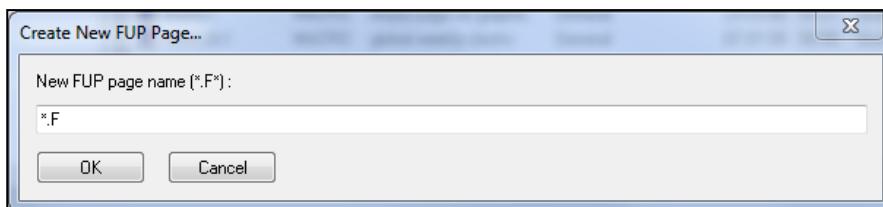
This option will show the error file.

FUP



New...

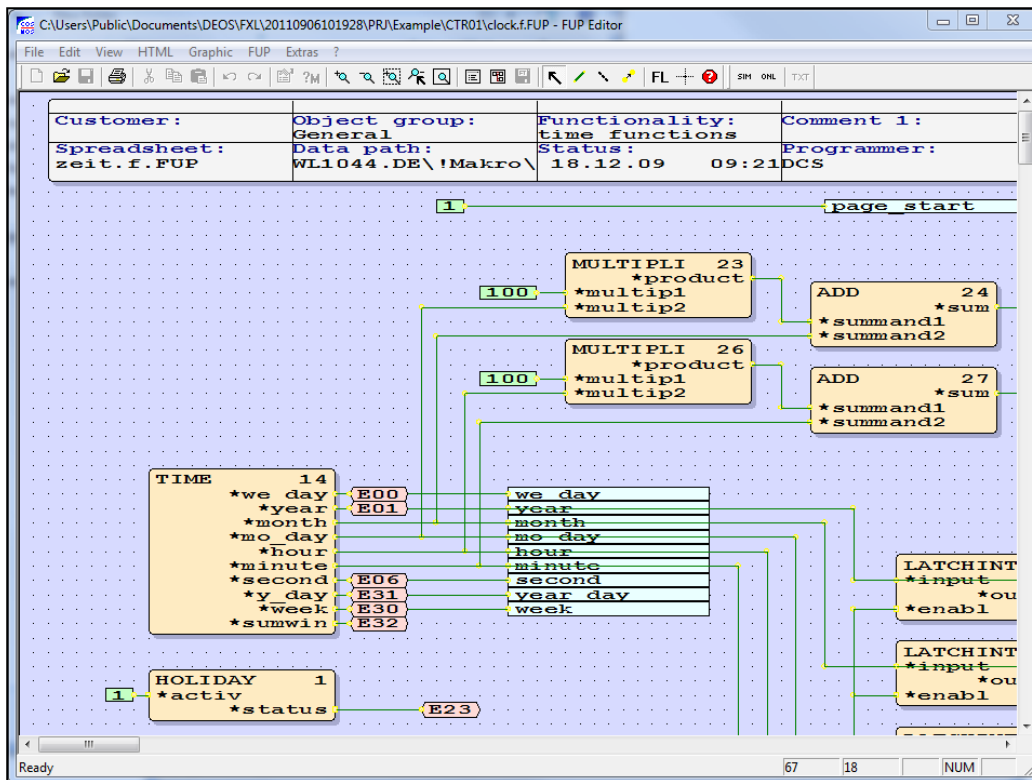
Here you can create a new FUP page.



Enter the name of the new FUP page into the field *New FUP page name (*.F*)* and create it by clicking *OK*. The name must have not more than 8 characters. Additionally the name should not start with two underlines (__xxx). An extension with up to 3 characters is allowed. Umlauts, blanks and special characters are not allowed (see appendix *Create new FUP page*).

Open

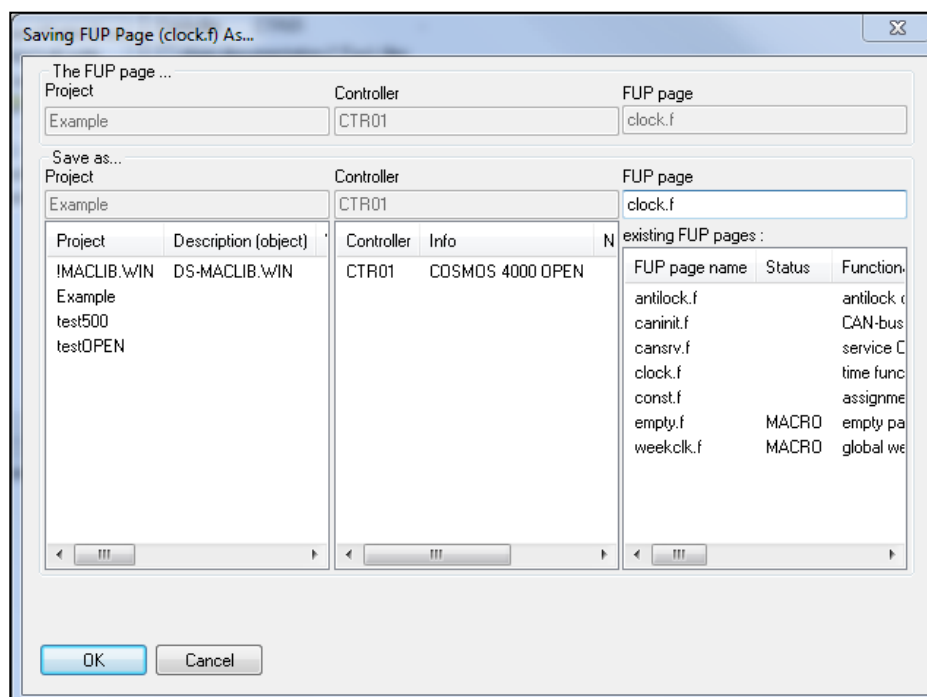
This function opens the selected FUP page in the FUP-Editor. The FUP-Editor will be opened as stand-alone program. Thereby it is possible to open multiple FUP pages simultaneously.



(See chapter *FUP-Editor*)

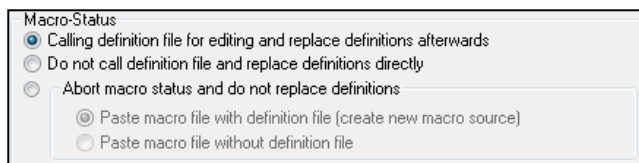
Save As...

Description This saves the selected FUP page under a new name. Multiple selections are possible with the mouse or the *Select Group* function.



Select the project by marking in the left window and afterwards the controller in the center window, where the FUP page has to be saved. Enter the name of the new FUP page into the field *Save as... – FUP page* and save by clicking the button **OK**. The name must have not more than 8 characters. An extension with up to 3 characters is allowed. Umlauts, blanks and special characters are not allowed.

Notice If you want to paste a FUP page with macro-status, several options will be offered to handle the according definition-file.



For further information please see chapter *Macro*.

Copy

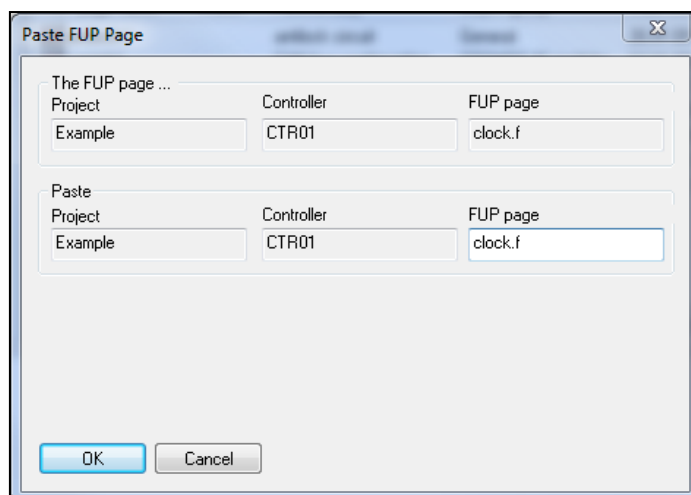
Shortcut [Ctrl]+[C]

Description Copy allows the duplication of FUP pages. All selected FUP pages of the workspace will be copied to the clipboard.

Paste...

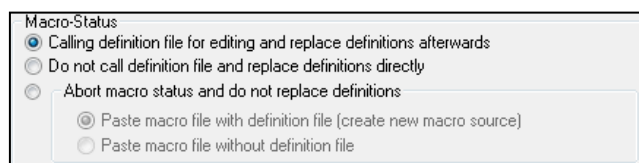
Shortcut [Ctrl]+[V]

Description Here the FUP pages, which have been copied to the clipboard, will be pasted to the selected controller. The dialog *Paste...* displays which FUP page has been copied to the clipboard.



Enter the new name of the FUP page into the input field *FUP page* and save by clicking the button *OK*. The name must have not more than 8 characters. An extension with up to 3 characters is allowed. Umlauts, blanks and special characters are not allowed.

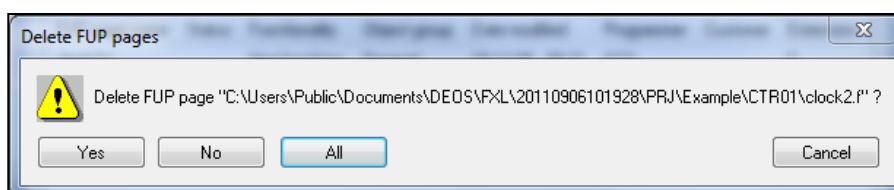
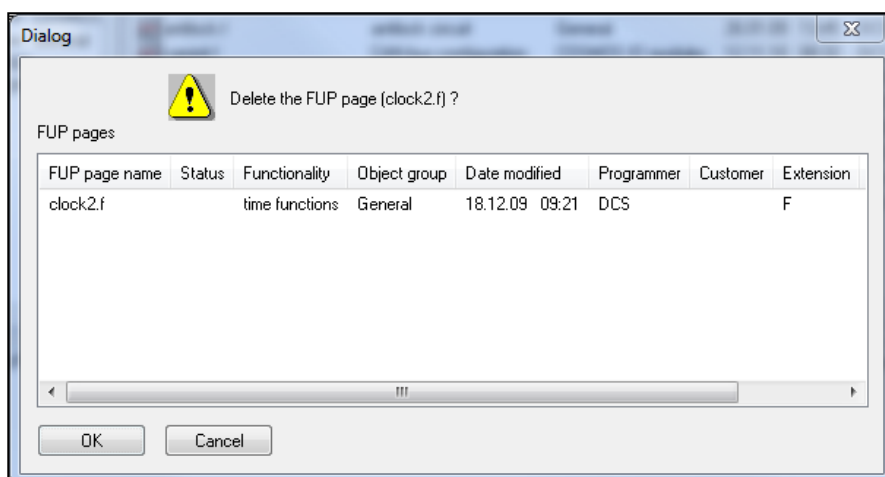
Notice If you want to paste a FUP page with macro-status, several options will be offered to handle the according definition-file.



For further information please see chapter *Macro*.

Delete...

Description This will delete the selected FUP page.



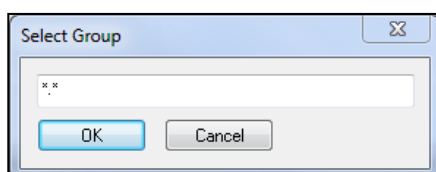
Confirm with **Yes** to delete the FUP page.

Multiple selections are possible by mouse (keep CTRL-button pressed and select the projects by mouse) or by the “*Select Group*” function. When using the multiple selections you have to enter a new name for each selected project.

Notice Deleted FUP pages are moved to the *Recycle Bin*.

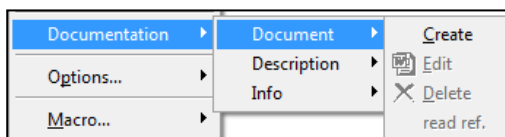
Select Group...

Description The function *Select Group...* is used to get a multiple selection of projects. The selection is proceeded accordant the entered syntax in the window *Select Group*.



Documentation - submenu

Here you can create, edit or delete a document to describe the FUP page.



Notice *Word 2000 or higher is required.*

Document

Document will be used to create/read a description of a FUP page. Edit the document by the symbol in the toolbar or via the menu. To delete or to create a document call the menu "*FUP→Documentation→Document*" and the corresponding item.



Read reference-document

By the menu "*FUP→Documentation→Document→read ref.*" you are able to read the reference-document of the according FUP page macro.



Description

This function provides a DIN-A4 page description about the FUP page. You can view the description by a click on the tab *Description*. The description can be modified by a double click into the output window *Description* or by the menu "FUP→Documentation→Description→Edit". For IO-modules the *Description* contains a detailed definition description like the following.

The screenshot shows the DEOS software interface with the 'Macro for the COSMOS IO MODULE AI8' window open. The window contains a table with definitions and explanations for the module. A red circle highlights the 'Description' tab in the bottom navigation bar.

Definition	Definition designation (standard values)	Explanation								
def_can_nr	1	In the definition it has to be stated, to which CAN-no. of the COSMOS OPEN the module is connected. Values: 1 = CAN1, 2 = CAN2								
def_prio	2	Pre-definition of the send priority for the COSMOS IO module Values: 1 = low, 2 = normal, 3 = high priority								
defi0 ... defi07	reserve	Designation of the inputs AI0 ... AI7								
deftyp00 ... deftyp07	oper_mode_00	Definition of the sensor type of the inputs AI0 ... AI7								
		<table border="1"> <thead> <tr> <th>allowed values</th> <th>range of the reference in the FUP-page</th> <th>FUP-valency</th> <th>sensor type</th> </tr> </thead> <tbody> <tr> <td>AS_BetrArt_00</td> <td>0</td> <td>0</td> <td>no sensor connected</td> </tr> </tbody> </table>	allowed values	range of the reference in the FUP-page	FUP-valency	sensor type	AS_BetrArt_00	0	0	no sensor connected
allowed values	range of the reference in the FUP-page	FUP-valency	sensor type							
AS_BetrArt_00	0	0	no sensor connected							

Display: C:\Users\Public\Documents\DEOS\FXL\20110906101928\PRJ\IMACLIB\WIN\W0004\ioai8.fbx.Beschr.DOC

Ready 15 NUM

Info

This function provides a DIN-A4 page of information about the FUP page. You can view the information by a click on the tab *Info*. The information page can be modified by a double click into the output window *Info* or by the menu "*FUP→Documentation→Info→Edit*".

The screenshot shows the DEOS software interface with the following components:

- Project Explorer (Left):** Displays the project structure under 'C:\USERS\PUBLIC\DOCUMENTS\DEOS\FXL\20110906101928\PRJ\Example\CTR01'. It includes folders like 'IMACLIB.WIN', 'Example', and 'CTR01', with sub-items like 'COSMOS IO mod', 'General', 'test500', and 'testOPEN'.
- Project Properties (Top Right):** Shows 'Project Example (DS-MACLIB.WIN)' and 'Controller CTR01'. There is a checkbox for 'show documentation (*.Foc)-files'.
- FUP Page List (Middle Right):** A table listing FUP pages with their status, functionality, object group, and date modified.

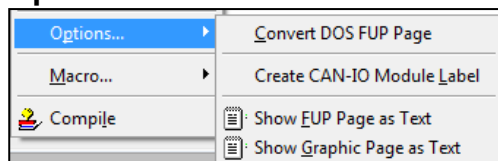
FUP page name	Status	Functionality	Object group	Date modified
antilock.f		antilock circuit	General	26.01.09 13:45
caninit.f		CAN-bus configuration	COSMOS IO modules	12.11.10 08:32
canrv.f		service CAN-bus	COSMOS IO modules	01.06.11 11:54
clock.f		time functions	General	18.12.09 09:21
const.f		assignment of constants	General	17.12.09 18:32
empty.f		empty page for graphic	General	29.03.08 00:27
ioai8.f01		COSMOS IO-module AI8 addr.01 (-)	COSMOS IO modules	03.02.11 10:40
iodi8do8.f02		COSMOS IO-module DI8DO8 addr.02 (-)	COSMOS IO modules	04.02.11 15:52
weekclk.f		global weekly clocks	General	07.07.08 08:58
- Macro for the COSMOS IO MODULE DI8DO8T (Bottom):** A section containing a note and a table.

Note: The CAN-address of the COSMOS IO module corresponds to the extension of the FUP-page !

Definition	Definition designation (standard values)	Explanation
def_can_nr	1	In the definition it has to be stated, to which CAN-no. of the COSMOS OPEN the module is connected. Values: 1 = CAN1, 2 = CAN2
def_prio	2	Pre-definition of the send priority for the COSMOS IO module Values: 1 = low, 2 = normal, 3 = high priority.

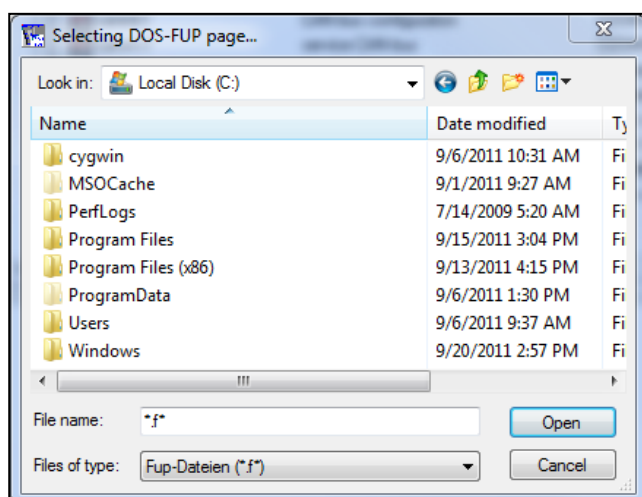
Display: C:\USERS\PUBLIC\DOCUMENTS\DEOS\FXL\20110906101928\PRJ\Example\CTR01\iodi8do8.f02.Info.DOC
- Bottom Bar:** Includes buttons for 'Compile', 'Search', 'Description', and 'Info' (which is circled in red). The status bar shows 'Ready', '15', and 'NUM'.

Options... - submenu



Convert DOS FUP page

This function converts a FUP page which was programmed with the DOS-FUP to a FUP XL FUP page.



Enter the new name of the FUP page into the field *Filename* and start the conversion by clicking the button *Open*.

Notice If you have deactivated the option *Hide extensions for known file types* in the Windows Explorer, the additional ending *.FUP* will be shown when opening.

Create CAN-IO Module Label

It is possible to generate automatically sticker for the COSMOS IO modules AO4, AO4H, AI8, AI8AO4, AI8AO4H, DO8R, DO8RH, DO8T, DO8TH, and DI16. As sticker template the labels no.3657 or no.4780 of the company *Zweckform* can be used.

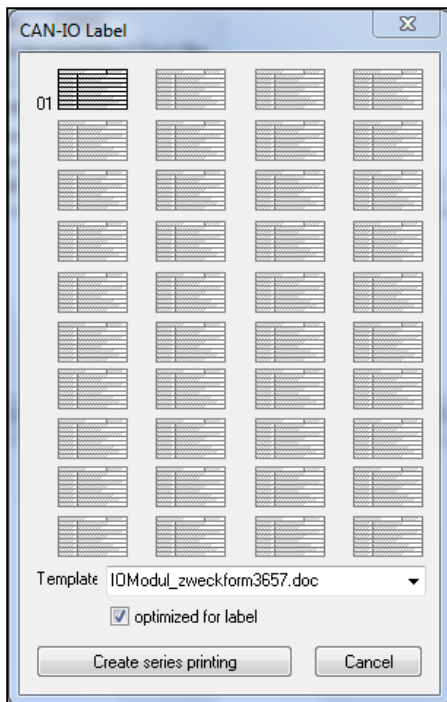
By the menu *FUP – Options – Create CAN IO Module Label* the stickers will be created for all selected IO-FUP pages.

Important: A sticker can only be created, if:

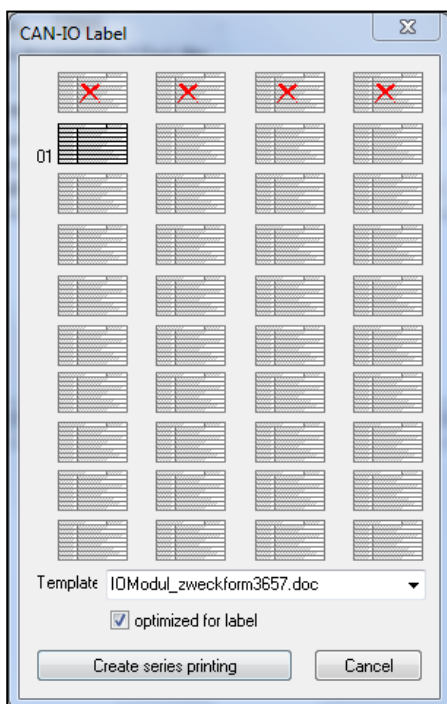
- the FUP page in the controller begins with *io...*
- the FUP page name in the macro-source declaration begins with *ioao4...*, *ioao4h...*, *ioai8...*, *ioai8ao4...*, *ioai8ao4h...*, *iodo8r...*, *iodo8rh...*, *iodo8t...*, *iodo8th...*, *iodi16...*
- the FUP page in the controller is set to macro-status

(Within the definition file of the macros the definitions of the identifier has to be named with *def00 .. def15*, and the definition of the EPlan-declaration has to be named with *def_epl*.)

In the following dialog the required stickers are shown:

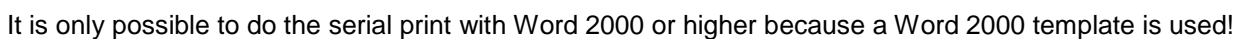
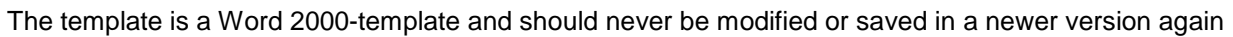


Used stickers can be blocked with a simple click on the sticker itself:



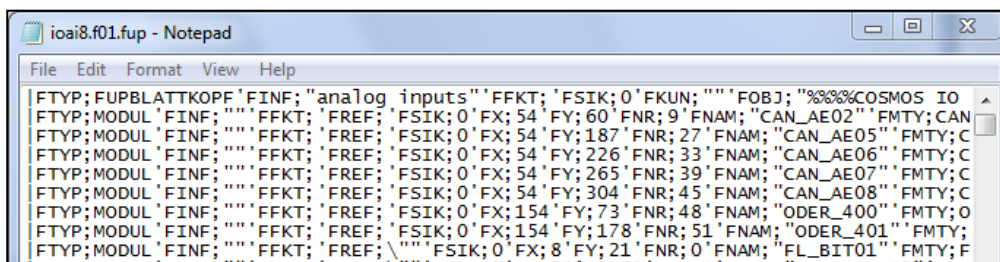
Using *Create serial print* the printing template of the directory *Documentation* will be taken as serial print.

Please confirm the prompt with Yes and confirm the query afterwards according to your demands.



Show FUP Page as Text

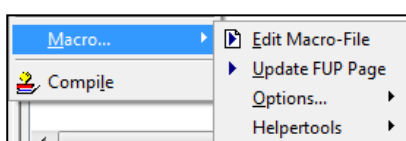
This function shows FUP pages as text file.



Show Graphic Page as Text

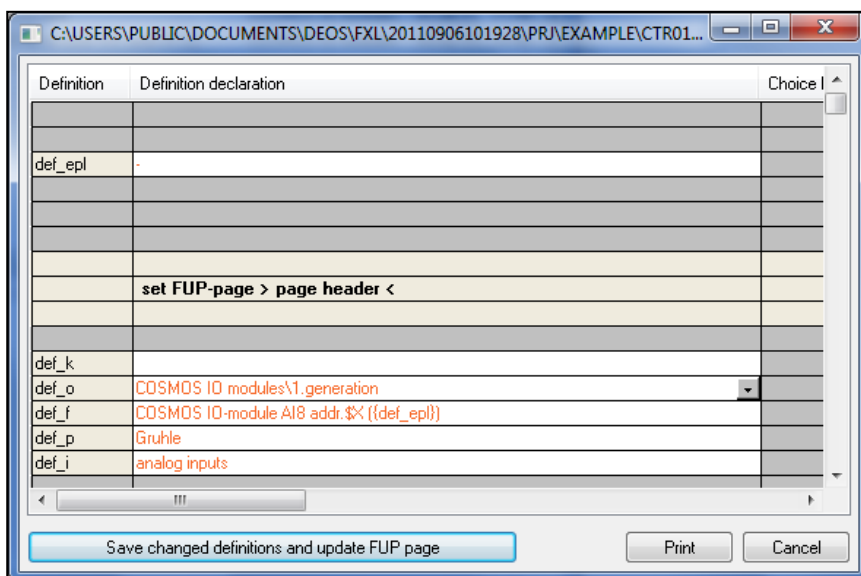
This function shows graphic pages as text file.

Macro... - submenu



Edit Macro-File

This function opens the definition file containing the macro to edit. Thereby this can be e.g. the Macro-Editor. Afterwards call *Update FUP Page* (See chapter *Macro*).



Notice

The text editor will be set up in *Extras – Options* on the tab *General*. If you will take a windows editor, you have to set up the right character set. Otherwise the umlauts will be written wrong in the controller.

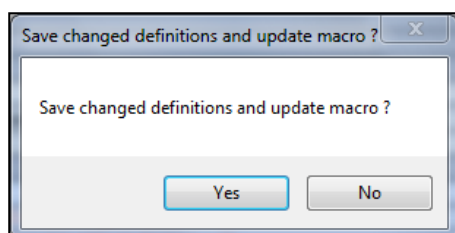
Macro-Editor

This one is used to parameterize the macro definitions (See chapter *Macro*).

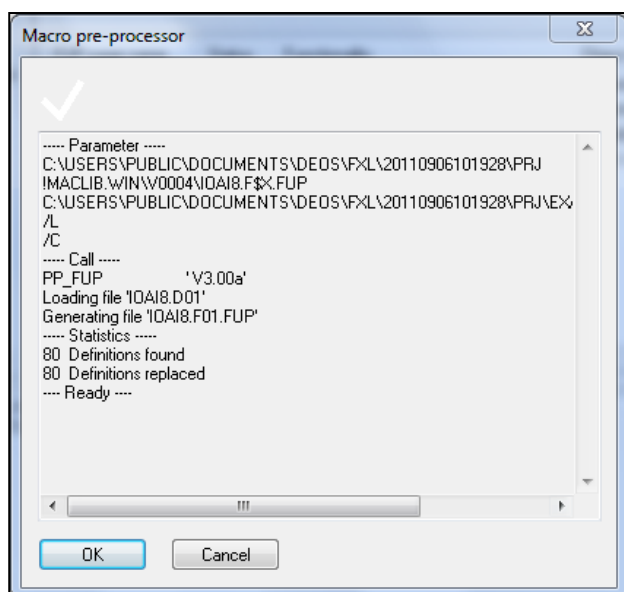
Update FUP Page

This function updates the macro FUP page.

Multiple selections are possible with the mouse or the *Select Group* function.

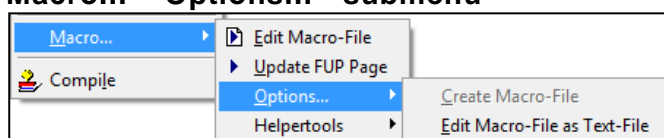


Click **OK** to replace the macro FUP page by the source FUP page. Thereby the entered definition of the definition file will be adopted and the source FUP page overwrites the macro FUP page (See chapter *Macro*).



Errors while updating the macro FUP page will be displayed in the dialog window.

Macro... – Options... - submenu



Create Macro-File

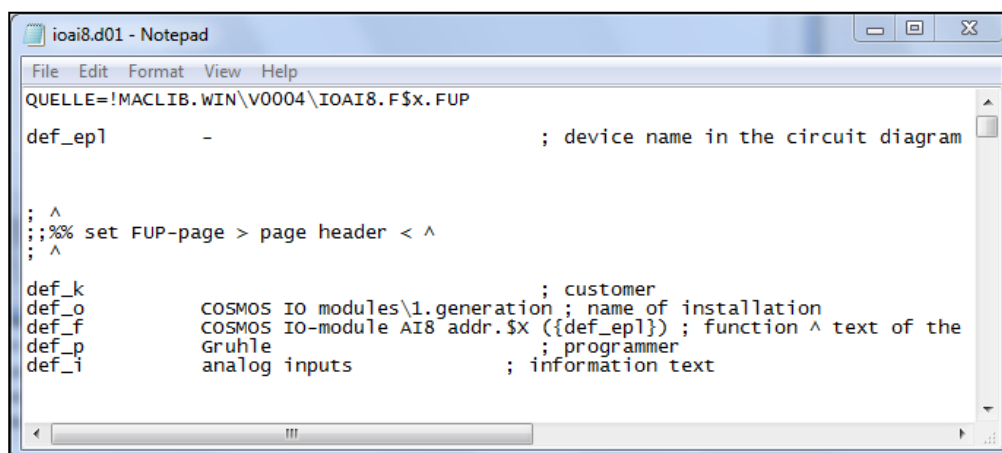
This function generates the definition file to a source FUP page and opens the definition file for editing subsequently (See chapter *Macro*).

Notice

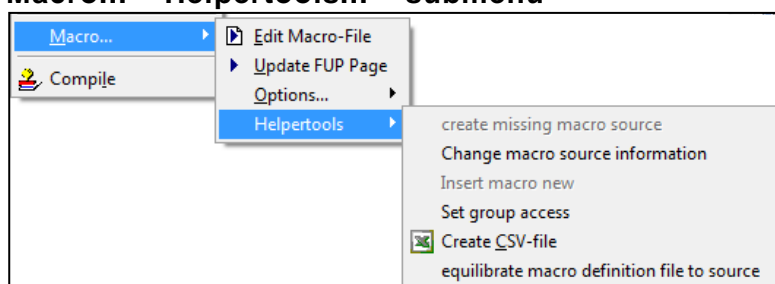
The text editor will be set up in *Extras – Options* on the tab *General*. If you will take a windows editor, you have to set up the right character set. Otherwise the umlauts will be written wrong in the controller.

Edit Macro-File as Text

This function is used to enter and editing comments and notices in the definition declarations (See chapter *Macro*).



Macro... – Helptools... – submenu



Create missing macro source

You can create missing macro sources by the function *FUP – Macro – Helptools – create missing macro source*. It cannot be guaranteed that the created macro source matches the real macro source. Definitions which cannot be resolved are inserted as comments into the macro source.

Notice Numbers, empty definitions and multiple identical definitions cannot be resolved. Therefore this tool is only a *Helptool* and not a recovery tool for macro sources.

Change macro source information

You can change the macro source information by a list with help of the function *FUP – Macro – Helptools – change macro source information*. The source information is shown in the columns *Project source information*, *CTRL-source information* and *FUP page name – source information*. By the button *change* the new macro source information will be set in the definition files.

Notice When changing the macro source information the syntax is not checked and there is no verification whether the set definitions in the definition files match the required definitions in the new macro source. Therefore this tool is only a *Helptool* and should only be used by advanced FUP-programmers.

Insert macro new

You can check macros in a test controller regarding formal errors by the function *FUP – Macro – Helpertools – Insert macro new*. Thereby all macros which are in the clipboard with the extension ".f01" will be inserted into the test controller. The present definition files will be overwritten.

Notice Changed definition files will get lost. Therefore this tool is only a *Helpertool* and should only be used by advanced FUP-programmers.

Set group access

You can copy the access of the HTML-pages, the FBG5-pages, the TUP-pages and the graphic pages of the first and second facility manager to the access bits 0x0FF0. Thereby you can create five different user groups in one tree. You have only to delete the bits of the other groups in the root directory of the tree.

Notice This function also works for FUP pages which are not a macro. Therefore this tool is only a *Helpertool* and should only be used by advanced FUP-programmers.

Create CSV-file

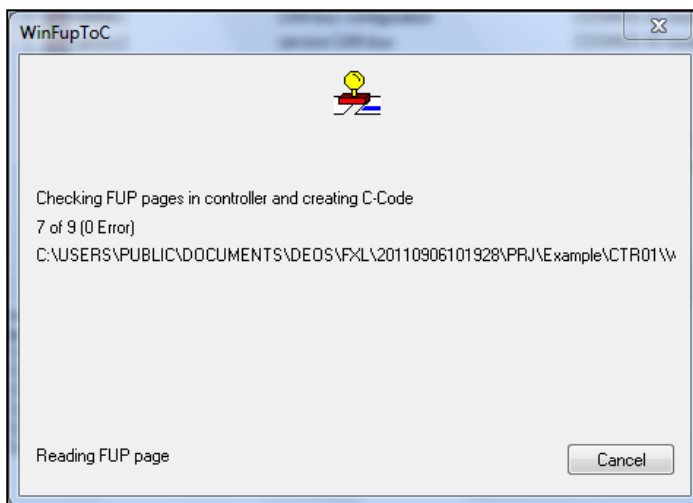
For the purpose of validation of the inserted definitions in the macro definition files you can create a CSV-file of all selected FUP pages by the menu *FUP – Macro – Helpertools – Create CSV-file*.

Equilibrate macro definition file to source

You can equilibrate the macro definition file with the macro source definition file by the function at *FUP – Macro – Helpertools – Makro- Equilibrate macro definition file to source*". The set definitions in the macro definition file will remain.

Compile

This function checks the FUP page.

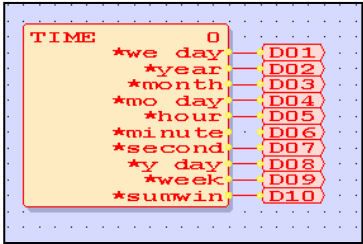


Multiple selection is possible by the mouse or group selection. If the check found an error then the FUP page containing the error is labeled red in the workspace. In the column *Status* the information *Error will be displayed*.

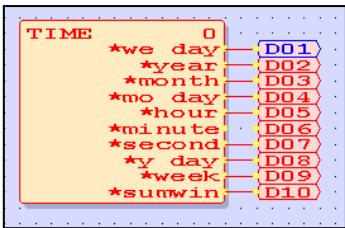
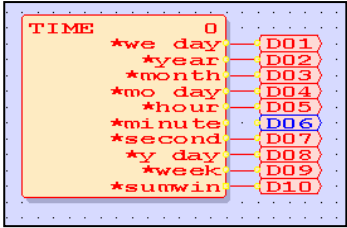
FUP page name	Status	Functionality	Object group	Date modified	Programmer	Customer	Extension	Executing cycle
err.f	Error		Time	16.11.10 12:13	FW		f	Second

A detailed error message will be shown in the status bar of the FUP-Editor. Therefore open the FUP page by *FUP – Open*.





Singele select the red element.

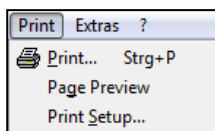


You will get the information about the error in the status bar.

unused input 47 34

BDF: incorrect variable type , asked type : UI 3

Print



Print...

This function prints the current workspace.

Page Preview

This function shows a page preview of the workspace to print.

Printer Setup...

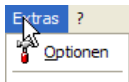
When configuring the printer you can select which printer should be used if you have more than one installed. Additionally you can configure different properties like paper format or print quality.

Notice The installation of printers is done in Windows.

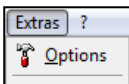
Tools

See appendix *Tools*

Extras



Extras

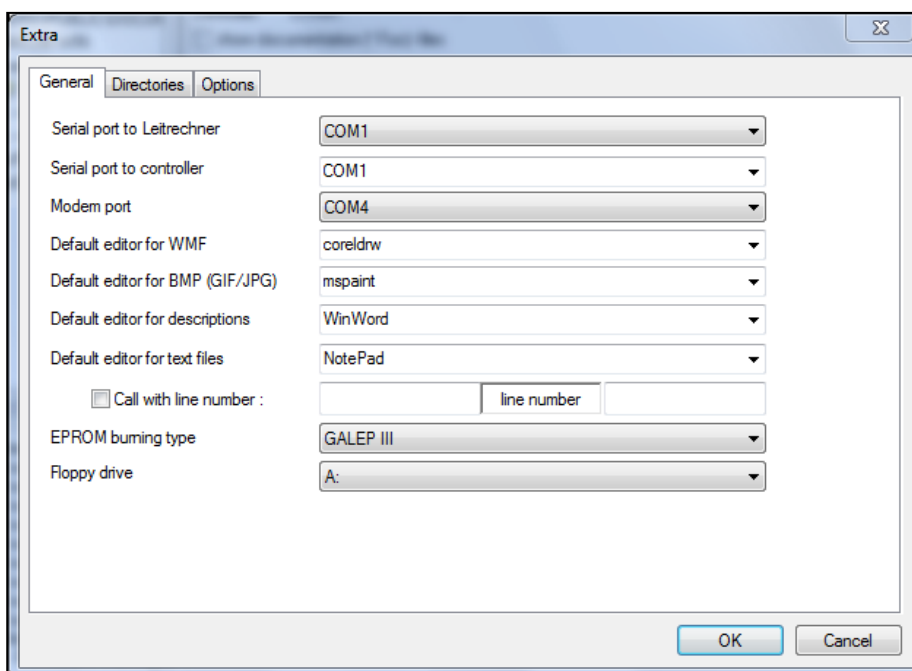


Options

For proper operation FUP XL requires information about connected devices, interfaces and directories. You can configure them in the *Options*.

Tab - General

Here you configure interfaces for external devices, presets for the EPROM burner and default editors.

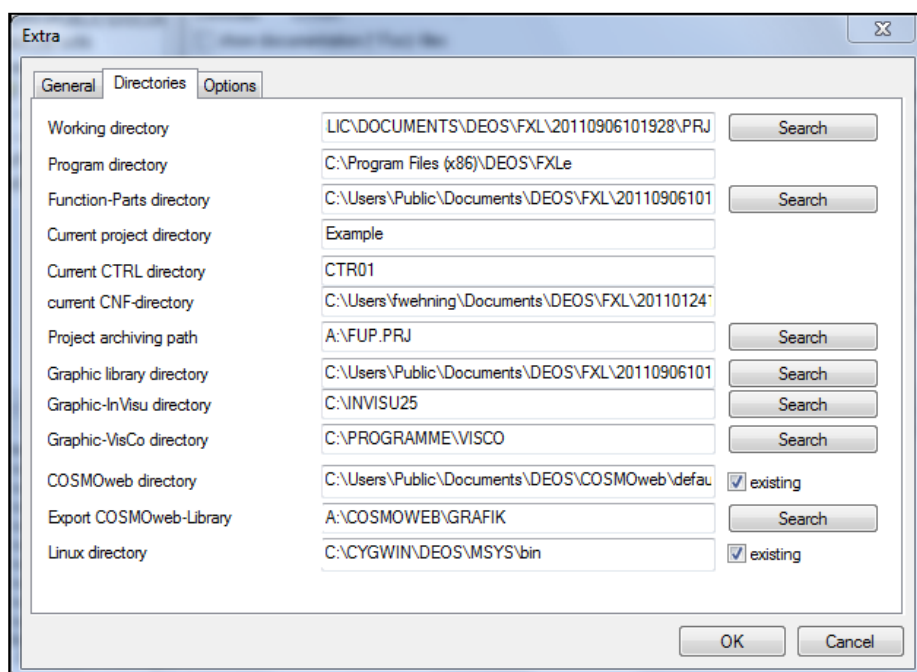


Serial port to Leitrechner	the selected interface the controller is connected to if the PC works as Leitrechner; standard Leitrechner-interface
Serial port to controller	the selected interface the controller is connected to; selected loading interface
Modem port	the selected interface the modem is connected to
Default editor for WMF	enter the editor to edit WMF-graphics
Default editor for BMP(GIF/JPG)	enter the editor to edit BMP (GIF/JPG) –Graphics
Default editor for descriptions	enter the editor to edit descriptions

Default editor for text files	enter the editor to edit text files
Call with line number	line number to jump in the text
EPROM burning type	EPROM- programming device

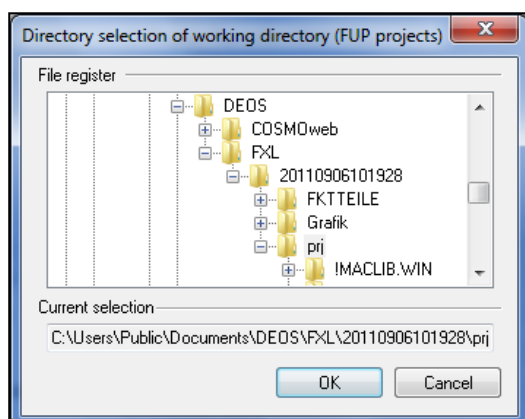
Tab – Directories

The tab *Directories* handles all needed directories. The installation program sets the directories to standard default directories.

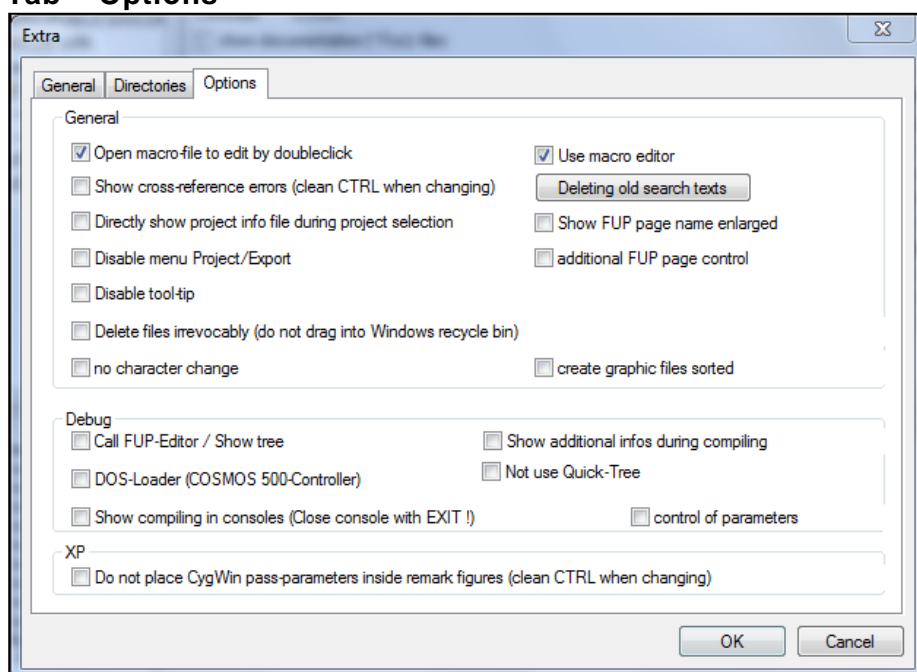


Working directory	root directory of the working directory
Program directory	current program directory
Function part directory	root directory of the directory of functions (see section <i>Function Parts</i>)
Current project directory	current project name
Current UST directory	current controller name
Project archiving path	root directory for Project Import/Export
Graphic library directory	root directory graphic library
Graphic-InVisu directory	root directory InVisu (exists because of compatibility to older versions)
Graphic-VisCo directory	root directory VisCo
OPENweb directory	root directory OPENweb – a check in the check-box means that <i>OPENweb</i> is installed on your computer
Export OPENweb-Library	root directory OPENweb-library-export
Linux directory	root directory Linux – a check in the check-box means that <i>Linux</i> is installed on your computer

To change a directory enter the name directly or click the *Search* button and select a directory and confirm this with *OK*.



Tab – Options



General

Open macro-file to edit by double click

Open the definition file of the macro for editing in the set text editor by a double click instead of opening the FUP-Editor by a double click on the macro FUP page. Afterwards call *Update Macro-file* (See chapter *Macro*).

Notice

The text editor will be set up in *Extras – Options* on the tab *General*. If you will take a windows editor, you have to set up the right character set. Otherwise the umlauts will be written wrong in the controller.

Show cross-reference errors (clean CTRL when changing)

The display of the error *cross-reference error* is disabled in the standard configuration. Thereby the FUP page which causes this *cross-reference error* can be ascertained better.

Example

Because of an error in the FUP page *outside temperature* all FUP pages, which refer to the *outside temperature*, display a cross-reference error. If the cross-reference error is disabled, the FUP page, which causes this cross-reference

error, can be found faster.

Notice The cross-reference error should be displayed for a FUP page which refers to itself.

Directly show project info file during project selection While selecting a project the *project info-file* is called. To edit the project info-file call *Project – Infofile – Edit*.

Disable menu Project/Export Disables the menu *Project – Export*

Disable tool-tip Disables the visualization of tooltips

Delete files irrevocably (do not drag into Windows recycle bin) Deletes all files irrevocable. They will not be moved to the windows recycle bin

No character change German umlauts will be converted to 7-Bit-ASCII-Format automatically. You can suppress this behavior here.

Use macro editor Uses the Macro-Editor instead of the text editor to edit macro definition files (See chapter *Macro*).

Debug

Call FUP-Editor / Show tree A message box displays the call of the FUP-Editor with its parameter values.

DOS-Loader (COSMOS 500-Controller) Terminal programs are called to load the controllers (available because of compatibility to older versions).

Show compiling in consoles (Close console with EXIT) It might happen that no errors are visualized in the output window of FUP XL. If this option is activated then the output of the programs will not be redirected to the output window. Instead the programs are started directly in their consoles. An open console must be closed by *Exit* to proceed with the further compilation.

Show additional infos during compiling displays all available information during compiling

Not use Quick-Tree Since FUP-CL version 1.038 the tree information will be created by the program *cuitree*. This program creates the tree information with help of temporary files and is therefore much faster than the program *bdfbaum*. If there are any consistency errors using the Quick-Tree then you have the possibility here to set that it should not be used.

XP

Do not place CygWin pass-parameters inside command characters.

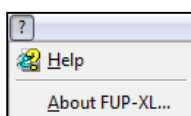
Notice Parameters for the compiler of the OPEN should never be inside command characters.

?

Call the FUP XL help and information by the menu “?”.

Help

Call the FUP XL help by the menu “?”.

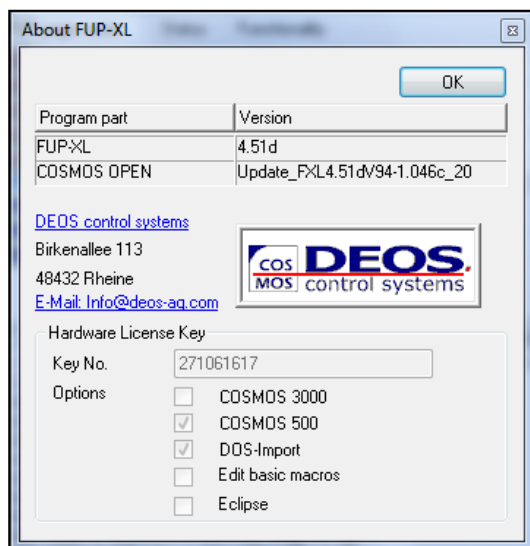


Notice If the help does not show up follow these steps:

- Start Windows Explorer.
- Select the CD-ROM drive
- Copy the directory *Hilfe* to your FUP XL directory.

About FUP XL







This window shows information about the current FUP XL version as well as the used dongle.



Tool bar

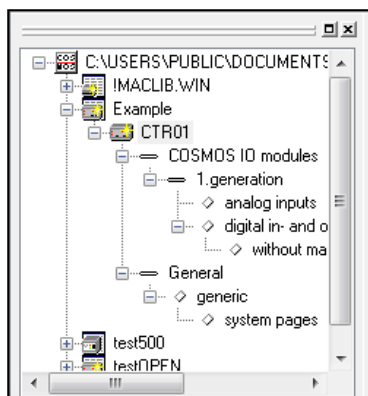


	Project Info-File	opens the project-info of the selected project
	New	creates a new project, a new controller or a new FUP page, depending of the workspace
	Open	opens the workspace of the FUP pages or a FUP page itself, depending of the selected working directory
	Save As	saves the selected FUP page or the selected controller under a new name
	Print	prints the current workspace
	Cut	Cuts the selected FUP page/s to the clipboard
	Copy	copies the selected FUP page/s to the clipboard
	Paste	pastes elements of the clipboard
	Repeat paste	pastes the same elements as last time pasting ignoring the current clipboard
	Working Directory	fades in/out the working directory
	Output Window	fades in/out the output window
	Project	fades in the working directory for project selection
	Controller	fades in the controller selection
	FUP Page	fades in the FUP Page selection
	Group Selection	call dialog for group selection
	Show Controller Program-Infofile	shows the CTRL information file
	Compile	compiles the selected controller
	Edit Global HTML Tree	calls the global tree for editing
	Edit Local HTML Tree	calls the local tree for editing

	Edit Macro-File	calls the selected macro file for editing
	Edit Macro FUP Page	updates the selected macro FUP page
	Edit FUP Document	opens WORD for editing the FUP document
	Read reference document	opens WORD for view/editing the reference document
	Search In Files	searches in files
	Info	displays information about the serial number of the dongle and the options

Working directory





The projects are displayed in the working directory. The tree structure gives a clear organization and a fast access to the projects and controllers. The currently selected working directory affects the workspace.



The working directory is a docking window and can be opened and closed by the menu *View*.

Workspace

There are the workspaces *Projects*, *Controller* and *FUP pages*. They depend on the selected working directory. The diverse workspaces have a tabular layout and display detailed information. The header of the workspace shows information about the currently selected working directory.

Project	MyProj	-
Controller	MyCtrl	-
<input checked="" type="checkbox"/> show documentation (*.Foc)- files		
FUP page name	Status	Functionality
 antilock.f		antilock circuit
 caninit.f		CAN-bus configuration
 cansrv.f		service CAN-bus
 clock.f		time functions

You can sort the data of a column click by a click with left mouse button on the column header. A further click on it changes the sort direction. It is an alphabetic sorting. Numerical data are sorted before letters.

Detailed information to the workspace *Projects*

Project	name of the project; is defined when creating a new project
Description (object)	object name; is inscribed in the object signature under the menu <i>Project/HTML/Configure</i>
Version	version number; is inscribed in the object signature under the menu <i>Project/HTML/Configure</i>
Company	name of company; is inscribed in the object signature under the menu <i>Project/HTML/Configure</i>
Programmer	name of the programmer; is inscribed in the object signature under the menu <i>Project/HTML/Configure</i>
Date	date; is inscribed in the object signature under the menu <i>Project/HTML/Configure</i>
Display type	display type; is selected under the menu <i>Project/HTML/Configure</i>
BSW version	BSW –Version (available because of compatibility to older packages)

Detailed information to the workspace *Controller*

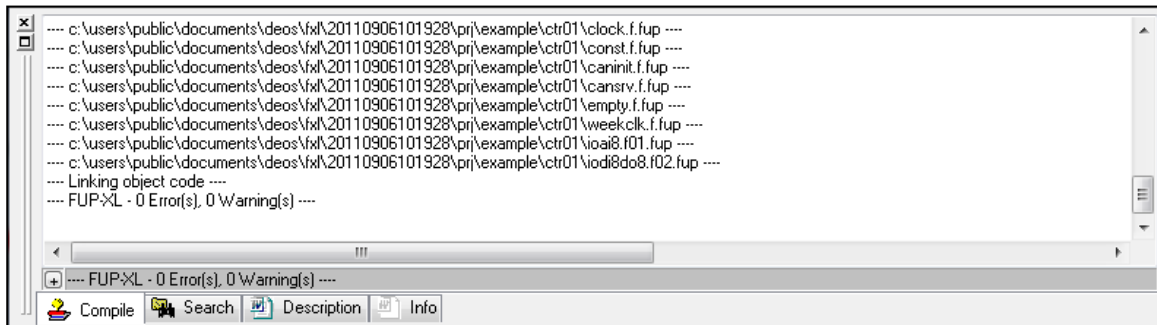
Controller	name of the controller; is defined when creating a new controller
Info	hardware type of the controller
Number	logical device number of the controller; is inscribed in the object signature under the menu <i>Project/HTML/Configure</i>
Description	comment to the controller; is inscribed in the object signature under the menu <i>Project/HTML/Configure</i>

Detailed information to the workspace *FUP page*

FUP page name	name of the FUP page, is defined when creating a new FUP page
Status	displays the status of a FUP page; e.g. error, macro etc.
Function	name of the function, which is inscribed in the FUP page header
Object	object name, which is inscribed in the FUP page header
Status	date of the last saving of the FUP page
Programmer	name of the programmer, who is inscribed in the FUP page header
Customer	name of the customer, who is inscribed in the FUP page header
Extension	file extension
Executing cycle	executing cycle type, which is selected in the FUP page header

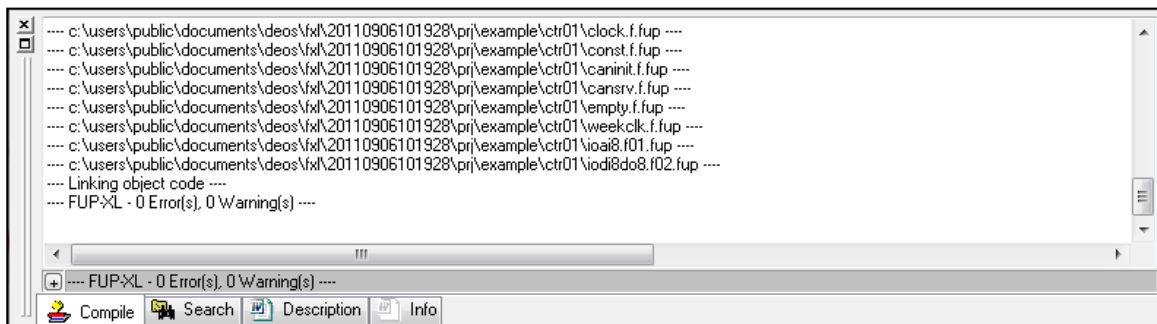
Output Window

Information is displayed in the output window during compiling or searching.



Tab - Compile

Information is displayed in the tab *Create* of the output window during compiling.



Notice

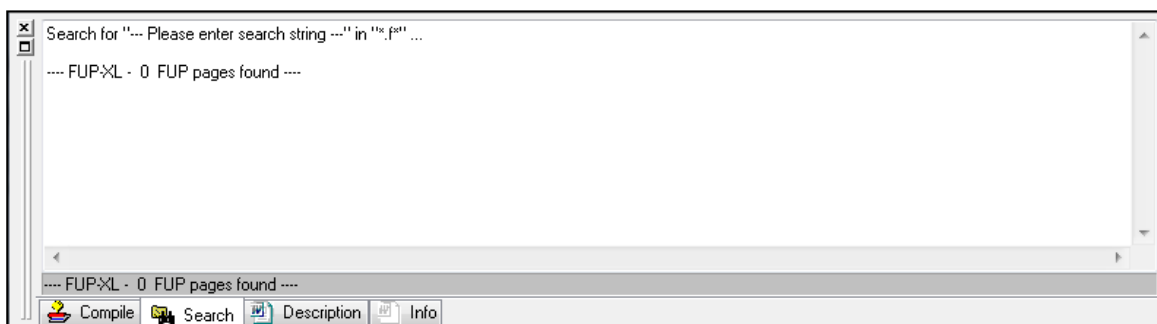
Additional information can be displayed in the output window when you have set the check *Show additional infos during compiling* under the menu *Extras – Options* on the tab *Debug*.

Hint

The appropriate program to handle the error will be called by a double click in the output window.

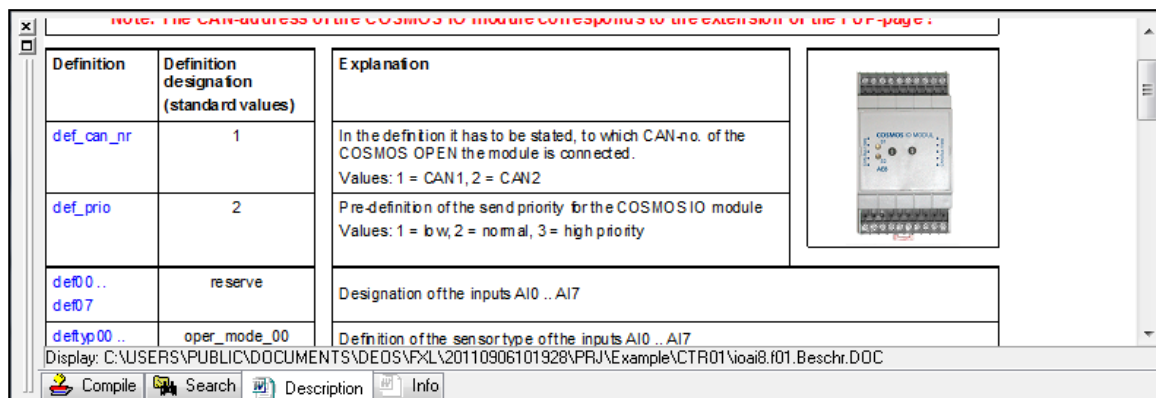
Tab - Search

This output window displays the files with the entered search text. Open these files with a double click.



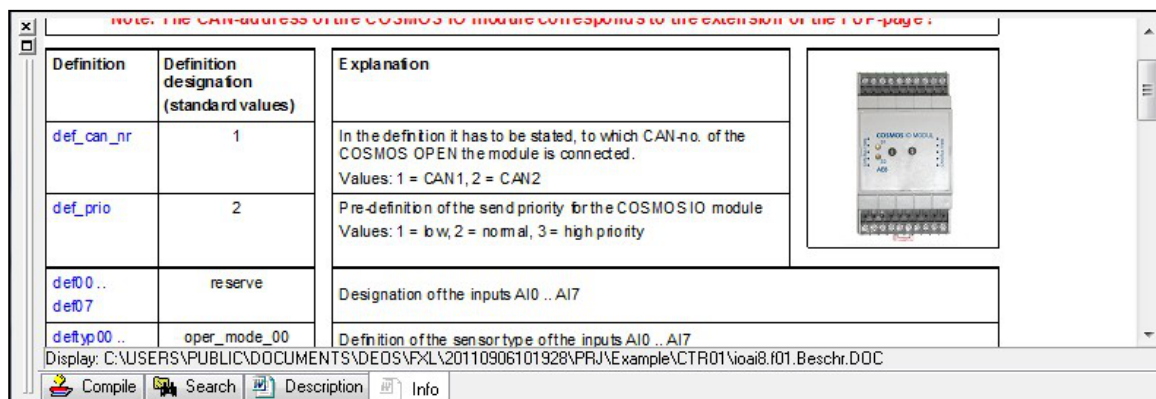
Tab - Description

This output window displays a previously defined description to the selected file. This description has to be a Word-document.



Tab - Info

This output window displays previously defined information to the selected file. This info has to be a Word-document.



Status bar

An information text about the selected menu is shown in the status bar.



6. FUP-Editor

General

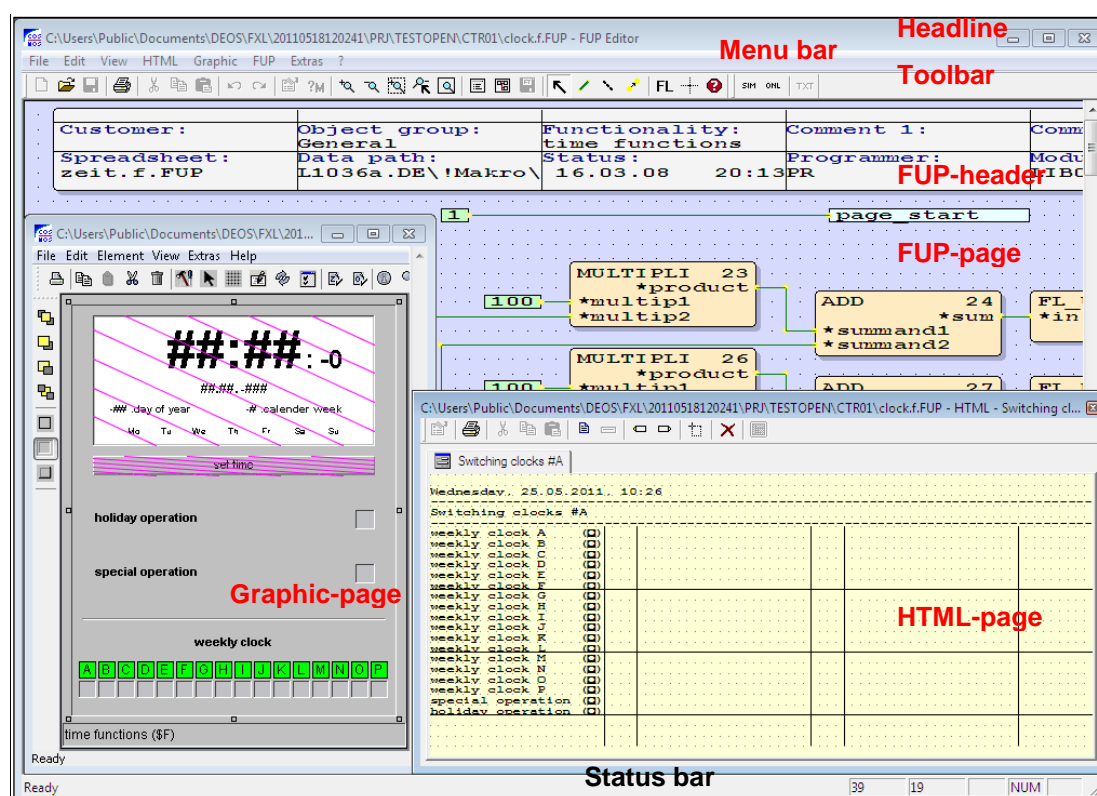
The graphical programming with FUP XL is similar to creating an electrical circuit diagram. Each programming function (from AND-gate to the PID-loop) is displayed graphical on the screen as a box (module). On the left side of the box are displayed all input, on the right one all outputs. So the data flow is from the left to the right. Several programming functions (modules) can be placed on one FUP page. The inputs and outputs of the modules will be connected by lines.

The HTML-pages and the graphic pages are created simultaneously for each FUP page. By dint of the basic elements values of the controller program are displayed or values of the graphical pages are made available to the control system.

The operator guidance is created automatically by reason of the graphical creation of projects in FUP XL. The operator guidance is created in several formats simultaneously and is used to handle OPENweb, but also the normal handling with the remote device (FBG) or PC. The automatically created operator guidance can be upgraded easy. It can be customized individual.

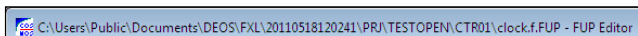
Screen Layout

The screen layout of the FUP-Editor is organized in the category groups *Headline*, *Menu bar*, *Toolbar*, *FUP Header*, *FUP page*, *Graphic page*, *HTML-page* and *Status bar*.

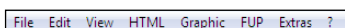


Headline

The headline contains information about the current opened FUP page.



Menu Bar



Use the menu bar to open the menus and to get access to the programming functions. A menu item is displayed inactive if a program function is not available because of current circumstances. Various menu items can be selected by the context menu.

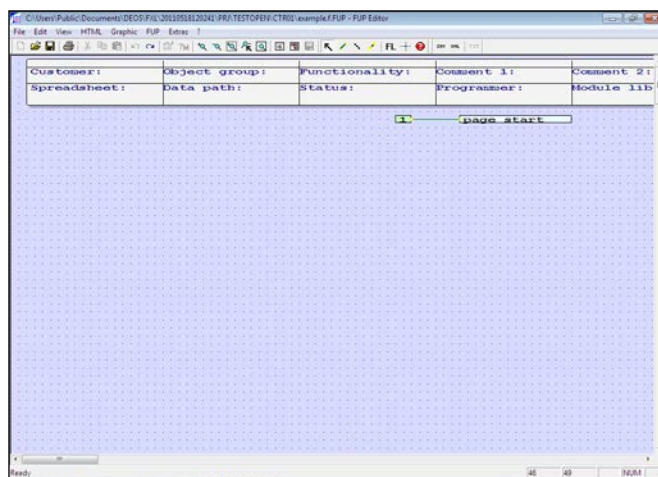
Notice: An information text to the selected menu item is displayed in the status bar.

New

Shortcut: [CTRL] + [N]

Description: This entry creates a new and empty FUP page. A new FUP page always contains the basic module *page start*. This basic module must exist once on each FUP page and cannot be deleted. After creating a new FUP page first you should invoke the page header by using the context menu and complete it (see section [FUP Header](#)).

Example:

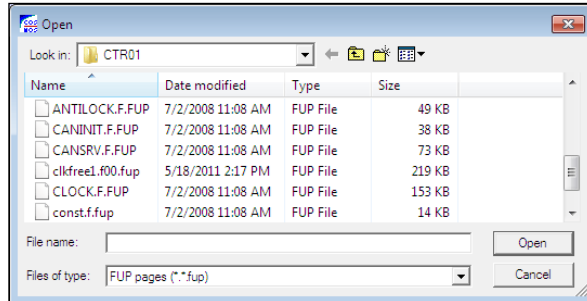


Open...

Shortcut: [CTRL] + [O]

Description: This entry opens an existing FUP page. Therefore select the path and the designated FUP page in the pop-up window.

Example:



Notice: If you have deactivated the option *Hide extensions for known file types* in the Windows Explorer, the additional ending *.FUP* will be shown when opening.

Save

Shortcut: [CTRL] + [S]

Description: This entry saves the current FUP page.

Print...

Shortcut: [CTRL] + [P]

Description: This entry prints the current FUP page. For further information please lookup section *Print*.

Print Preview

Description: This entry shows the preview of the workspace that shall be print.

Print Setup...

Description: You decide which printer should be used, in the case that several printers are installed. Moreover you can configure different properties like the paper format or the print quality of the printer.

Notice: The installation of the printer will be done in Windows.

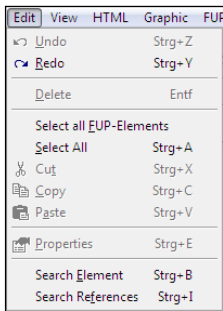
Last FUP Pages

Description: This entry shows the four FUP pages which were opened at last. Click on a name to open the FUP page.

Exit

Description: This entry will quit the FUP-Editor.

Edit



Undo

Shortcut: [CTRL] + [Z]

Description: This entry undoes the last change of the FUP page.

Redo

Shortcut: [CTRL] + [Y]

Description: This entry undoes the last *Undo* command.

Delete

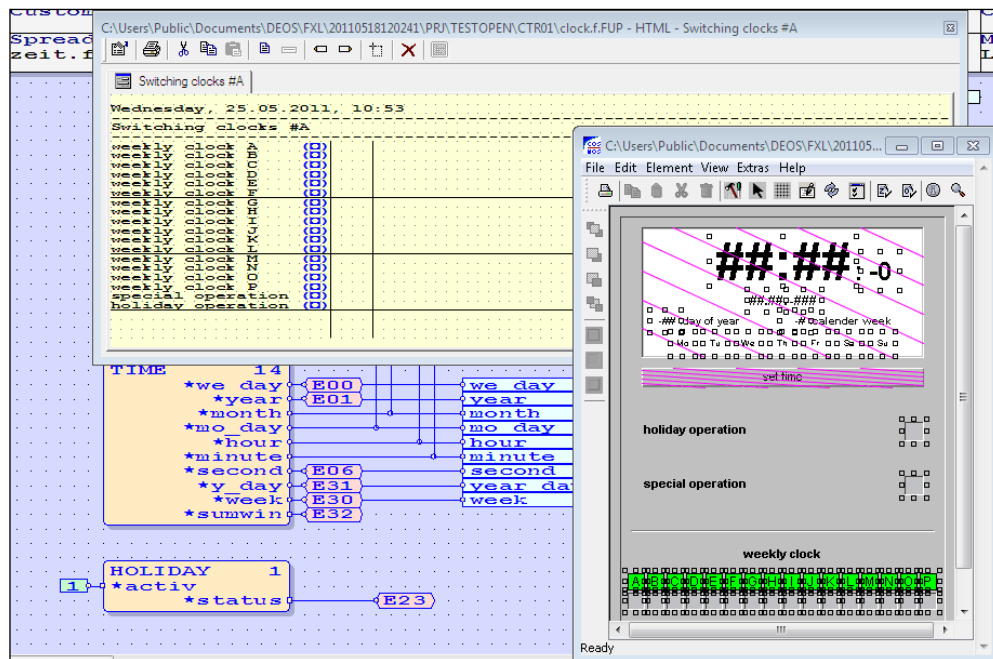
Shortcut: [DEL]

Description: This entry deletes the selected element. Multiple selections are possible using the mouse.

Select All FUP-Elements

Description: This entry selects all FUP-elements (including graphic, HTML and TUP elements) of the currently opened FUP page.

Example:

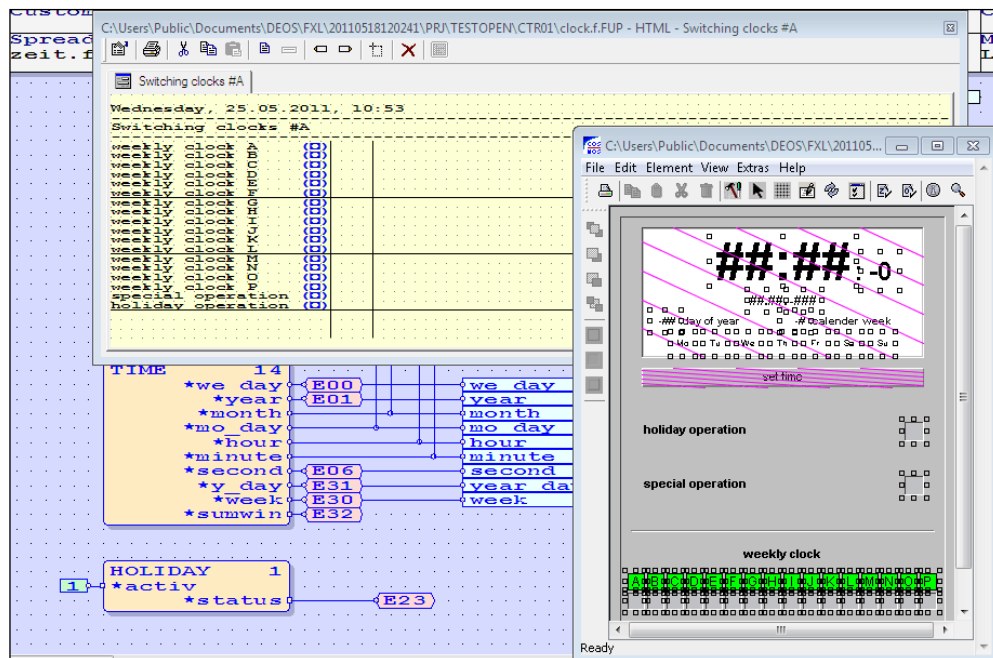


Select All

Shortcut: [CTRL] + [A]

Description: This entry selects all elements of the current FUP page.

Example:



Cut

Shortcut: [CTRL] + [X]

Description: This entry cuts all selected elements, i.e. all selected elements of the FUP page are copied to the clipboard and therefore visualized in grey.

Copy

Shortcut: [CTRL] + [C]

Description: This entry copies all selected elements to the clipboard.

Paste

Shortcut: [CTRL] + [V]

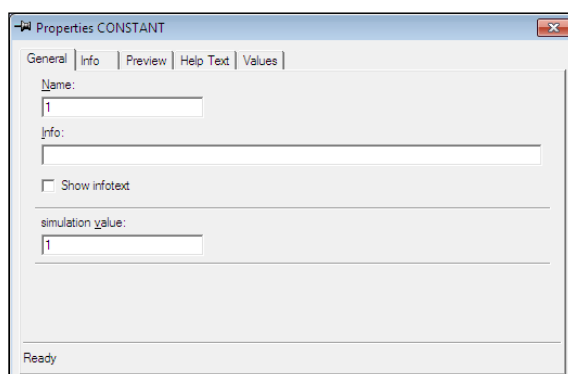
Description: This entry pastes the content of the clipboard to the FUP page.

Properties

Shortcut: [CTRL] + [E]

Description: This entry displays the information text (info) and properties of the selected elements.

Example: Properties of a constant



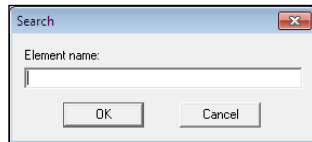
Notice: Some of these properties can be edited directly (see section [Basic Elements and Modules \(Module Library\)](#)).

Search Element

Shortcut: [CTRL] + [B]

Description: Enter the name of the element to search and confirm with *OK*. The element will be displayed at the top left on the FUP page.

Example:

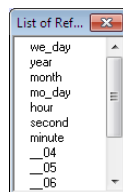


Search References

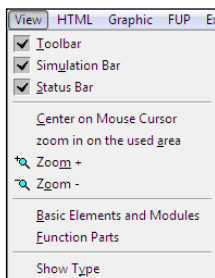
Shortcut: [CTRL] + [I]

Description: This entry shows all references on the FUP page. By double clicking on a reference the FUP page will be opened and the selected cross reference will be shown.

Example:



View



Toolbar

Description: This entry hides or shows the *Toolbar*.

Example:



Simulation Bar

Description: This entry hides or shows the *Simulation Bar*.

Example:



Status Bar

Description: This entry hides or shows the *Status Bar*.

Example: A screenshot of a status bar with a light gray background and a thin black border. It contains four rectangular boxes: the first box contains the text 'Ready', the second box contains the number '14', the third box contains the number '17', and the fourth box contains the text 'NUM'. The last box has a small diagonal line icon in its bottom right corner.

Center on Mouse Cursor

Shortcut: [F9] or [Alt] + [A] + [Z]

Description: By dint of the key combination the section of the graphic page, lying under the mouse pointer will be positioned in the middle of the screen.

Scale to Graphic Size

Description: This entry resizes the FUP page to full screen.

Zoom +

Description: This entry zooms in on the selected display of the FUP page

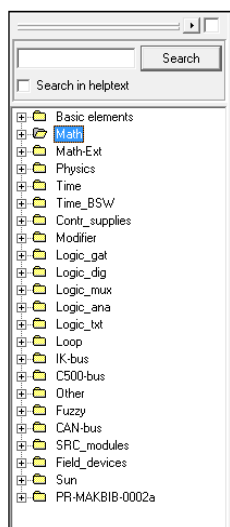
Zoom –

Description: This entry zooms out of the selected display of the FUP page

Basic Elements and Modules

Description: For further information about this entry please look up section *Basic Elements and Modules (Module Library)*.

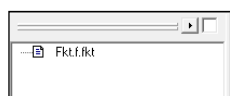
Example:



Function Parts

Description: For further information about this entry please look up section *Function Parts*.

Example:



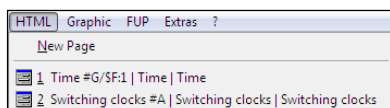
Show Type

Description: This entry switches between the text display and the variable type display.

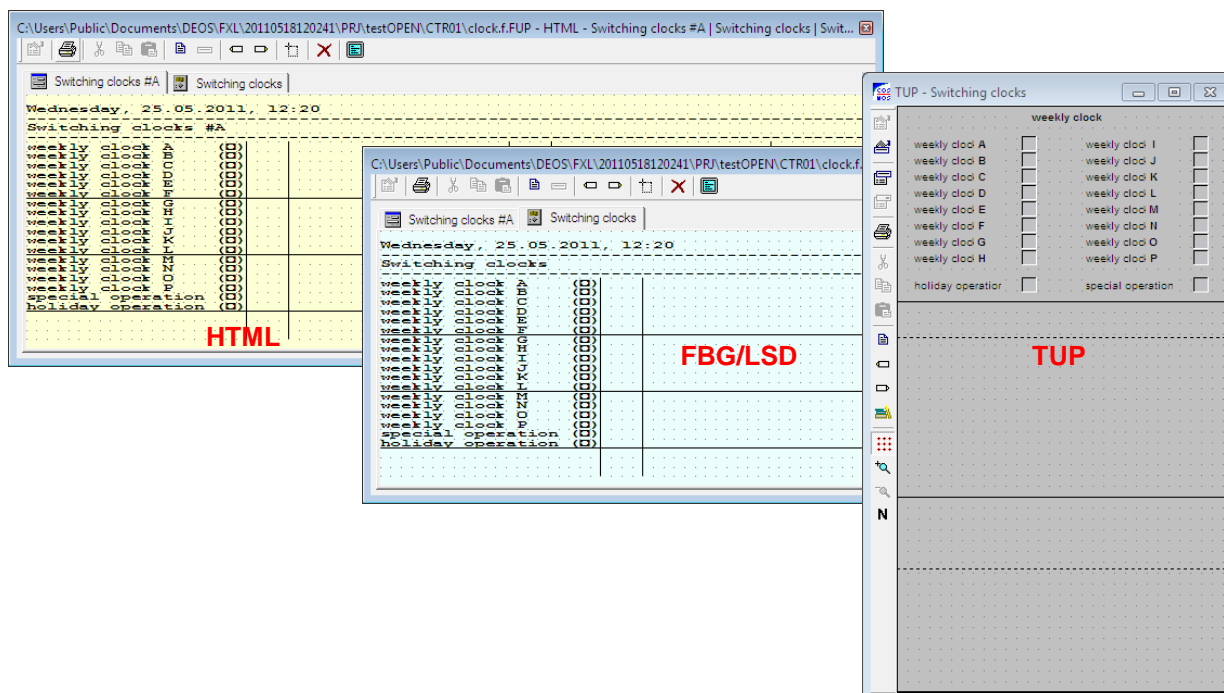
Example:



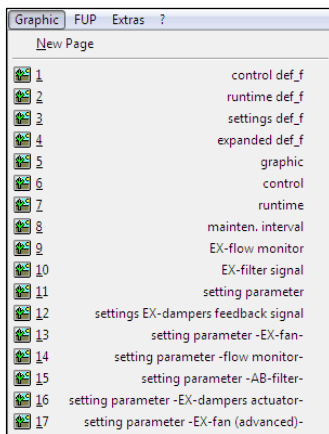
HTML



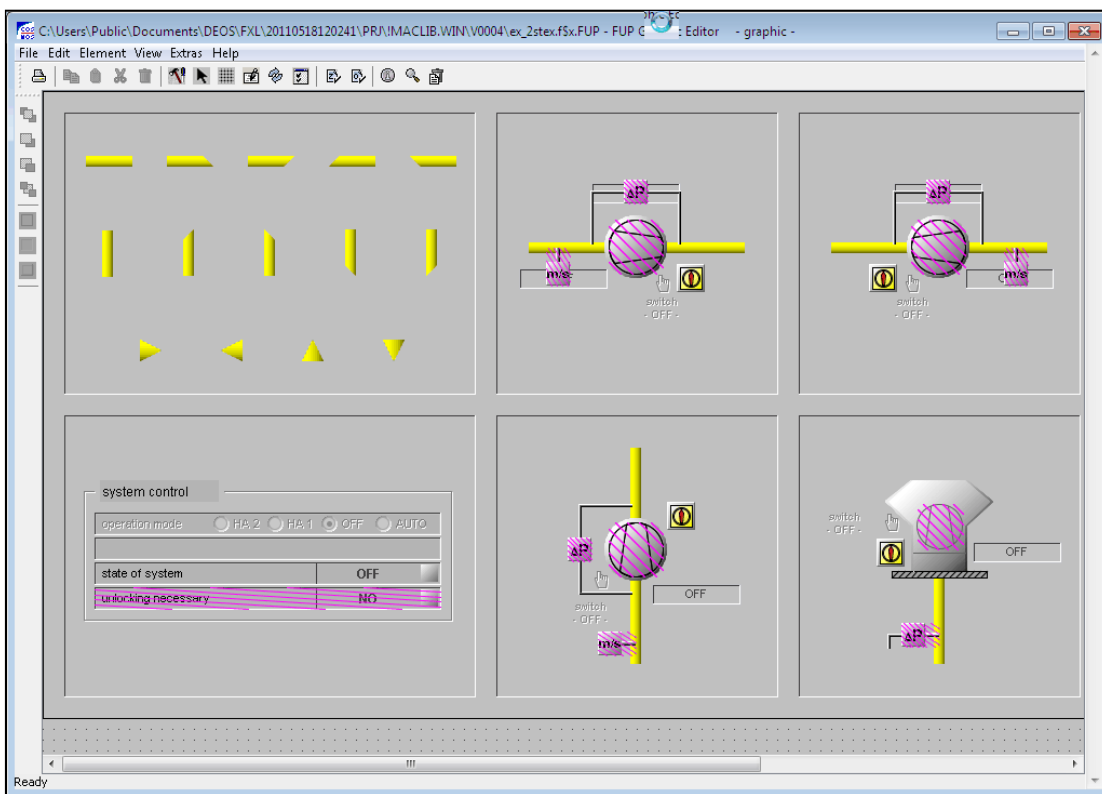
This menu provides the function to create a new HTML-page by the entry *New Page* or to edit an existing one. The user interface for the *TUP* and the *FBG5/LSD-C* will be also edited here (see section [HTML Page](#)).



Graphic

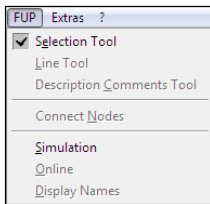


Here you can create a new graphic page by a click on *New Page* or you can edit an existing one (see section [Graphic Editor](#)).



FUP

Depending on the selected function the mouse cursor has a different functionality. This is displayed by another design of the mouse cursor.



Selection Tool

Description: The selection tool is used to select and edit elements on the FUP page.

Example:

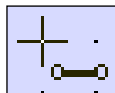


Line Tool

Description: The line tool can be used to draw lines.

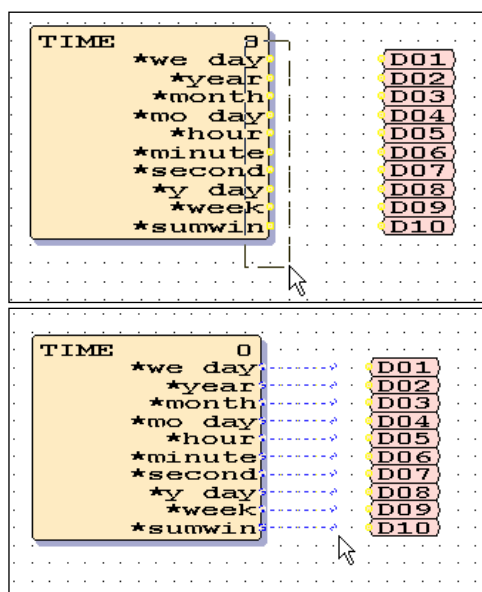
Enable the line tool and position the mouse on the desired position on the FUP page and draw a line by holding the left mouse button pressed and moving the mouse. As long as the line tool is enabled you can draw a new line with every mouse click. The lines will snap to the grid.

Example:



Hint:

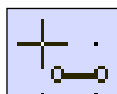
You can “pull” a line out of a module by using the *selection tool*. Just pull a point of a module and a line will be created. You can also select several points and draw several lines, as displayed in the following.



Description Comments Tool

Description: The description comments tool can be used to draw commentary lines. Commentary lines are visualized as dashed lines. You can use them to create a better optical visualization.

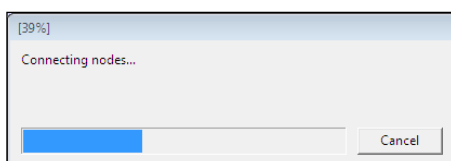
Example:



Connect Nodes

Description: Nodes are the connections (points) between lines and modules. If nodes are lying over each other, they will be connected directly.

Example:



Notice: The nodes are not connected directly if they are laid one upon the other. The elements and the lines can be moved singly of each other. You can connect all nodes which are laying one upon the other or which are lying on lines by the function *Connect Nodes*. The connections persist when moving the lines and elements.

Simulation

Description: By *Simulation* you can execute a functionality test of the FUP page without available or connected hardware. You can even run the simulation with FUP pages which are erroneous or not ready. Different-colored lines describe the binary states. You can configure the colors in the menu *Extras – Options* on the tab *FUP* (see section [Simulation](#)).

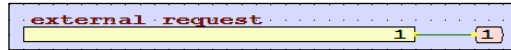
Online

Description: The online functionality is only supported for OPEN EMS controllers. It is required that the controller is read out by OPENweb and the OPENweb has to be online to open the graphical pages of the FUP page during the online session. Additionally a connection between your computer and the hardware is required and the current program has to be uploaded to the controller. *Online* can also be terminated via this menu entry (see section [Online](#)).

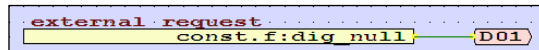
Display Names

Description: During the simulation or the online mode you can switch between the displayed text and the displayed value by dint of this function.

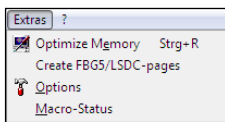
Example: *Display Names not set:*



Display Names set:



Extras

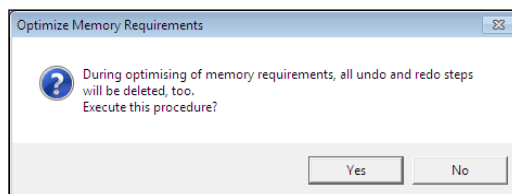


Optimize Memory

Shortcut: [CTRL] + [R]

Description: This entry optimizes the memory usage. Thereby all *Undo*-steps will be deleted.

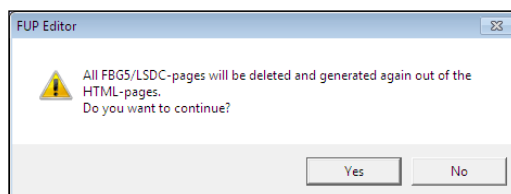
Example:




Create FBG5/LSDC-Pages

Description: This entry (re-)creates FBG5 and LSD-C pages from the HTML pages. Thereby all existent FBG5 and LSD-C pages will be deleted. Please confirm the security query by Yes.

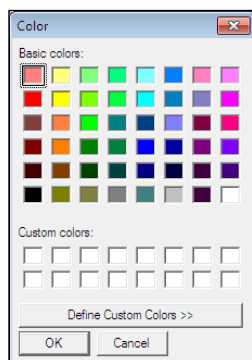
Example:



Options

Description: You have the possibility to make certain presets for the behavior and look of FUP XL in the menu *Options*. By the button *Reset*  (on each tab in the bottom right corner) you can reset to the default settings. To change the color just select the according color box and afterwards you can select the new color. You have to confirm the new color by *OK*.

Example:

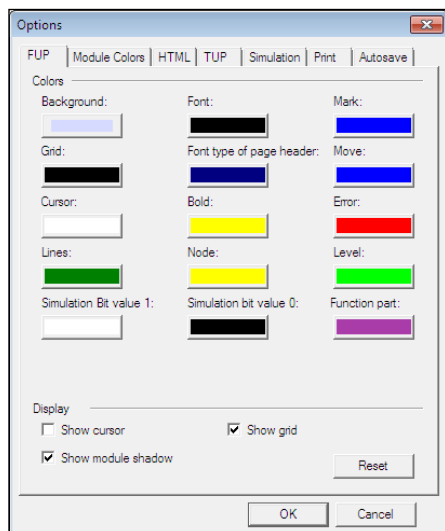


Notice: Please consider “white image on white background”.

FUP

Description: Here you can configure the colors of the view on the FUP-page on the screen. Furthermore you can fade in or out the pointer and the grid as well as module shadows on the FUP-pages. The pointer always points at the point where the next element will be inserted.

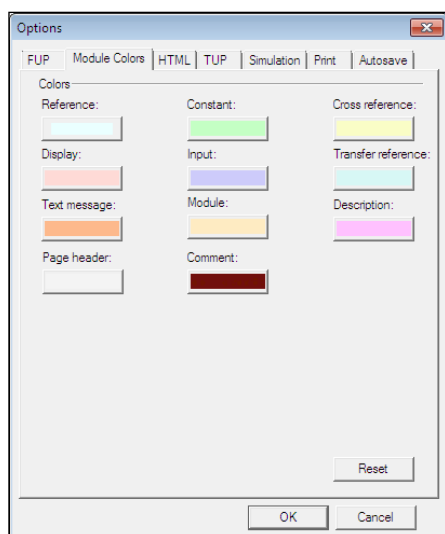
Example:



Module Colors

Description: Here you can configure the colors of the basic modules.

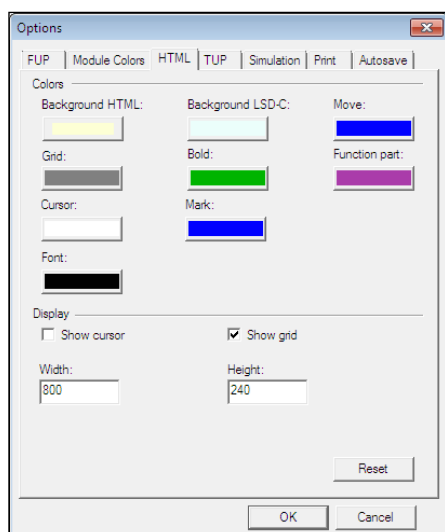
Example:



HTML

Description: Here you can configure the colors of the view on the HTML-page on the screen. Furthermore you can fade in or out the pointer and the grid on the HTML-pages. The pointer always points at the point where the next element will be inserted. You also can change the size of the HTML-page on the screen.

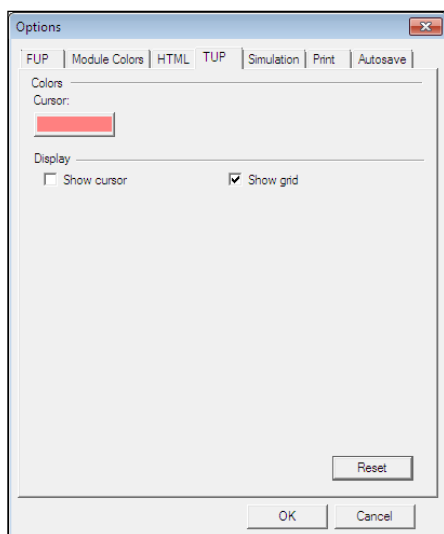
Example:



TUP

Description: Here you can configure the color of the pointer on the TUP-page on the screen. Furthermore you can fade in or out the pointer and the grid on the TUP-pages.

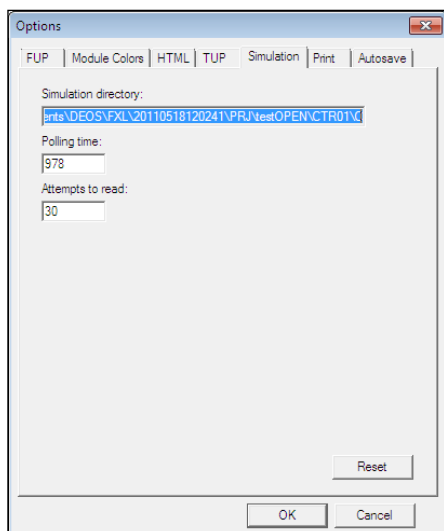
Example:



Simulation

Description: Here you can set up properties of the simulation and the online mode.

Example:



Options:

Simulation Directory: The directory, where the temporary data of the simulation will be saved, is shown here.

Polling Time: Polling time is the refresh rate of the simulation in milliseconds.

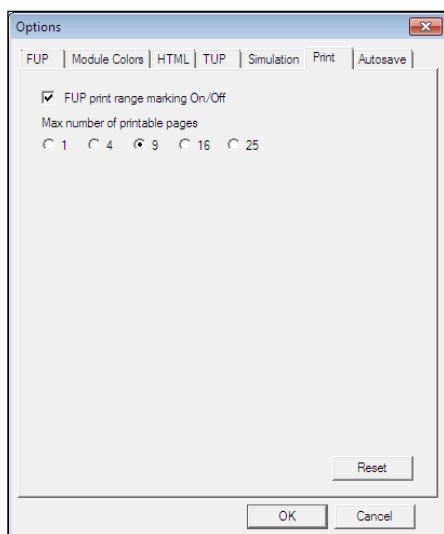
Notice: As the simulation always executes every second, the value has to be set to 978 milliseconds.

Attempts to Read: Here you can configure the maximum number of abortive and successive attempts to read the temporary files. If all attempts to read have been unsuccessful, the simulation terminates automatically.

Print

Description: Here you can set up if the selected print scope on the FUP-page will be displayed or not. The selected number of maximum printable pages defines the print scope of a print page.

Example:

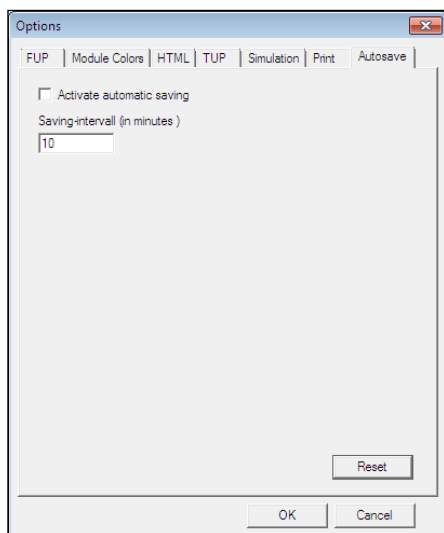


Notice: If the printer has the possibility of *Vector Print* please regard that the option for vector prints is disabled. This property can be set up by the driver of the printer.

Auto Save



























Description: If *Auto Save* is enabled it will be saved automatically in the cycle of the *Saving-Interval*. After a crash it will be asked automatically if you want to load the last buffered file.

Example:



Toolbar



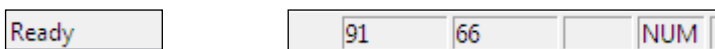
	New	opens a new FUP-page
	Open	opens an existing FUP-page
	Save	saves the opened FUP-page
	Print	prints the opened FUP-page
	Cut	cuts selected elements
	Copy	copies selected elements to the clipboard
	Paste	pastes elements of the clipboard
	Undo	undoes the last action
	Redo	reverses the undo
	Properties	opens the properties dialog of the selected element
	Module help	opens the module help of the selected element
	Zoom in	zooms in by one step
	Zoom out	zooms out by one step
	Zoom in	zooms the screen to the framed area
	Zoom out	centers to the mouse pointer
	Scale to graphic size	displays the complete FUP-page on the monitor
	Basic elements and modules	opens or closes the selection of basic elements and modules
	Function parts	opens or closes the selection of function parts
	Create function part	creates a function part
	Selecting and moving	tool to select and move elements
	Draw lines	tool to draw lines
	Draw comment lines	tool to draw comment lines
	Connect nodes	tool to connect nodes
	Display Type	displays the types of the elements and modules as well as the in- and outputs of them
	Big cursor	displays the cursor as big cursor
	Help	invokes the documentation

Simulation Bar



SIM	Simulation	switches to the simulation mode
ONL	Online	switches to the online mode
TXT	Display Type	switches between the value and the text

Status Bar

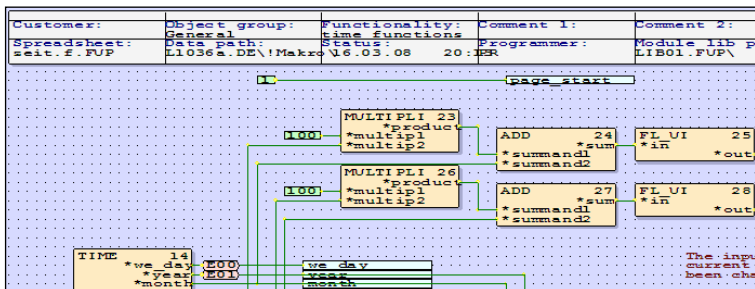


In the status bar you can get general information and the exact position of an element.

Notice The exact position of the element results from the position XY. The point of origin is located at the upper left edge of the screen. You can read the information in the status bar. The first value displays the X-position, the second one the Y-position.

FUP Page

You draw the control on the FUP page by dint of modules and additional elements. The FUP page can be displayed in several zoom steps. Of course in high zoom steps you can only see a small section of the FUP page. You can zoom in or out the visible drawing scope by the keys *F5* and *F6*. Each FUP page has at its top the FUP header.



A grid simplifies the working on the drawing area. The elements and lines are positioned by means of the snap to grid function to ensure a certain and fast depositing on the grid.

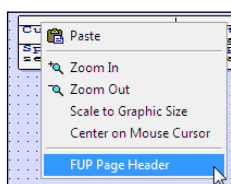
FUP Header

The FUP header contains information about the FUP page.

Customer:	Object group:	Functionality:	Comment 1:	Comment 2:	Comment 3:
Spreadsheet:	General	Time functions			
seit: f.FUP	Data path:	Status:	Programmer:	Module lib path	Executing cycle
	L1036A.DE\!Makro	16.03.08 20:18	PER	LIB01.FUP\	SECOND

Customer	editable customer name	
Object	editable object identifier	is displayed as help at FUP-page selection and appended at a message as a last
Function	editable function description	is displayed as help at FUP-page selection and appended at a message as a last but one
Comment1	editable text	
Comment2	editable text	
Comment3	editable text	You can state a sub menu name by SUB#. All existing pages are made available in the tree under the stated sub menu name e.g. SUB#static heater south.
Spreadsheet	name of the FUP-page	
Data path	path of the FUP-page	
Status	last date of saving	
Programmer	editable Text	
Module lib path	path of the library	
Cycle program	declaration of the executing cycle of the FUP-page	e.g.: Cycle control is executed permanently e.g.: Second control is executed every second

To enter information about the FUP-page click the right mouse button and click on *FUP Page Header* in the context menu.



General

This tab provides the information and settings about the FUP page of the upper table.

Furthermore the following information will be shown:

Operating cycle The same like *cycle program* in the page header. You can select from the following options in the drop-down menu.

Info

Path where the FUP-page can be found in the FUP XL main program.

Info

This tab provides information about the FUP page.

The screenshot shows a Windows-style dialog box titled 'Properties FUPBLATTKOPF'. It has two tabs: 'General' and 'Info', with 'Info' selected. The 'Info' tab contains several input fields: 'Type' is set to 'FUPBLATTKOPF', 'Function part' is empty, 'Page' is 'antlock.f.FUP', 'Status' is '16.03.08 20:07', 'File path' is 'C:\FXL\FUP\WL1036a.DE\Makro\'', and 'Library path' is 'LIB01.FUP\''. At the bottom, there is a 'Ready' status bar and 'OK' and 'Cancel' buttons.

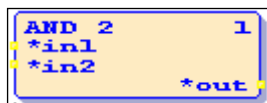
The following information is provided:

Type	FUPBLATTKOPF
Function Part	(Under construction...)
Page	Name of the FUP page.
Status	Here you can get the last date of change.
File Path	Path to the directory containing the file.
Library Path	This is the module library path.

Changes have to be confirmed with *OK*.

Basic Elements and Modules (Module Library)

You can create visually a logical and functional program by means of basic elements and modules. The modules (from the AND-gate to the PID-control) are displayed on the screen as boxes.



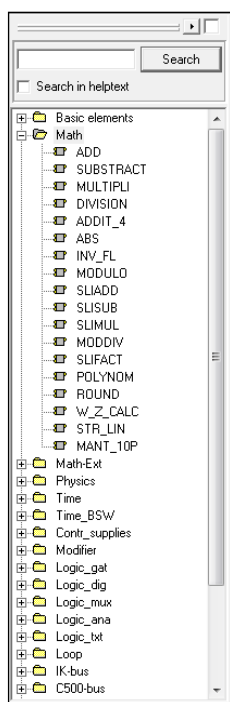
On the left side of the box are displayed all inputs and on the right side are all outputs. So the data flow is from the left to the right.

There are basic elements besides the modules. By dint of the basic elements data can be exchanged with other FUP-pages and text messages, chapter, inputs and outputs can be created

Notice

After creating the FUP-pages the controller will be compiled. In doing so it is checked whether every in- and output is engaged. Not used inputs have to be linked to a constant. Not used outputs have to be linked to a reference. If the name of a reference begins with two underlines (dummy), it corresponds to a dummy reference. Other FUP-pages cannot access to this dummy reference and they do not reserve memory.

The module library comprises basic elements and modules. You can open the library by the menu *View – Basic Elements and und Modules* or by using the key *F2*. The library is displayed as docking window.



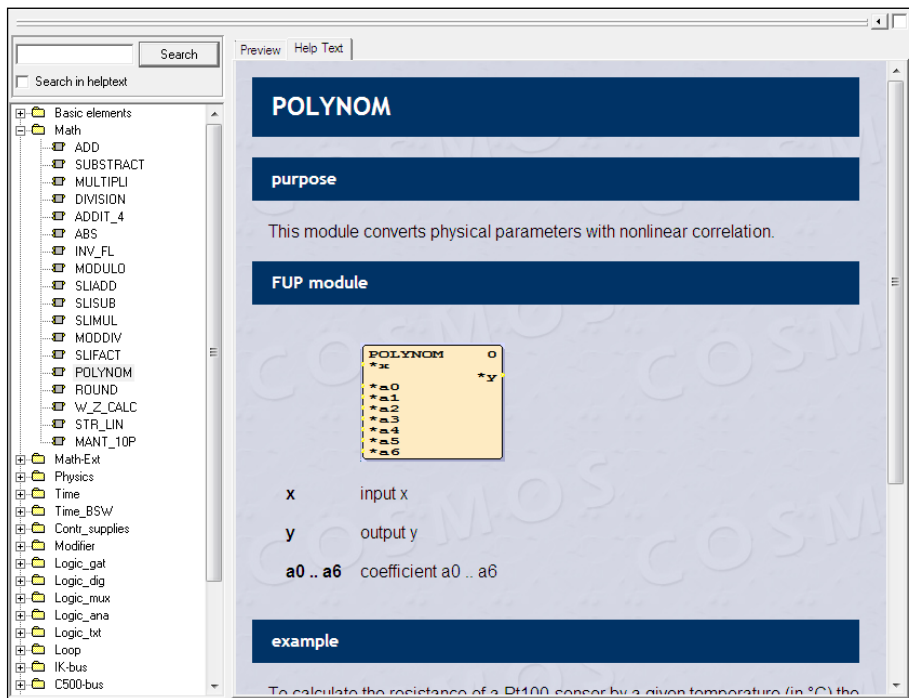
The module library is divided into several groups. Click on the plus to open one group or on the minus to close a group.

Pasting Elements

The easiest way to paste a new element is using the mouse. Therefore select the element in the module library and pull the selected element to the FUP-page.

Alternatively you can paste a new element by the keyboard. To select an element use the cursors *up* and *down*. Open or close a group by using the cursors *right* and *left*. To paste the selected element on the FUP-page at the pointer press *Enter*. If the check-box is not set in the docking window of the module library, it will be closed after pasting the element.

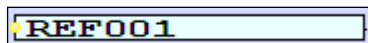
Additional information to the element can be faded in or out by clicking the arrow at the top of the docking window.



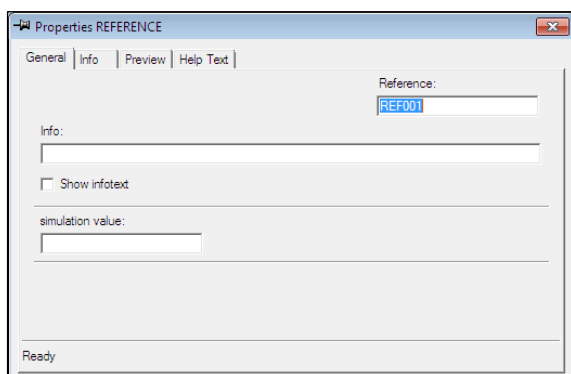
Basic Elements

By dint of the basic elements data can be exchanged with other FUP-pages and text messages, comments, chapter, inputs and outputs can be created.

Reference



Use the *Reference* to make available a value (e.g. control value) to other FUP-pages. The reference has to be linked to an output. It has to be entered an individual name for each pasted reference. This name is displayed as selection in the element *cross-reference*.



Enter any name into the field *Reference*. The name has to begin with a letter and it must not have more than 14 characters. Umlauts, blanks and special characters are not allowed.

Enter the start value of the simulation into the field *Value*.

Entries in the field *Info* will be displayed when staying over this FUP-element with the mouse.

Notice

After creating the FUP-pages the controller will be compiled. In doing so it is checked whether every in- and output is engaged. Not used inputs have to be linked to a constant. Not used outputs have to be linked to a reference. If the name of a reference begins with two underlines (dummy), it corresponds to a dummy reference. Other FUP-pages cannot access to this dummy reference and they do not reserve memory.

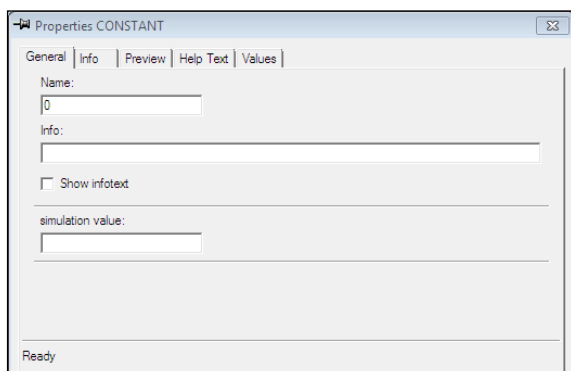
Constant



With this element you will create a constant. This constant will be connected to one or more inputs. You can enter the numbers in different syntax.

Syntax	Examples	Notice
Binary	0b00100110, 0b00001110	Always enter 8 characters behind the "0b"
Octal	03, 0473, 0125	
Decimal	1, 123, 15433, -8444	
Hexadecimal	0x1254, 0x25BB, 0x7CDB	
Float	1.256, -12,45214, 14528,02	

On pasting a constant you will be queried to enter the value of the constant.



Enter the value of the *Constant* into the field *Name*.

Enter the start value of the simulation into the field *Value*.

Entries in the field *Info* will be used to create a tooltip.

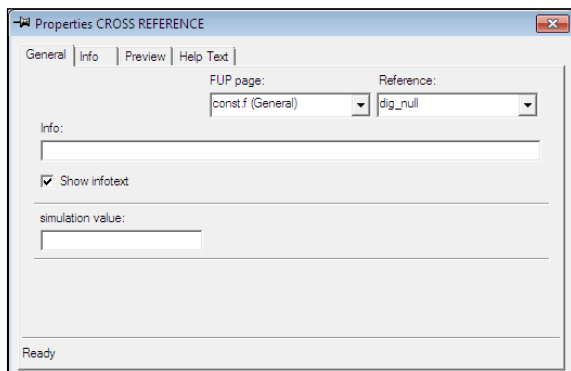
Notice

After creating the FUP-pages the controller will be compiled. In doing so it is checked whether every in- and output is engaged. Not used inputs have to be linked to a constant.

Cross-Reference

`const.f:dig_null`

With this element you can refer to a reference of another FUP-page. In front of the name of the reference has to be entered the FUP-page name (e.g. `_const.f:dig_null`).



You can select a FUP page by the combo box or insert the name in the field FUP page. If the FUP page exists then all references will be provided in the combo box *reference* including an information text. Please insert the reference name or select one from the combo box. The FUP pages are sorted according to the object name set in the FUP page header. The object name will be shown in brackets behind the FUP page name.

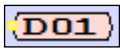
Notice On copying the reference number will be increased automatically if the name of the reference ends on a number.

The text which you can enter at *Info* will be used to create a tooltip.

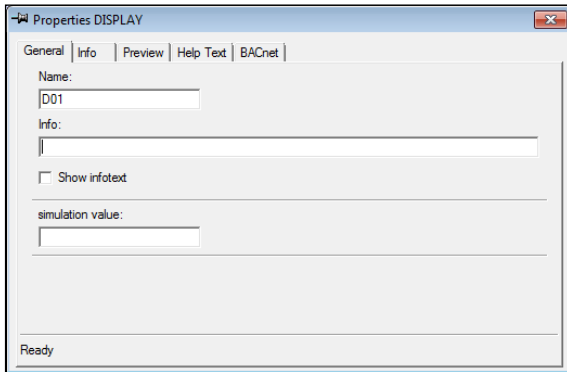
If the check box *Show infotext* is set then the text at *Info* will be shown on the FUP page.

In the input field *simulation value* you can insert the start value for the simulation.

Display



With this element you can display the value of an output on the HTML page (see section [Properties Dialog](#)). An individual name is declared automatically.



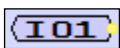
In the input field *Name* the automatically generated name of the *Display* will be inserted.

The text which you can enter at *Info* will be used to create a tooltip.

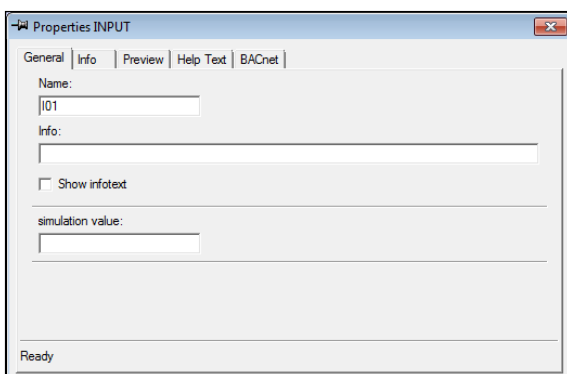
If the check box *Show infotext* is set then the text at *Info* will be shown on the FUP page.

In the input field *simulation value* you can insert the start value for the simulation.

Input



With this element you can enter a value at the HTML page (see section [Properties Dialog](#)). An individual name is generated automatically.



In the input field *Name* the automatically generated name of the *Input* will be inserted.

The text which you can enter at *Info* will be used to create a tooltip.

If the check box *Show infotext* is set then the text at *Info* will be shown on the FUP page.

In the input field *simulation value* you can insert the start value for the simulation.

Transfer Reference

CTR01\CANINIT.F:D01

With this element you can refer to a *Display* or *Input* of another controller. In front of the name of the *Display* or *Input* it has to be entered the FUP-page name and the controller (e.g. UST\FUP.f:REF001)

You can select the controller as well as the FUP-page by means of a combo box or you can enter the names direct. The combo box *Reference* will display all selectable *Displays* and *Inputs* of the FUP-page. Enter the name or select the name by dint of the combo box.

Notice If no controller name is entered, then the *Input*- or *Display*-value is given without the cross-reference.

The text which you can enter at *Info* will be used to create a tooltip.

If the check box *Show infotext* is set then the text at *Info* will be shown on the FUP page.

In the input field *simulation value* you can insert the start value for the simulation.

The value at *Interval (in seconds)* configures the interval after which the transfer reference queries the requested value from another controller.

Text Message



With this element you can enter a text message. This text message (e.g. „Error STB boiler“ or „Warning: Boiler empty“) can be transmitted to a printer for example.

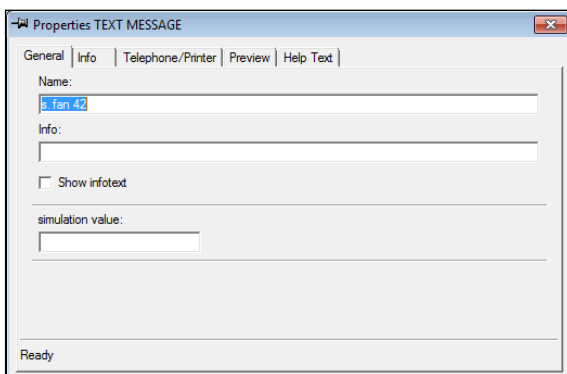
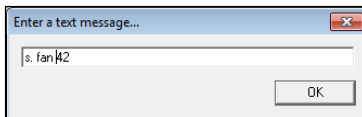
The function part- and object-identifier of the FUP-header is added to each text message.

If the message begins with one of the characters below, the character will be changed to the corresponding text:

s.	Error
a.	Alarm
w.	Warning
m.	Message
i.	Info

S.	ERROR
A.	ALARM
W.	WARNING
M.	MESSAGE
I.	INFO

When pasting a *Text message* you will be asked to enter the text of the text message.



Enter the text of the *Text Message* into the field *Name*.

The text which you can enter at *Info* will be used to create a tooltip.

If the check box *Show infotext* is set then the text at *Info* will be shown on the FUP page.

In the input field *simulation value* you can insert the start value for the simulation.

Dynamic Text Message

You have also the ability to program dynamic elements in a text message. Enter the dynamic part of the text as follows:

- Caret ^
- Name of the *Input* or of the *Display* A01
- Caret ^

e.g. s.^ A01^

Notice

Please regard that the dynamic part of the text message will be generated at the view. Thereby a text message should not contain actual values.

Following function is only available for the **COSMOS 3000 with Leitrechner**:

The screenshot shows a software window titled "Properties TEXT MESSAGE". It has several tabs: "General", "Info", "Telephone/Printer", "Preview", and "Help Text". The "Telephone/Printer" tab is selected. Inside this tab, there are two main sections. The first section is for "Telephone" and includes a "binary" row with 16 checkboxes (0-15) and a "hexadecimal" text field containing "0x0000". The second section is for "Printer" and also includes a "binary" row with 16 checkboxes (0-15) and a "hexadecimal" text field containing "0x0000". Below these sections, there are two more fields: "Attempts" with a value of "3" and "Execution mode" with a value of "1". At the bottom left of the window, the status bar displays the word "Ready".

Enter to which telephone number or to which printer the text message has to be transmitted.

Comment

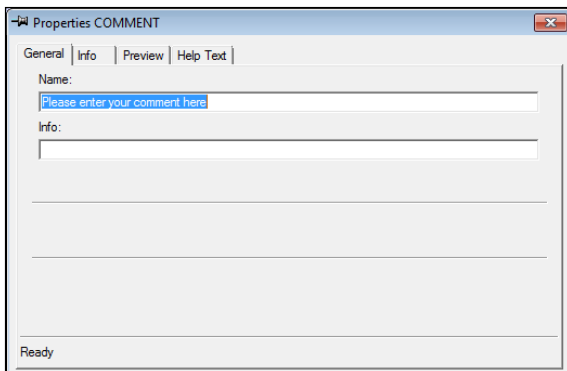
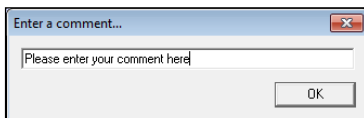
Please enter your comment here

This is a user defined editable text line to show a comment on the FUP page. If the comment begins with the ^-character, the comment will be displayed ½ grid pattern higher. With this option you can display a text direct to the top of a horizontal linking line.

Within a comment text fragments can be displayed. Therefore the text fragment has to be set between following characters %%.

Example The word %%bold%% will be displayed as **bold**.

When pasting a *Comment* you will be asked to enter the text of the comment.



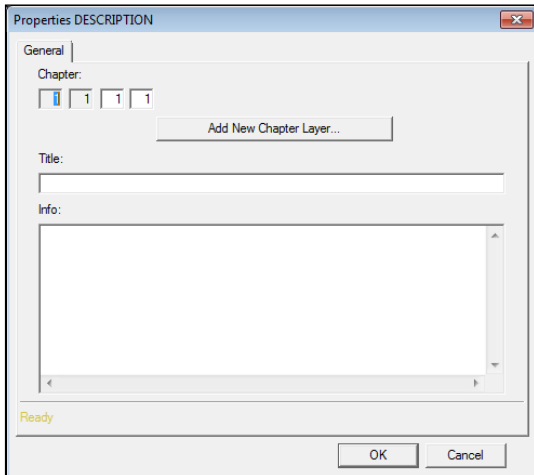
Enter the comment of the *Comment* into the field *Name*. The comment is displayed at the FUP-page.

Entries in the field *Info* will be displayed when staying over this FUP-element with the mouse.

Description

Notice Currently unsupported!

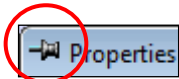
1.1.1.1



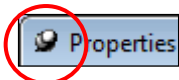
Properties Dialog

You can open the properties of an element by a double click on it. You can fix the properties window of the basic elements on the screen by dint of the needle at the left side of the headline. This is an advantage when you want to handle the properties of several elements and the window shall stay open.

To fix the window click at the needle, this changes its look thereupon. To deactivate this feature just do a second click on the needle.



Window will be closed on clicking on the FUP-page.



Window will **not** be closed on clicking on the FUP-page.

Tab - General

General information about the element (see section [Basic Elements and Modules \(Module Library\)](#))).

Name Name of the basic element or module.

Info If there is entered something into the field *Info* then it will be displayed if someone stays with the mouse over the element.

Show Infotext If the checkmark is set then this text will be shown on the FUP-page

Tab - Info

This tab provides general FUP information about the element (see section [Basic Elements and Modules \(Module Library\)](#)).

The information is adjusted to the different types of modules.

Type

Function-Part

X-Pos. x-position on the FUP page

Y-Pos. y-position on the FUP page

Var-Type Variable type (void, BIT, UI, ...)

Mod-Type

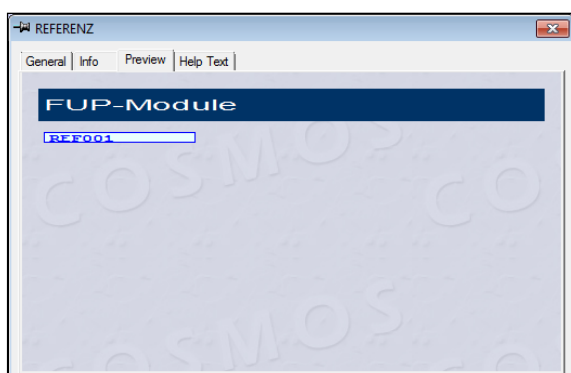
Mod-Type (internal)

Array

Address (Global/Local)

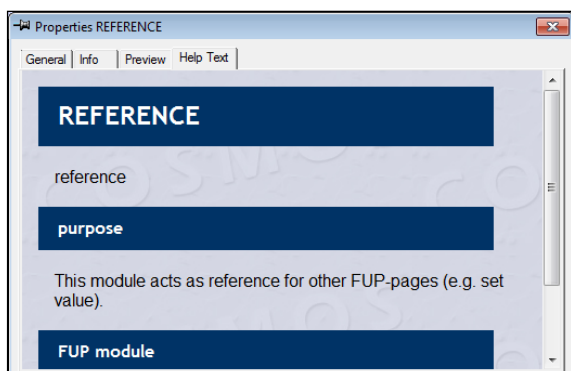
Error

Tab - Preview



This tab shows a preview of the visualization of the element on the FUP page.

Tab - Help Text



This tab shows the help text of the element/module.

Tab - BACnet

The tab BACnet will be shown for the basic elements *Display* and *Input*. The BACnet settings can be configured here (see chapter BACnet).

The screenshot shows a software window with a tabbed interface. The top tabs are 'Allgemein', 'Info', 'Vorschau', 'Hilfetext', and 'BACnet'. The 'BACnet' tab is selected. Inside this tab, there are two sub-tabs: 'Allgemein' and 'Properties'. The 'Properties' sub-tab is active. The configuration options include:

- BACnet aktivieren:** A text input field containing the value '0'.
- Object Type:** A dropdown menu currently showing 'Analog Value'.
- Checkboxes:**
 - ☐ Von BACnet beschreibbar
 - ☒ Intrinsic Reporting
 - ☒ Commandable
- Import Optionen:** A section containing two groups of settings:
 - Importebene (binär):** A row of 16 checkboxes labeled 15 down to 0. All are currently unchecked.
 - Importebene (hex):** A text input field containing the hexadecimal value '0xC00E'.

At the bottom left of the window, the status 'Bereit' is displayed.

HTML Page

General

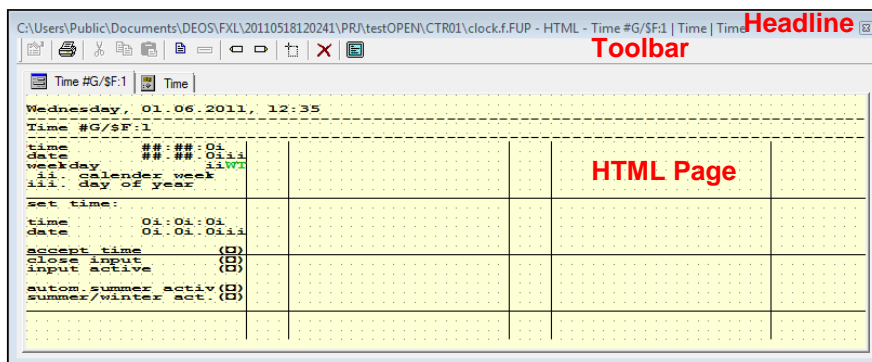
On creating an *Input* or a *Display* it is directly created a HTML-element at the current HTML-page. Here you can customize now the HTML-element to your requirements and to the requirements of the FUP-page.

The user is able to change the size of the HTML-page to any size. Move the mouse cursor to one edge of the HTML-window. The mouse cursor changes its look to a resize symbol. Now change the size to the wanted size.

A grid simplifies the handling of the elements. Positioning of the elements is done by the snap to grid function. This will ensure a fast and easy positioning.

Screen Layout

The HTML screen layout is organized in the category groups *Headline*, *Toolbar* and *HTML-page*.

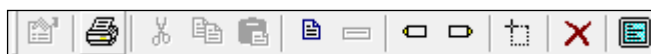


Headline

C:\Users\Public\Documents\DEOS\FXL\20110518120241\PRJ\testOPEN\CTR01\clock.f.FUP - HTML - Time #G/\$F:1 | Time | Time

The headline shows the path and title of the HTML page.

Toolbar



Properties

This button opens the property-window of the selected HTML-element



Print

This button opens the print-dialog of the standard printer. Besides you can change the properties as e.g. printing quality or paper format.

Notice The installation of the printer will be done in Windows



Cut

This button cuts all selected elements, i.e. all selected elements are copied to the clipboard and displayed grey at the page.

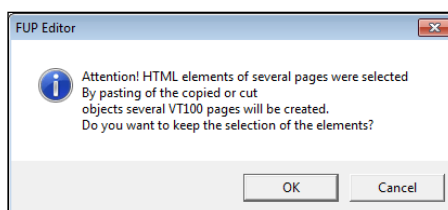
Notice This function can only be used in the same FUP-page and is used to move HTML-elements to other HTML-pages.



Copy

This button copies all selected elements to the clipboard.

Notice When copying HTML-elements, which are located at different HTML-pages, the following notice is displayed



If these HTML-elements are pasted later, they will be created on new HTML-pages.



Paste

This button pastes the clipboard to the HTML-page.

Notice New HTML-pages will be created when pasting HTML-elements, which were located at different HTML-elements.



Static text

This button creates a static text, which will be located at the HTML-page.



Title

You can enter the title of the HTML page here (see section [Function Parts](#)).



System view

This button creates a system view at the HTML page. Used to display system variables, which are not created at a FUP page. Enter the variable name at *Name* of the properties of the system view and customize the properties.



System input

This button creates a system input at the HTML page. Used to input system variables, which are not created at a FUP page. Enter the variable name at *Name* of the properties of the system input and customize the properties.



Original size

This button resets the HTML page to the original size



Delete page

deletes the current HTML page



Open TUP-Editor

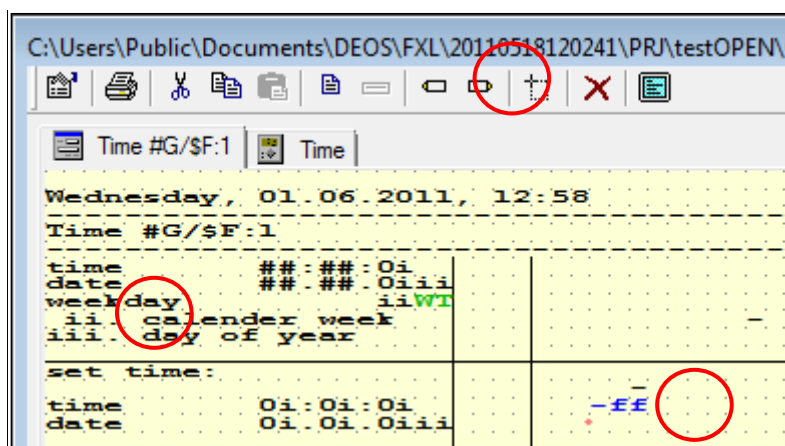
opens the TUP Editor (see section [TUP Editor](#))

HTML Elements

During creating an *Input* or a *Display* it is directly created a HTML-element at the current HTML-page. Additional you can create HTML-elements using the toolbar (see section [Toolbar](#)).

Pasting HTML Elements

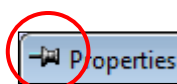
During creating an *Input* or a *Display* at the FUP-page it is directly created a HTML-element at the current HTML-page at the cursor. Here you can customize now the HTML-element to your requirements and to the requirements of the FUP-page. Additional you can paste a *static text*, a *system input* or a *system view* directly using the toolbar. The new element will be pasted at the cursor at the HTML-page.



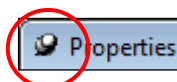
Properties Dialog

You can open the properties of an element by a double click on it. You can fix the properties window of the basic elements on the screen by dint of the needle at the left side of the headline. This is an advantage when you want to handle the properties of several elements and the window shall stay open.

To fix the window click at the needle, this changes its look thereupon. To deactivate this feature just do a second click on the needle.

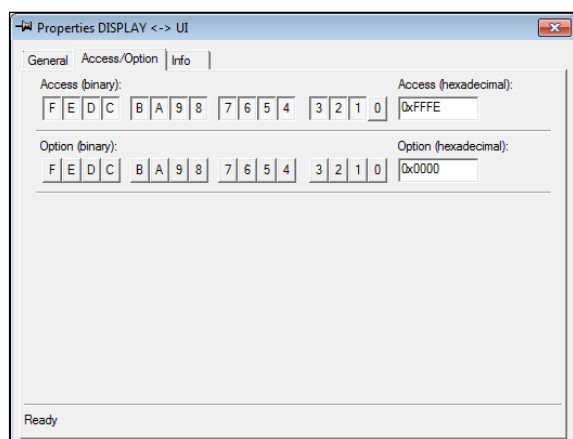


Window will be closed on clicking on the FUP-page.



Window will **not** be closed on clicking on the FUP-page.

Tab - Access / Option



Access

Each HTML-element of a HTML-page is parameterized by an access-template. The access-template can be edited by the *Properties* on the tab *Access/Option*. Open the properties by a double click at the HTML-element or by the context menu and select the tab *Access/Option*.

The access defines at which passwords the HTML-element will be displayed. Each bit of the access-template corresponds to one password. There is a password-template in the controller. Depending on the password one bit of the password-template is set. Only if the bit of the access-template and the bit of the password-template are set, the HTML-element will be displayed. The resulting empty lines will not be displayed at the FBG-display.

You can change the access by the buttons or directly by the input field *Access (hexadecimal)*.

In practice there are mainly 4 access-templates of the HTML-elements. These are the standard adjustments of the standard controller. Only if you follow this access-hierarchy, standard controller and open programmable controller have the same password hierarchy.

Always visible	FF	<div> <div>Access (binary):</div> <div> <div>F</div><div>E</div><div>D</div><div>C</div> <div>B</div><div>A</div><div>9</div><div>8</div> <div>7</div><div>6</div><div>5</div><div>4</div> <div>3</div><div>2</div><div>1</div><div>0</div> </div> <div>Access (hexadecimal):</div> <div>0xFFFF</div> </div>
Stupid caretaker	CE	<div> <div>Access (binary):</div> <div> <div>F</div><div>E</div><div>D</div><div>C</div> <div>B</div><div>A</div><div>9</div><div>8</div> <div>7</div><div>6</div><div>5</div><div>4</div> <div>3</div><div>2</div><div>1</div><div>0</div> </div> <div>Access (hexadecimal):</div> <div>0x00FF</div> </div>
Smart caretaker	CC	<div> <div>Access (binary):</div> <div> <div>F</div><div>E</div><div>D</div><div>C</div> <div>B</div><div>A</div><div>9</div><div>8</div> <div>7</div><div>6</div><div>5</div><div>4</div> <div>3</div><div>2</div><div>1</div><div>0</div> </div> <div>Access (hexadecimal):</div> <div>0x00CC</div> </div>
Service	C0	<div> <div>Access (binary):</div> <div> <div>F</div><div>E</div><div>D</div><div>C</div> <div>B</div><div>A</div><div>9</div><div>8</div> <div>7</div><div>6</div><div>5</div><div>4</div> <div>3</div><div>2</div><div>1</div><div>0</div> </div> <div>Access (hexadecimal):</div> <div>0x00C0</div> </div>

Notice

The access of the title results of the HTML-elements and the HTML-pages. They will be calculated during saving of the tree new.

Options

Each HTML-element of a HTML-page is parameterized by an option-template. The option-template can be edited by the *Properties* on the tab *Access/Option*. Open the properties by a double click at the HTML-element or by the context menu and select the tab *Access/Option*.

Options enable the dynamic fading in of HTML-elements in subject to calculation process value. HTML-elements with the option *00* will always be faded in subject to the access template and the password-template.

You can change the option by the buttons or directly by the input field *Option (hexadecimal)*.

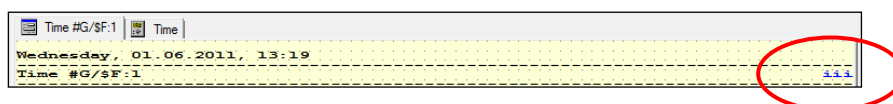
Each bit of the option-template corresponds to one option. You can set an option value at each HTML-page. Depending on the calculation process value the bits of the option value will be set. The HTML-element will be displayed only, if the adequate bit is set.

The resulting empty lines will not be displayed on the FBG-display.

To set an option value at a HTML-page you have paste the element *Display* at the end of the title line. Regard that the type in the property window is set to **UI**, the length to a minimum of **3**, the access to **00** and the option to **00**.

Notice

The *Display* has to be positioned to the end of the title line to identify the element as option value.



Tab - Info

General HTML information to the element

Number	internal consecutively number
Page	display of the HTML page number
Name in external graphic	the entered name is used in the graphic list for the HTML element
X-Pos	states the x-position of the element at the x-axis
Y-Pos	states the y-position of the element at the y-axis
Width	states the width of the element
Height	states the height of the element
Option	sets the element <i>Display</i> for the option at the end of the title line
Info text	this text will be displayed when staying with the mouse over an element

General

Here you can customize the HTML-element to your requirements and to the requirements of the FUP-page. Depending on the selected **type** the tab *General* alters.

The following properties of all types are equal.

Type	This combo box displays the current type. If required the type can be altered by the combo box.
Name	This is the name of the element.
Updating	DA permanent display; value is updated consistently EA input value EDA input and permanent display; ; value is updated consistently and can be entered
Bus	This is the controller name. If no name is entered, the current controller name is used (default)
Simulation value	Display of the simulation value.
Pre-text	Text which is displayed in front of the value.

Type: BIT

Properties DISPLAY <-> BIT

General

Access/Option

Info

Type:

Name:

Updating:

BIT

E04

EDA

Bus:

Simulation value

Pre-text:

Post-text:

Default value:

0

ASCII:

01

☒ Paranthesis

Ready

ASCII Here you can relate a BIT-status to an ASCII-character.

Brackets If the checkbox is set then the element will be visualized in brackets. This might increase the readability.

Examples:	ASCII	BIT-status	View at the HTML-page
01		0	(0)
		1	(1)
NJ		0	(N)
		1	(J)
TN		0	(T)
		1	(N)
TNUT		0	(T)
		1	(N)
		2	(U)
		3	(T)
01234567		0	(0)
		1	(1)
		2	(2)
		3	(3)
		4	(4)
		5	(5)
		6	(6)
		7	(7)

Type: SI

Type specification

TYPE	Name	Data range	View at the HTML-page
SI	Signed integer	-32768...32767	read value * factor + offset

Min This is the minimum value, which can be set. If the value is less than the set min. value, the display flashes

Max This is the maximum value, which can be set. If the value is greater than the set max. value, the display flashes

Factor displayed value = read value * **factor** + offset

Offset displayed value = read value * factor + **offset**

Pre-comma maximum number of characters in front of the comma

Post-comma maximum number of characters behind the comma

Display group of figures If this box is checked, it will be displayed a point every 3 characters to get a better readability

Pre-null In case the value of the displayed number is shorter than the value *pre-null*, the display will be filled with leading nulls.

Type: UI

Type specification

TYPE	Name	Data range	View at the HTML-page
UI	Unsigned integer	0..65535	value * factor + offset
Min	This is the minimum value, which can be set. If the value is less than the set min. value, the display flashes		
Max	This is the maximum value, which can be set. If the value is greater than the set max. value, the display flashes		
Factor	displayed value = read value * factor + offset		
Offset	displayed value = read value * factor + offset		
Pre-comma	maximum number of characters in front of the comma		
Post-comma	maximum number of characters behind the comma		
Display group of figures	If this box is checked, it will be displayed a point every 3 characters to get a better readability		
Pre-null	In case the value of the displayed number is shorter than the value <i>pre-null</i> , the display will be filled with leading nulls.		

Type: SLI

Notice COSMOS 500 can calculate with this value internally, but it cannot display the value.

Type specification

TYPE	Name	Data range	View in the BDF
SLI	Signed long integer	-2147483648...2147483647	Wert * Faktor + Offset

Min This is the minimum value, which can be set. If the value is less than the set min. value, the display flashes

Max This is the maximum value, which can be set. If the value is greater than the set max. value, the display flashes

Factor displayed value = read value * **factor** + offset

Offset displayed value = read value * factor + **offset**

Pre-comma maximum number of characters in front of the comma

Post-comma maximum number of characters behind the comma

Display group of figures If this box is checked, it will be displayed a point every 3 characters to get a better readability

Pre-null In case the value of the displayed number is shorter than the value *pre-null*, the display will be filled with leading nulls.

Type: ULI

Notice COSMOS 500 can calculate with this value internally, but it cannot display the value.

Type specification

TYPE	Name	Data range	View in the BDF
ULI	Unsigned long integer	0.. 4294967295	value * factor + offset
Min	This is the minimum value, which can be set. If the value is less than the set min. value, the display flashes		
Max	This is the maximum value, which can be set. If the value is greater than the set max. value, the display flashes		
Factor	displayed value = read value * factor + offset		
Offset	displayed value = read value * factor + offset		
Pre-comma	maximum number of characters in front of the comma		
Post-comma	maximum number of characters behind the comma		
Display group of figures	If this box is checked, it will be displayed a point every 3 characters to get a better readability		
Pre-null	In case the value of the displayed number is shorter than the value <i>pre-null</i> , the display will be filled with leading nulls.		

Type: FL

The screenshot shows a software dialog box titled "Properties DISPLAY <-> FL". It has three tabs: "General", "Access/Option", and "Info". The "General" tab is selected. Inside, there are several input fields and checkboxes. The "Type" dropdown is set to "FL". The "Name" field contains "E04". The "Updating" dropdown is set to "EDA". The "Bus" field is labeled "Simulation value". There are fields for "Pre-text" and "Post-text". The "Default value" is "0", "Min" is "-32768", and "Max" is "32767". The "Pre-comma" field contains "3" and the "Post-comma" field contains "0". At the bottom, there are two checkboxes: "Display group of figures" (unchecked) and "Pre-null" (unchecked). The status bar at the bottom left says "Ready".

Type specification

TYPE	Name	Data range	View in the BDF
FL	float	float numbers	4.0
Min			
		This is the minimum value, which can be set. If the value is less than the set min. value, the display flashes	
Max			
		This is the maximum value, which can be set. If the value is greater than the set max. value, the display flashes	
Pre-comma		maximum number of characters in front of the comma	
Post-comma		maximum number of characters behind the comma	
Display group of figures	group	If this box is checked, it will be displayed a point every 3 characters to get a better readability	
Pre-null		In case the value of the displayed number is shorter than the value <i>pre-null</i> , the display will be filled with leading nulls.	

Typ: ZUUHR

Type: ZUUHR

Type specification

TYPE	Name	Data range	View at the HTML-page	Read value (decimal)
ZUUHR	allocated clocks	ABCDEFGHIJKLMNOP	A	32768
			B	16384
			C	8192
			D	4096
			E	2048
			F	1024
			G	512
			H	256
			I	128
			J	64
			K	32
			L	16
			M	8
			N	4
			O	2
			P	1
			OP	3
			NP	5
		

ASCII Each character corresponds to a bit in a number of the type integer. If multiple ASCII-characters are stated, multiple bits will be set (see type specification).

Length This is the maximum number of editable ASCII characters.

Bit number The possible number of bits depends on the used controller type.

Type	COSMOS 500	OPEN EMS
Bit number 16	x	x

Brackets If the checkbox is set then the element will be visualized in brackets. This might increase the readability.

Type: TEXT

Properties DISPLAY <-> TEXT

General | Access/Option | Info

Type:TEXT

Name:E04

Updating:EDA

Bus:Simulation value

(-)

Pre-text:

Post-text:

Default value:

0

Length:

1

☒ Paranthesis

Ready

Type specification

TYPE	Name	Data range	View in the BDF	Read value (decimal)
TEXT	ASCII-values (rotated byte by byte!) Depending on the length it has to be read several addresses!	Length=6	HALLO	AH = 16712 LL = 19532 O = 8271
Length		This is the maximum number of editable ASCII characters.		
Brackets		If the checkbox is set then the element will be visualized in brackets. This might increase the readability.		

Type: TIME

Properties DISPLAY <-> TIME

General

Access/Option

Info

Type:

Name:

Updating:

TIME

E04

EDA

Bus:

Simulation value

Pre-text:

Format:

Post-text:

###

Default value:

0

Ready

Type specification

TYPE	Name	Data range	View in the BDF	Read value (decimal)	Value
TIME	Time	0..65535	00:01 01:00 12:00 24:00 --:--	1 100 1200 2400 > 32767	1 minute 60 minutes 740 minutes 1440 minutes Time not set

Format This shows the used time format.

Type: DATE

Properties DISPLAY <-> DATE

General

Access/Option

Info

Type:

Name:

Updating:

DATE

E04

EDA

Bus:

Simulation value

Pre-text:

Format:

Post-text:

###

Default value:

0

Ready

Type specification

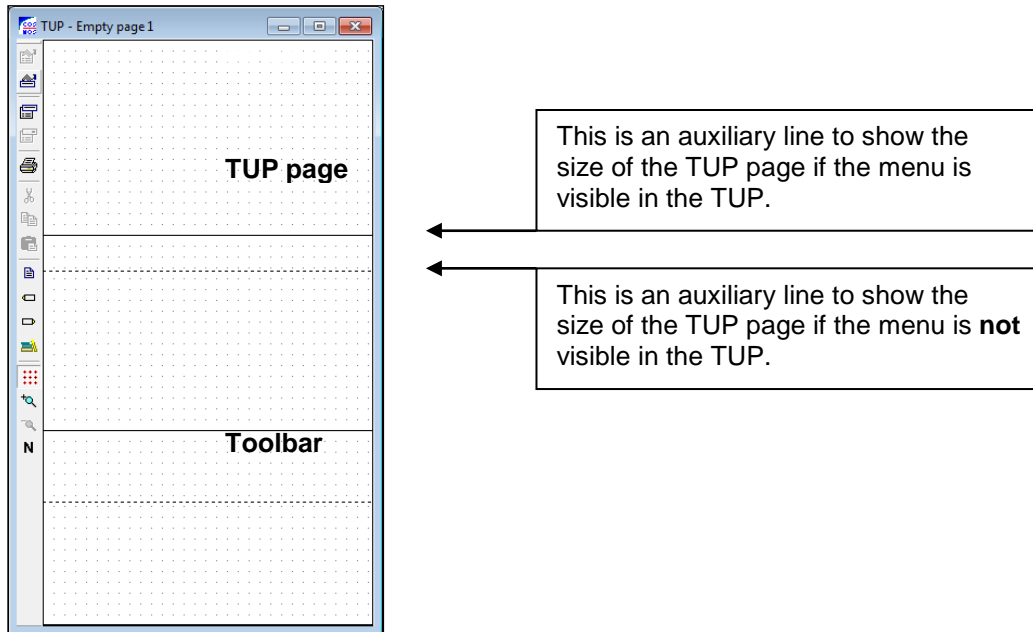
TYPE	Name	Data range	View in the BDF	Read value (decimal)	Value
Date	Date	0..65535	01.01	101	Date 1.1
			19.01	1901	Date 19.1
			12.10	1210	Date 12.10
			--:--	> 32767	Date not set

Format This shows the used time format.

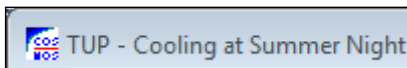
TUP Editor

The TUP Editor is used to create the pages on the TUP.

Screen Layout



Headline



The title of the FUP page will be shown here.

Toolbar



Properties

opens the properties dialog of the selected element

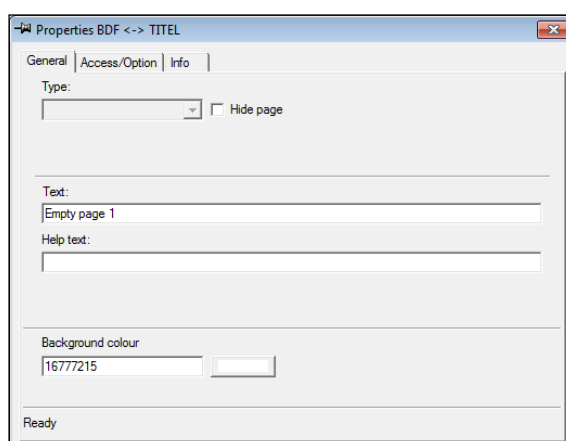


(un)select the title



Title-properties

opens the title properties of the TUP-page



Options-properties

opens the option properties



Print TUP-page

Opens the print-dialog of the standard printer. Besides you can change the properties as e.g. printing quality or paper format



Cut

cuts all selected elements, i.e. all selected elements are copied to the clipboard and displayed grey at the page



Copy

copies all selected elements to the clipboard



Paste

pastes the clipboard to the TUP-page



Static text

Static text, which will be located at the TUP-page.



System view

You can insert a new static text by a click on the button.
Creates a system view at the TUP-page. Used to display system variables, which are not created at a FUP-page. Enter the variable name at *Name* of the properties of the system view and customize the properties.



System input

Creates a system input at the TUP-page. Used to input system variables, which are not created at a FUP-page. Enter the variable name at *Name* of the properties of the system input and customize the properties.



TUP-Elements

calls the window *Paste TUP-Elements...*



Snap to grid

Enables/disables snap to grid function. If it is enabled, all elements are orientated at the grid.



Zoom in by one step

zooms in the display by one step



Zoom out by one step

zooms out the display by one step




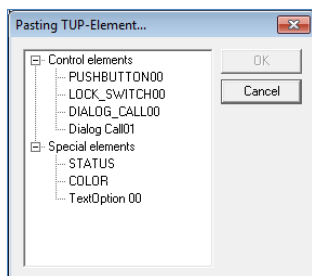
Regenerate page


Regenerates the page. Therefore all elements are deleted of the TUP-page and will be created new by dint of the HTML-page with the same number.

TUP-Elements

Pasting a TUP Element

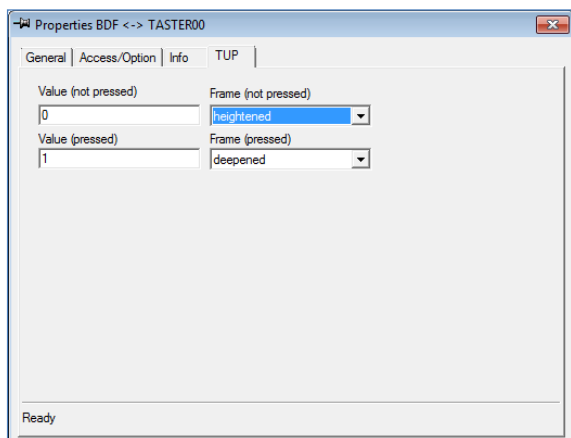
It is possible to insert various elements for creating a graphical visualization in the TUP. Therefore click the button *TUP-Elements* . The following dialog will show up from which you can select an element.



You can position this element on the TUP-screen and configure it by the button *Properties*  or by the context menu *Properties*.

Elements of the Group *Control Elements*

Type: Pushbutton00



Value (not pressed)

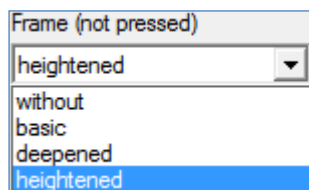
This value will be transmitted to the controller when the pushbutton is let off after pressing.

Value (pressed)

This value will be transmitted to the controller when the pushbutton is pressed.

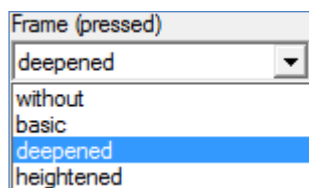
Frame (not pressed)

The pushbutton is drawn with this frame when it is not equal to the value, which is given at *Value (pressed)*, at the location it is linked to.

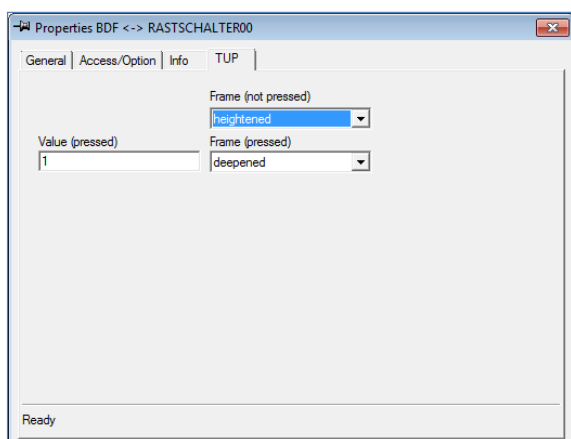


Frame (pressed)

The pushbutton is drawn with this frame when it is equal to the value, which is given at *Value (pressed)*, at the location it is linked to.



Type: LockSwitch00

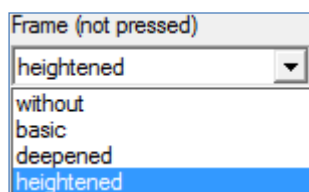


Value (pressed)

This value will be transmitted to the controller when the switch is pressed. In opposite to *Pushbuttonr00* it does not transmit a value to the controller on releasing the switch.

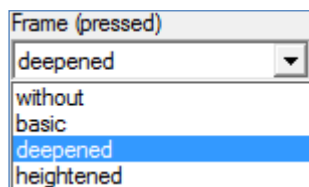
Frame (not pressed)

The lock-switch is drawn with this frame when it is not equal to the value, which is given at *Value (pressed)*, at the location it is linked to.

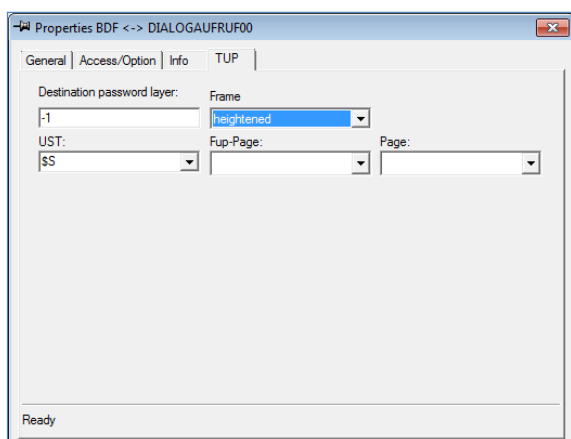


Frame (pressed)

The lock-switch is drawn with this frame when it is equal to the value, which is given at *Value (pressed)*, at the location it is linked to.



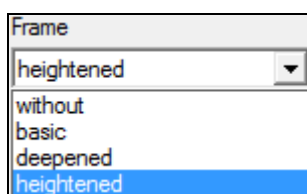
Type: DialogCall00



Destination password layer The new page will be called with this password layer

UST (CTRL) Here you have to set the controller for controller overlapping dialog calls which contains the page which should be called.

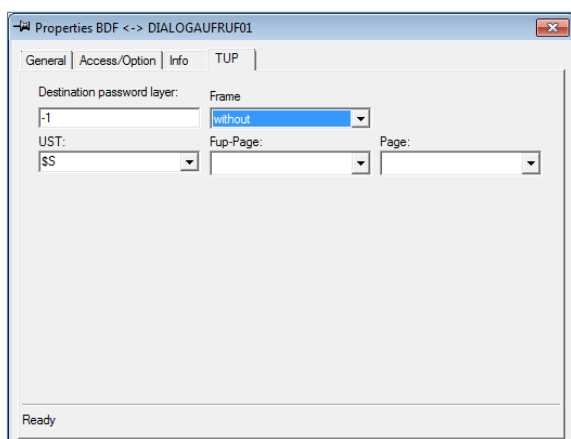
Frame The element will be displayed with this frame.



FUP page Here you have to set the FUP page containing the page which should be called.

Page Here you have to set the page number of the designated page.

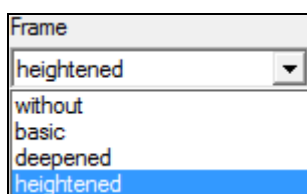
Type: DialogCall01



Destination password layer The new page will be called with this password layer

UST (CTRL) Here you have to set the controller for controller overlapping dialog calls which contains the page which should be called.

Frame The element will be displayed with this frame.

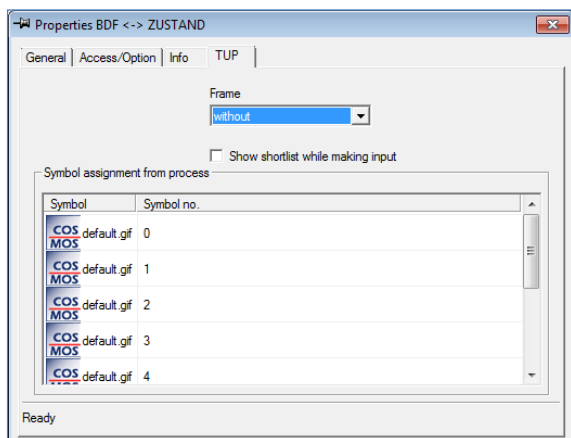


FUP page Here you have to set the FUP page containing the page which should be called.

Page Here you have to set the page number of the designated page.

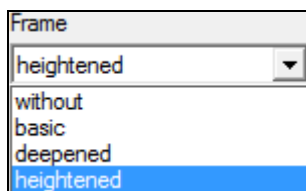
Elements of the Group *Special Elements*

Type: Status



Frame

The state is displayed with this frame.



Show shortlist while making input

If the check is set and the property *Update mode* is set to *EA* or *EDA*, a shortlist with the symbols is shown while making an input, so that the corresponding value can be selected by the symbol. If the check is not set, so the value is increased about one. When the value is higher than the last allocated symbol, than it will be set to 0.

Symbol assignment from process

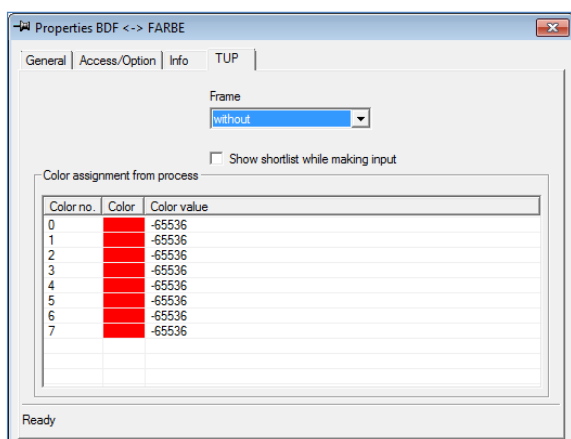
- Symbol

This column shows the selected symbol which has to be displayed.

- Symbol no.

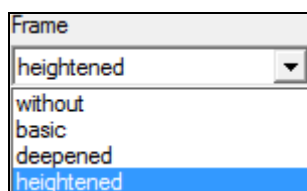
The corresponding symbol is displayed by this value.

Type: Color



Frame

The state is displayed with this frame.



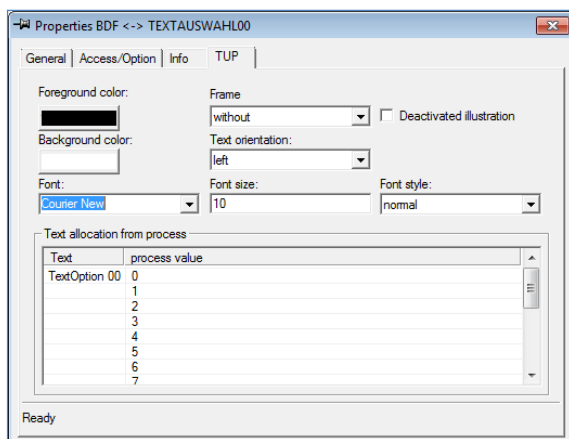
Show shortlist while making input

If the check is set and the property *Update mode* is set to *EA* or *EDA*, a shortlist with the symbols is shown while making an input, so that the corresponding value can be selected by the symbol. If the check is not set, so the value is increased about one. When the value is higher than the last allocated symbol, than it will be set to 0.

Color assignment from process

- **Color no.** The corresponding color is displayed by this value.
- **Color** This column shows the selected color which has to be displayed.
- **Color value** BGR-value of the color (dec.)

Type: TextOption00



Foreground color

Here you can select the color of the font by selecting a color in the pop-up window.

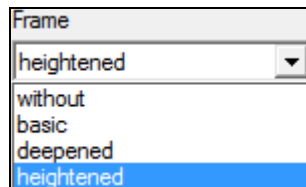


Background color

Here you can select the background color by selecting a color in the pop-up window.

Frame

The text will be displayed within the selected frame type.



Text orientation

Here you can define the text orientation (left, centered, right).

Font

Here you can select the font via drop-down menu.

Font size

Here you can configure the size of the font.

Font style

Here you can select the font style (normal, **bold**, *italic*, **bold and italic**).

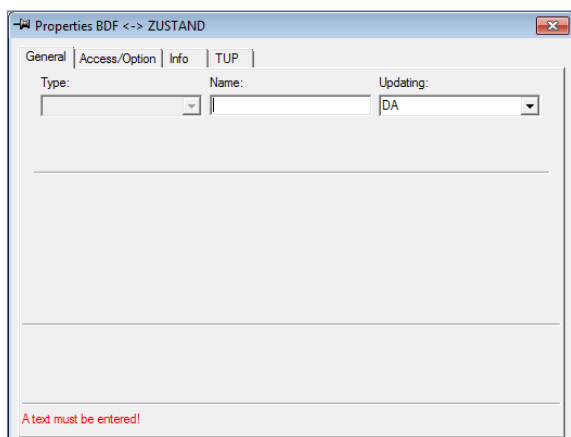
Deactivated illustration

Text assignment from process

- Text
- Process value

Properties Dialog

Tab - General

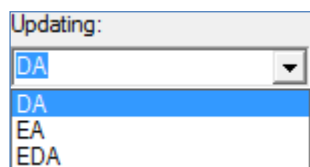


Type This field displays the current type. If required the type can be altered by the combo box. After changing the name you have to reopen this window

Name This field shows the current name of the element

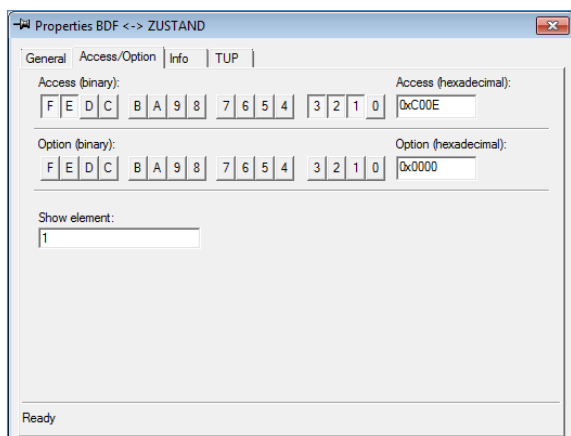
Update Mode

- DA* = permanent display; value is updated consistently
- EA* = input value
- EDA* = input and permanent display; value is updated consistently and can be entered



This tab of TUP element types matches the functionality of the tab *General* on the HTML-pages.

Tab - Access/Option



Access

See section [HTML Page >> Properties Dialog >> Access/Option >> Access](#)

Notice The access of the title results from the TUP elements of the TUP pages. They will be recalculated when saving the tree.

Option

See section [HTML Page >> Properties Dialog >> Access/Option >> Option](#)

Show Element

You can fade in/out dynamically a TUP element by means of the property *Show element*. If the value of the option *Show element* is equal to 1 then the element will be displayed permanently. If the value is equal to 0 then the element will never be displayed. If a label is entered at *Show element* then the element only will be displayed if the value of the address, to which the label refers, is not 0.

Otherwise using *Option* of this property will lead that it will not only be analyzed during loading this page, but it will be analyzed permanently during displaying this page.

Tab - Info

This tab shows general HTML information about this element.

Number	internal consecutively number
Page	display of the HTML-page number
Name in external graphic	the entered name is used in the graphic list for the HTML-element
X-Pos.	states the x-position of the element at the x-axis
Y-Pos.	states the y-position of the element at the y-axis
Width	states the width of the element
Height	states the height of the element
Option	sets the element <i>Display</i> for the option at the end of the title line
Info text	this text will be displayed when staying with the mouse over an element

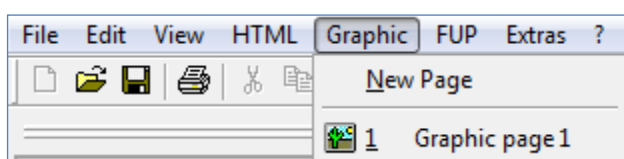
Tab - TUP

The properties on this tab differ according to the type of the element.

Graphic Editor

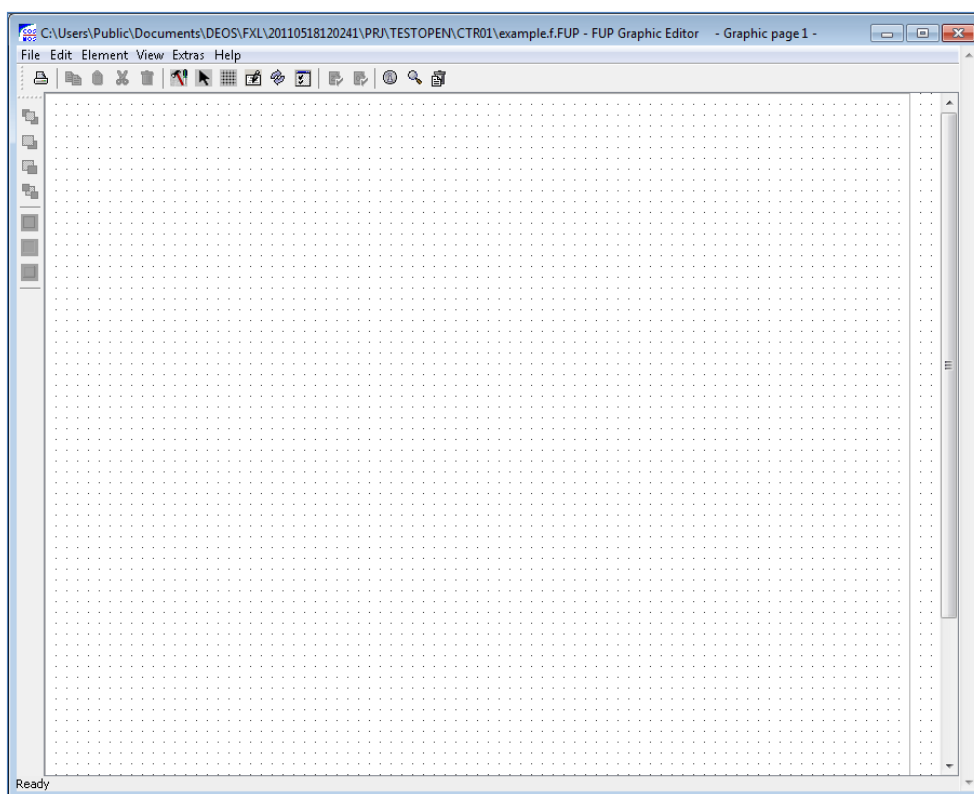
General

The graphic pages of the visualization are created at the FUP-Editor. The menu of the FUP-Editor contains the menu item *Graphic*. Here you can create a new graphic page by *New Page* or you can open an existing page for editing.



The number of graphic pages within a FUP-page is limited to **50** pages.

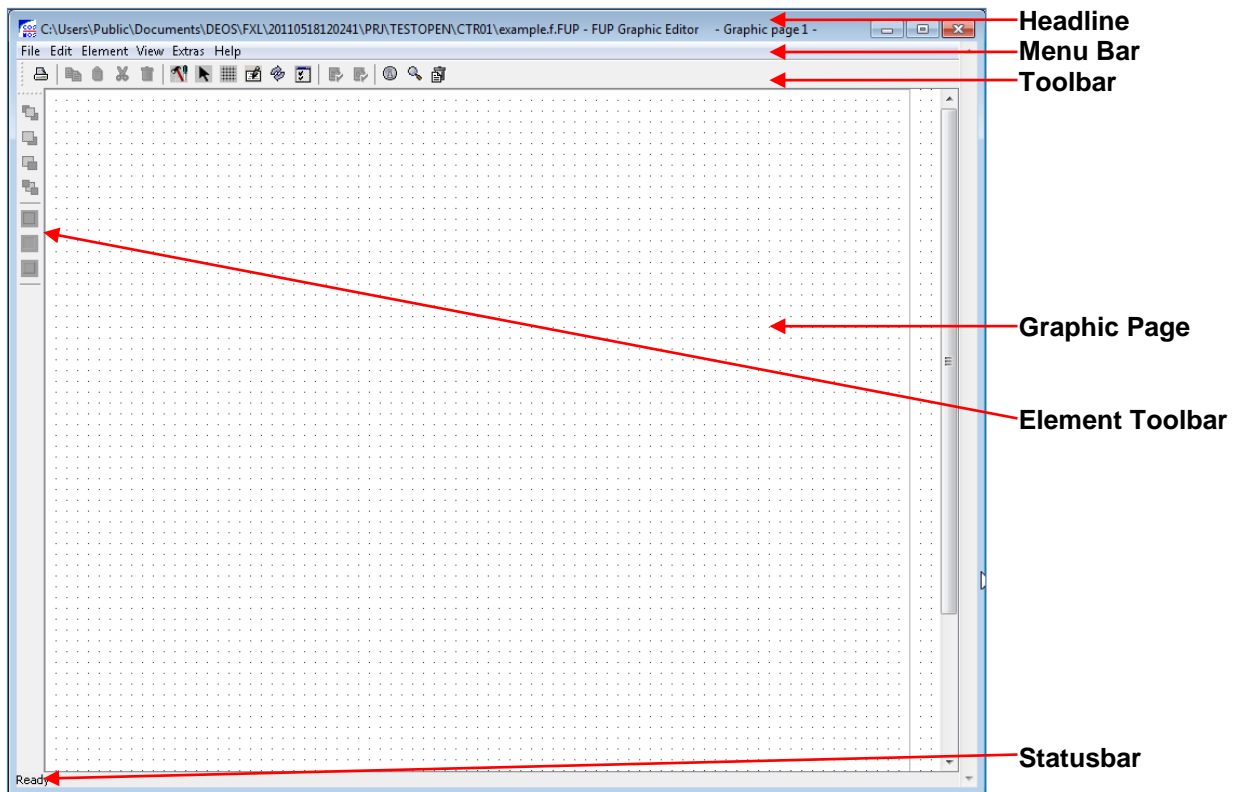
After a click on the desired graphic page the Graphic Editor starts and opens the graphic page:



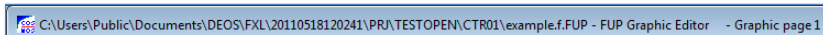
Notice The drawing area of the graphic page is specified in the HTML-configuration. Also you can specify the drawing area by *Extras - Title - Expanded* (see section [Title](#)).


Screen Layout

The screen layout of the Graphic Editor is organized in the category groups *Headline*, *Menu bar*, *Toolbar*, *Element toolbar* und *Graphic Page*.

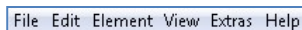


Headline

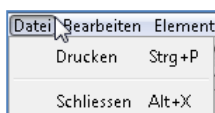


The headline shows the title and path of the graphic page. The title can be edited by dint of *Edit graphic page header* .

Menu Bar



File



Print

This menu point calls the print dialog to print the graphic page. Furthermore it is possible to set different properties like print quality.

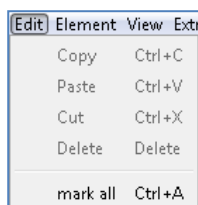
Shortcut [STRG] + [P]

Close

This menu point closes the Graphic Editor.

Shortcut [ALT] + [X]

Edit



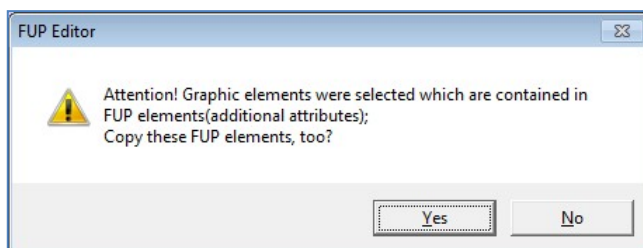
Copy

This menu point copies the selected graphic elements to the clipboard.

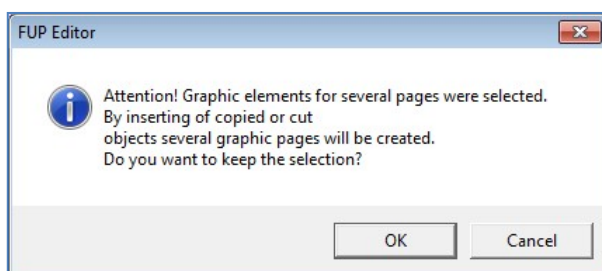
Shortcut [CTRL] + [C]

Notice

If the graphic elements are linked to a process then the following message will be displayed:



If copying graphic elements from different graphic pages the following message will be displayed:



Paste

This menu point pastes the graphic elements from the clipboard into the FUP-page

Shortcut [CTRL] + [V]

Notice If a graphic page is opened then the graphic elements will be pasted on it. If not then the graphic elements will be pasted on a new empty graphic page.

Cut

This menu point cuts all selected elements. Therefore all selected elements will be copied to the clipboard and removed from the graphic page.

Shortcut [CTRL] + [X]

Delete

This menu point deletes all selected elements.

Shortcut [Del]

Notice If an element is connected to FUP-elements then the FUP-elements will also be deleted.

Mark all

This menu point selects all elements on the page.

Shortcut [CTRL] + [A]

Element

Element	View	Extras	Help
Forward		Alt+Home	
One layer forward		Alt+Page Up	
One layer back		Alt+Page Down	
Backward		Alt+End	

Forward

This menu point brings the selected elements to the layer of the foreground.

Shortcut [ALT] + [Pos1]

One layer forward

This menu point brings the selected elements one layer towards the foreground.

Shortcut [ALT] + [Page up]

One layer back

This menu point brings the selected elements one layer towards the background.

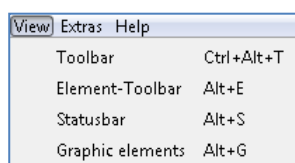
Shortcut [ALT] + [Page down]

Backward

This menu point brings the selected elements to the layer of the background.

Shortcut [ALT] + [End]

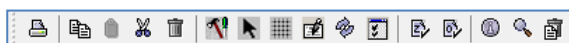
View



Toolbar

Shows / hides the toolbar (see chapter *Toolbar*).

Shortcut [CTRL] + [ALT] + [T]



Element-Toolbar

Shows / hides the element toolbar (see chapter *Element-Toolbar*).

Shortcut [ALT] + [E]



Statusbar

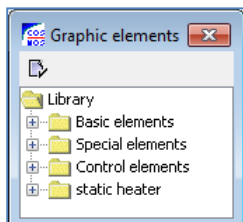
Shows / hides the statusbar (see chapter *Statusbar*).

Shortcut [ALT] + [S]

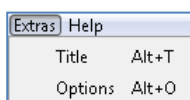
Graphic Elements

Shows / hides the graphic elements (see chapter *Graphic Elements*).

Shortcut [ALT] + [G]



Extras



Title

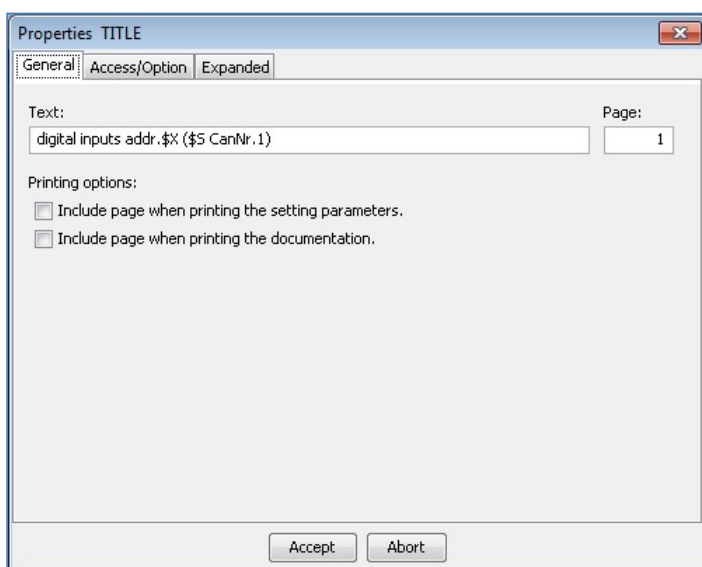
Opens the properties dialog title.

Shortcut [ALT] + [T]

It is possible to set the title of the graphic page, the size and the grid of the painting area.

Notice The grid is set to 10 pixels by default.

Tab - General



Text Please insert the title/name of the graphic page here.

Page Configuration of page number, deactivated

Include page when printing the settings parameters	This page will be recognized if the settings parameters are printed by the <i>OPENweb Tools</i> .
Include page when printing the documentation	This page will be recognized if the documentation is printed by the <i>OPENweb Tools</i> .

Tab - Option/Access

GeneralAccess/OptionExpanded

Access (binary):

FEDCBA9876543210

(hexadecimal)

0xCFFE

Option (binary):

FEDCBA9876543210

(hexadecimal)

0x000F

Access	Access for the simulation
Option	Currently no functionality

Tab - Expanded

GeneralAccess/OptionExpanded

Grid-points:
☒

Grid dimension X:
10

Display factor X:
1

Width project size
1280

Width of drawing area:
680

Grid-lines:
☐

Grid dimension Y:
10

Display factor Y:
1

Height project size
950

Height of drawing area:
580

Modal dialog:
☒

Apply project size

Grid-Points	If this check is set <input checked="" type="checkbox"/> then the grid points will be shown on the drawing area.
Grid-Lines	If this check is set <input checked="" type="checkbox"/> then the grid lines will be shown on the drawing area.
Grid dimension X	Notice Configured pixel value for the grid in horizontal direction.

- Grid dimension Y** Configured pixel value for the grid in vertical direction.
- Display factor X** The grid on the drawing area will be visualized by the following formula:
 $(grid\ dimension\ x) * (display\ factor\ x)$
- Display factor Y** **Notice**
 The grid on the drawing area will be visualized by the following formula:
 $(grid\ dimension\ y) * (display\ factor\ y)$
- Modal Dialog** **Notice**
 If this checkmark is not set ☐ then the size of the graphic page depends on values stated at "Width of drawing area" and "Height of drawing area".

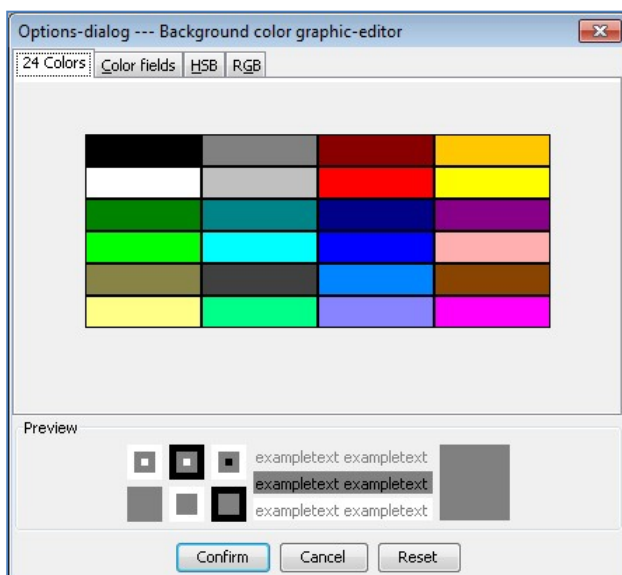
 If this checkmark is set ☒ then the size of the graphic page depends on the required space of all graphic elements. Thereby no additional frame is drawn around the graphic elements at runtime and graphic elements can only be moved within the graphic page at runtime.
- Width project size** Set width in the HTML-configuration.
- Height project size** Set height in the HTML-configuration.
- Width of drawing area** Width of the drawing area in pixels.

Options

This menu point opens the option dialog to configure the background colors of the graphic editor.

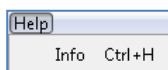
Shortcut [ALT] + [O]

It is possible to define the colors by different color selection methods (*24 Colors*, *Color fields*, *HSB*, *RGB*).



Please confirm the selection by a click on *Confirm*.

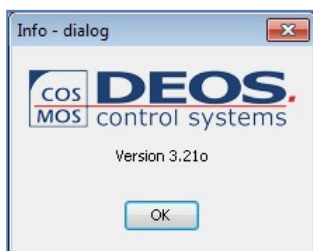
Help



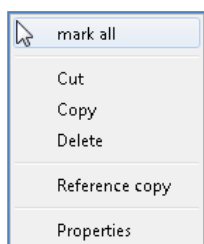
Info

This menu point opens a dialog containing information about the version of the FUP-Graphic-Editor.

Shortcut [STRG] + [H]



Context menu



Mark all This menu point selects all elements on the graphic page.

Cut This menu point removes all selected elements from the graphic page and copies them into the clipboard.

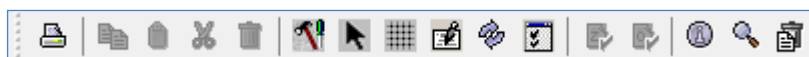
Copy This menu point copies all selected elements into the clipboard.

Delete This menu point removes the selected elements from the graphic page.

Reference copy This menu point performs a reference copy of the selected elements.

Properties This menu point opens the properties dialog of the selected elements.

Toolbar



Print

Opens the print-dialog of the standard printer. Besides you can change the properties as e.g. printing quality or paper format.

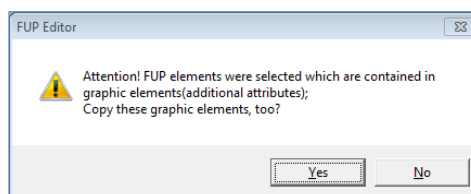
Notice The installation of the printer will be done in Windows



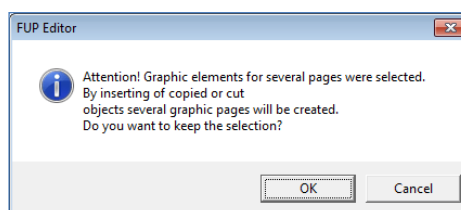
Copy

Copies all selected elements to the clipboard.

Notice If these graphic elements are concatenated to the process, following message is displayed:



Notice If copying graphic elements, which are located at different graphic pages, the following notice is displayed:



Paste

Pastes the clipboard to the graphic page.

Notice During pasting the graphic elements will be pasted at the currently opened graphic page. If it is opened no graphic page, the graphic elements will be pasted at a new graphic page. New graphic pages will be created when pasting graphic elements, which were located at different graphic elements.



Cut

Cuts all selected elements, i.e. all selected elements are copied to the clipboard and displayed grey at the page.



Delete

Deletes all selected graphic elements

Notice If the graphic element is linked to FUP elements then the FUP elements will be deleted as well.



Graphic elements

opens or closes the window *Graphic elements* depending on the active state



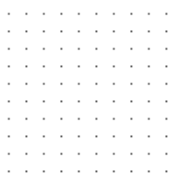
Select

pointer for selection

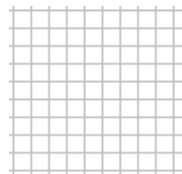


Grid

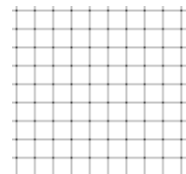
Switches between the four possible grid types consecutively. Besides a drawing area without a grid you can switch to one of the following:



Points



Lines



Lines with points

Notice The grid can also be set by the menu *Extras – Title* on the tab *Expanded*.



Show number

Switch consecutively between the following displaying types:

- displays the number at all elements
- displays a black frame at all elements
- displays the number and a black frame at all elements
- displays elements only



Refresh graphic page

All elements of the graphic page will be drawn new.



Edit graphic page header

Opens the title for editing.



Symbol assignment when no access is allowed

The symbols of the elements are displayed which are also displayed in OPENweb when the access is not allowed.



Symbol assignment, when no option is set

The symbols of the elements are displayed which are also displayed in OPENweb when the option is not set.



Info

Opens the INFO-dialog. Here it is shown the version number of the *Graphic Editor*.



Zoom

Switches on the *Magnifier*



Delete page

Deletes the complete currently displayed graphic page

Notice If graphic elements are concatenated to FUP-elements at the graphic page, the FUP-elements will also be deleted.

Element Toolbar

The *Element-Toolbar* is located at the left side of the Graphic-Editor. If it is not visible you can enable the *Element-Toolbar* by the menu *View – Element-Toolbar* or by the shortcut.

Shortcut [ALT] + [E]



By dint of this toolbar you can allocate attributes to the selected graphic-elements, without using the properties dialog.



Element into foreground

places the selected element at top level



Element, one level forward

places the selected element one level higher



Element, one level backward

places the selected element one level lower



Element into background

places the selected element at lowest level



Frame mode 1

simple black frame



Frame mode 2



deepened displayed frame



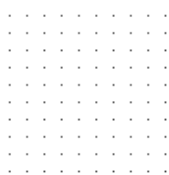
Frame mode 3

heightened displayed frame

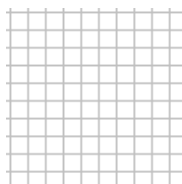
Grid

By dint of the symbol *Grid*  in the toolbar you can select the grid. The grid can also be set by *Edit graphic page header* . The grid simplifies the alignment of the graphic elements to create graphic elements of the same size. If the grid is enabled, new graphic-elements are pasted by the snap to grid function and the size is aligned to the grid. When moving the graphic-elements the elements are moved at the grid dimension and not adjusted to the grid. Thereby the positions of the elements to each other will not be changed. This is important when using the multiple selections of elements. If the size of a graphic-element is changed by the left mouse button and by dint of the *tracker*, the graphic-element positioned to the grid automatically. Also the size is aligned to the grid automatically. If the size of a graphic-element is changed by the property-dialog, the element will not snap to the grid. Also the size is not aligned to the grid. The set grid is saved individual for each graphic-page and is set when invoking the graphic page.

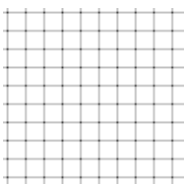
Points



Lines




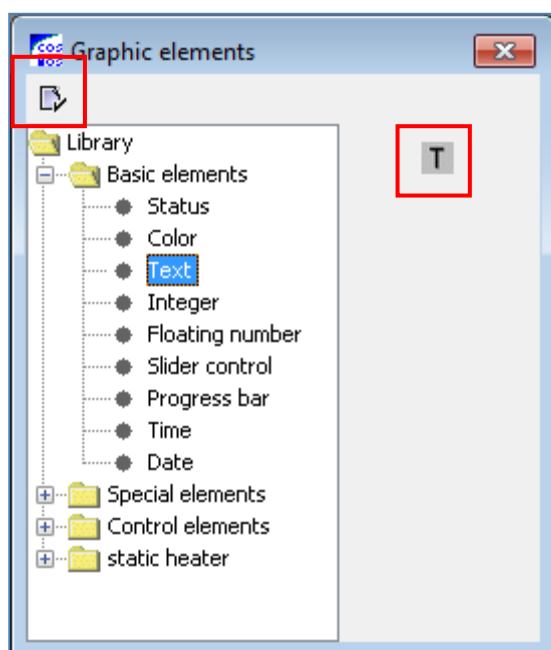
Lines with Points




Graphic elements

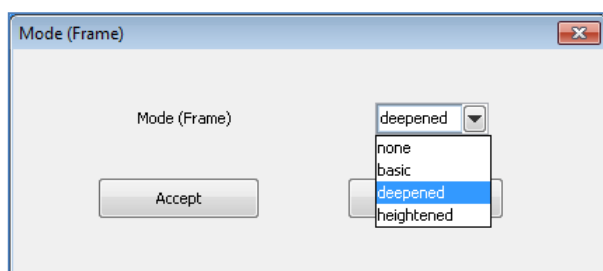
Notice Notice that graphic elements, like e.g. *Dialogcall01* or *LockSwitch00* have a transparent image. Thereby this graphic element can be placed in front of any graphic element, but it will not be displayed in the preview.

A preview of the graphic elements will be shown on the right side next to the *library* if the button  is clicked.




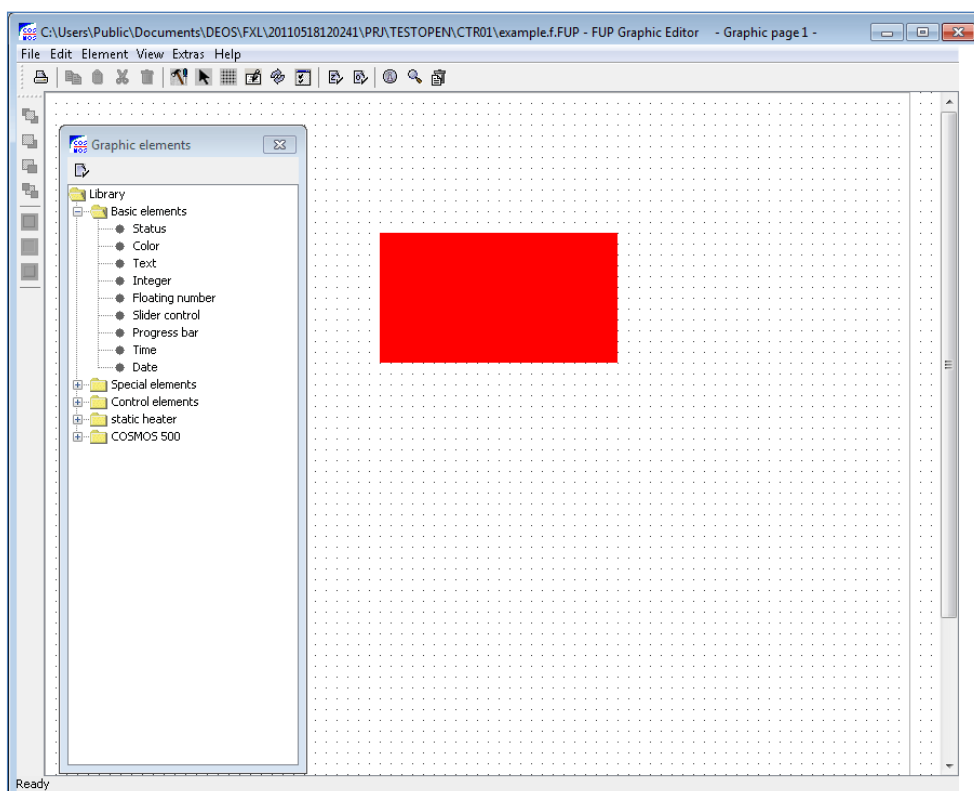
In the following chapter *Graphic elements descriptions* the single groups of graphic elements, including their descriptions of the corresponding menu points of the tab *Expanded*, are listed. Please click on the button  behind the corresponding menu point to open a new dialog in which it is possible to change the configuration.

Example menu point *Mode (Frame)*:




Create New Graphic Elements

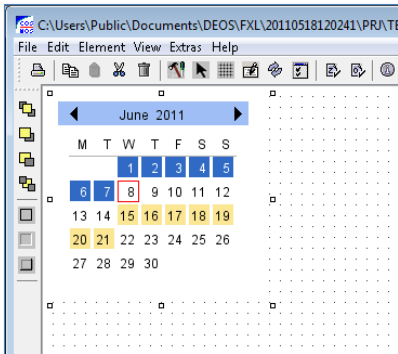
After selecting a graphic-element of the graphic-library the cursor is displayed as cross hairs at the graphic-page. Now draw a rectangle using the mouse in the designated size of the graphic-element. I.e.: Position the cross hairs to the top left edge of the graphic-element and press the left mouse button. Keeping the mouse button pressed draw a rectangle using the mouse to the lower right edge of the graphic-element. Now let off the mouse button and the graphic-element is created. If you will not create a new graphic-element, you have to select the *Select-mode*. **As long as the cursor is displayed as cross hairs the next mouse click will create a new graphic-element.** A click on the button  selects the *Select-mode*. The cursor changes from cross hair to arrow.



After creating a graphic-element at the graphic-page the *Select-mode* is enabled automatically. If a new graphic-element shall be created repeatedly, the graphic-element has to be selected again.

Selection of Graphic Elements

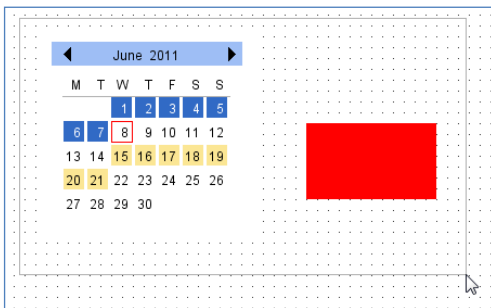
Select the graphic-element using the left mouse button. The graphic-element is displayed with 8 small rectangles around. These rectangles are named *trackers*. If the mouse cursor is over the graphic-element, the cursor is displayed as moving-symbol . This means that the graphic element is selected now.




Notice

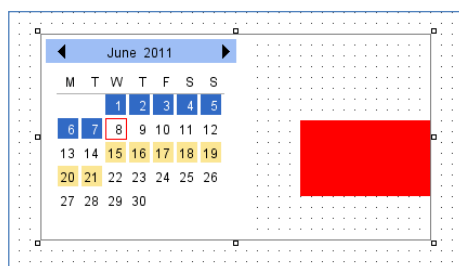
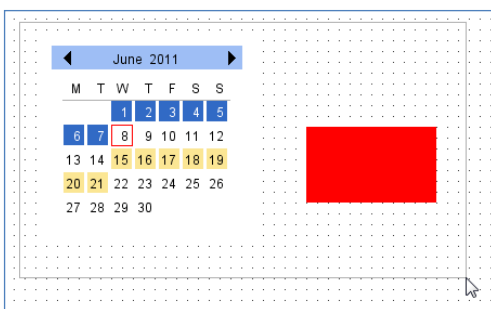
If it is selected a graphic-element which is concatenated to a FUP-element, the FUP-element is selected as well. If this FUP-element is concatenated multiple to graphic elements, all linked graphic-elements will be selected. This corresponds to a multiple selection and averts the moving of a single graphic element as all selected graphic elements will be moved. **This designated reaction will be prevented by pressing the *Alt*-key during the selection of the graphic-element.** Thereby a single graphic-element which is concatenated to other graphic-elements can be moved.

Multiple Selection via Left Mouse Button




Draw a frame round the graphic-elements by dint of the mouse, which have to be selected. Only the graphic-elements which are located inside of the frame are selected. A multiple selection of graphic-elements is possible if the starting point of the frame is not on a graphic element. The drawing of a frame causes in moving the selected graphic element in this case. The selected graphic-elements are displayed with 8 small rectangles around. These rectangles are named *trackers*. If the mouse cursor is over a graphic-element, the cursor is displayed as moving-symbol . This means that the graphic element is selected now.

Group Selection



Draw a frame round the graphic-elements by dint of the mouse, which have to be selected and keep pressed the *Shift*-key. Only the graphic-elements which are located inside of the frame are selected. A multiple selection of graphic-elements is possible if the starting point of the frame is not on a graphic element. The drawing of a frame causes in moving the selected graphic element in this case. A rectangle is drawn around all selected graphic elements. The selected graphic-elements are displayed with 8 small rectangles around. These

rectangles are named *trackers*. If the mouse cursor is over a graphic-element, the cursor is displayed as moving-symbol . This means that the graphic element is selected now.

Deselection

A click on the left mouse button at the graphic-page deselects all selected elements. A mouse click at a selected graphic-element deselects all selected graphic-elements and selects the selected element.

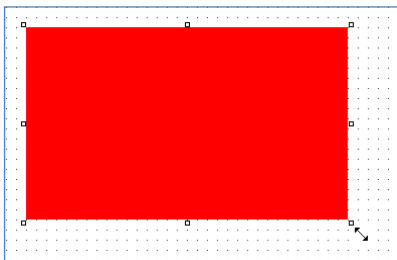
Positioning

Select the graphic-elements which have to be moved. Afterwards click the left mouse button at a selected element and keep pressed the button. Move the selected elements to the designated position. The single graphic-elements cannot be moved over the border of the graphic-page.

The graphic-elements can also be moved via the keyboard. Activate the graphic-page by selecting the designated graphic-element. Using the cursor-keys all selected elements will be moved.

Notice If it is selected a graphic-element which is concatenated to a FUP-element, the FUP-element is only selected as well when the *Alt*-button is pressed while selecting. If this FUP-element is concatenated multiple to graphic elements, all linked graphic-elements will be selected. This corresponds to a multiple selection and averts the moving of a single graphic element as all selected graphic elements will be moved. Thereby a single graphic-element which is concatenated to other graphic-elements can be moved.

Change Size



By dint of the trackers around a selected element a graphic-element can be scaled up or down to all sides using the mouse. A proportional scaling for all selected elements is possible by means of the group selection. Please notice that the single elements are not fit to the grid after group selection.

Description of the *Graphic Elements*

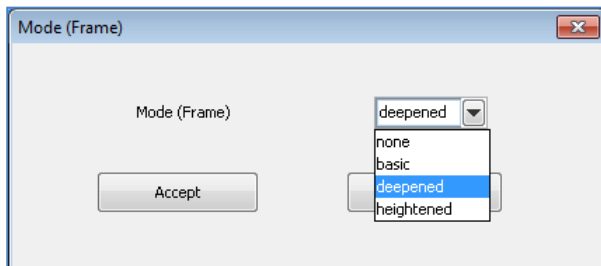
In the following subchapters the single graphic elements in their corresponding groups are described. All general properties are described in single chapters.

General Properties

Frame

Mode (Frame)

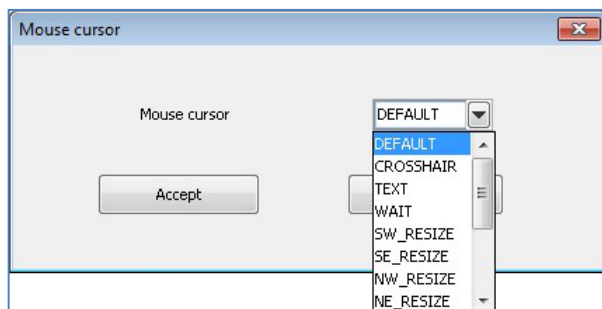
The frame visualization can be selected by *Mode (frame)*. By a click on the right button a dialog is opened which provides the following options:

















- none** without frame
- basic** simple black frame
- deepened** a frame which is visualized deepened
- heightened** a frame which is visualized heightened

Mouse cursor

It is possible to set the shape of the mouse cursor. The mouse cursor will be visualized online in the set shape if the mouse cursor is over the graphic element. Please select the desired shape by the drop down menu and confirm your selection by a click on *Accept*.

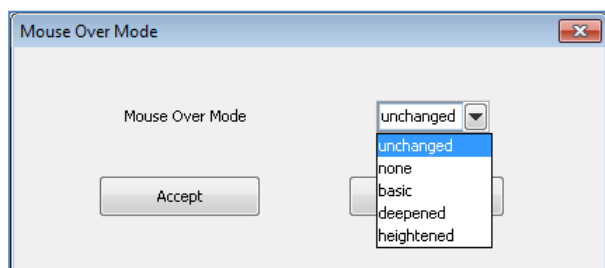


Options

	DEFAULT		SE_RESIZE		W_RESIZE
	CROSSHAIR		NW_RESIZE		E_RESIZE
	TEXT		NE_RESIZE		Hand
	WAIT		N_RESIZE		Move
	SW_RESIZE		S_RESIZE		

Mouse Over Mode

If the mouse stays over the element then the frame is shown which is selected here.

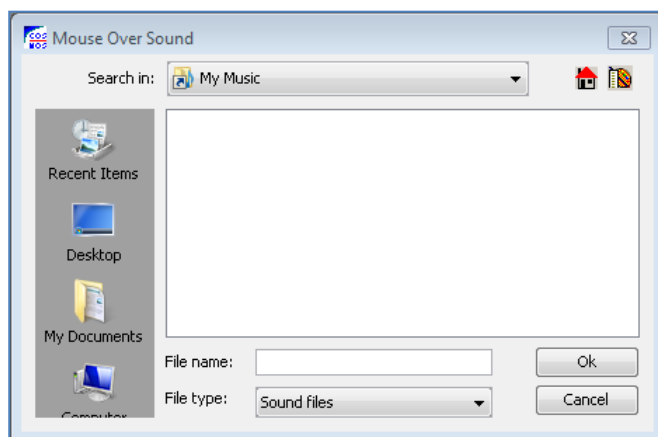


unchanged	unchanged frame
none	without frame
basic	simple black frame
deepened	a frame which is visualized deepened
heightened	a frame which is visualized heightened

Mouse Over Sound

This sound will be played if the mouse cursor is over the element. The following sound formats are supported: *.wav, *.au

It is possible to search on the computer for the desired sound file by the drop down menu.



Please confirm the selection by a click on *Ok*.

Log Message

If this option is enabled via dongle and the value is changed, then this log message will be written to the database.

Color Assignment

By the dialog *Color Assignment* it is possible to select a color.

The color assignments for the following properties can be configured:

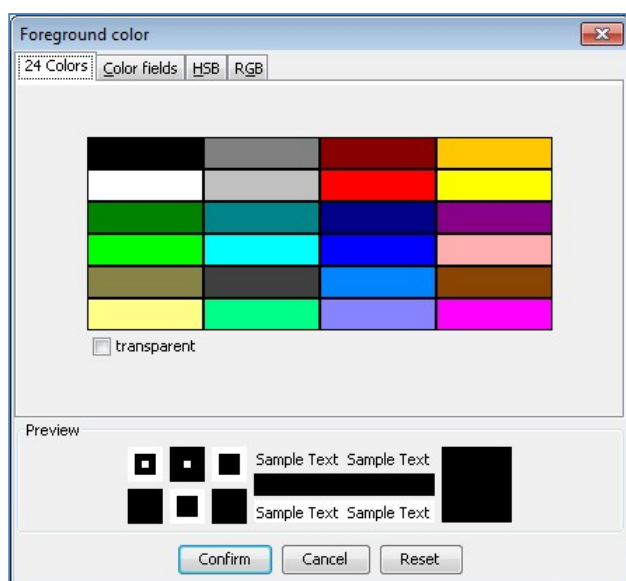
Color assignment if no access is allowed	If no other color value than 0 is configured and no access is allowed then this color will be shown.
Color assignment if no option is set	If this element is assigned to an option and no option is set in the controller and any other color value than 0 is set then this color will be shown.
Foreground color	Please set the foreground color of the text field here.
Background color	Please set the background color of the text field here.
Foreground flashing color	Color for the foreground while flashing.
Background flashing color	Color for the background while flashing.
Foreground color if value fell below Min	Please set the foreground color which should be shown if the set limit min value is underrun.
Background color if value fell below Min	Please set the background color which should be shown if the set limit min value is underrun.
Foreground color if Max value is exceeded	Please set the foreground color which should be shown if the set limit max value is exceeded.
Background color if Max value is exceeded	Please set the background color which should be shown if the set limit max value is exceeded.

In the upper part of the dialog you can select the color and in the lower part a preview of your select color is provided.

The upper part is divided into four tabs *24 Colors*, *Color fields*, *HSB* and *RGB*. In every tab different configurations of the color are possible.

In the lower part are the following buttons:

- Confirm** Your color choice will be applied.
- Cancel** Your color choice will not be applied and the current process will be aborted (the window closes).
- Reset** This button resets the color selection to the delivery status.



Hint You should only use the basic colors. If using other colors there might be problems or color distortions in the browser.

Symbol Assignment

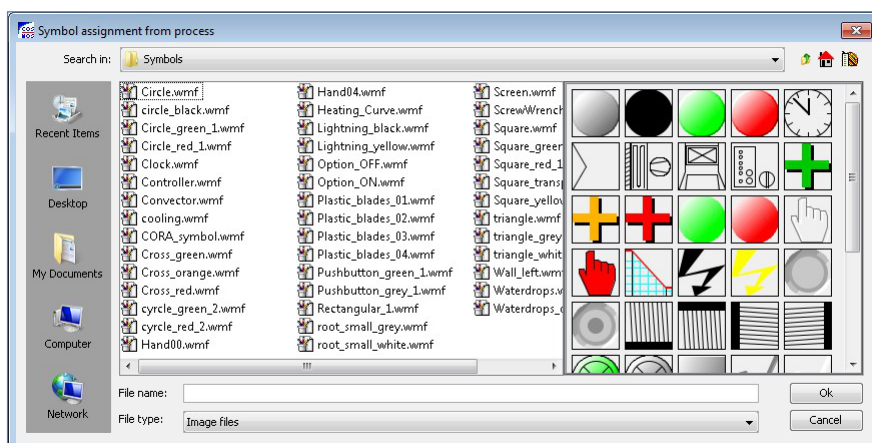
By the dialog *Symbol assignment* you can select pictures. Valid graphic formats are BMP, JPG, GIF and WMF.

The symbol assignments for the following properties can be configured:

Symbol assignment if access denied If any other picture is set than default.wmf and if no access is then the set picture will be shown.

Symbol assignment if no option is set If any other picture is set than default.wmf and if the element is assigned to an option and no option is set in the then the set picture will be shown.

By the drop down menu *Search in* it is possible to search on your hard disk or network drives for the desired image file.



Previous

Jumps to the previous directory.



Home

If this picture is selected then the picture will be copied to the controller. It shows also the currently in the controller deposited pictures.



Graphic Library

By this symbol a predefined directory will be opened. You should set the directory to your graphic directory. You can configure the directory in FUP XL at "Extras → Options → Directories" as "Graphic library directory".

On the left the files are listed and on the right a preview of the currently selected directory. Click on the file name or the preview picture to select the desired file. The name will appear in the input field "File name".

You confirm your selection by a click on OK.

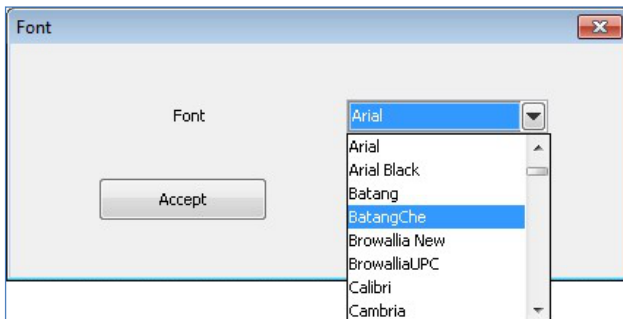
Font and Style

By the function font you are able to select a font for the selected property. The functions *Font Style*, *Font Size* and *Orientation* allow formatting the font.

Font

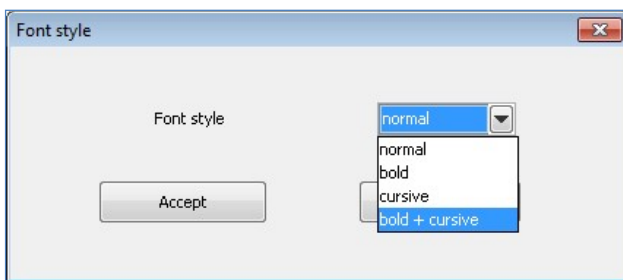
Select the desired font from the drop down menu and apply it by the button *Accept*. All fonts that are installed on your system will be shown.

Notice The font which you are selecting must be installed on the system where OPENweb and the Browser are running.



Font Style

Please select the desired font style from the drop down menu and apply it by the button *Accept*. You have the following options.



normal This option provides a normal font style

bold This option provides a bold font style

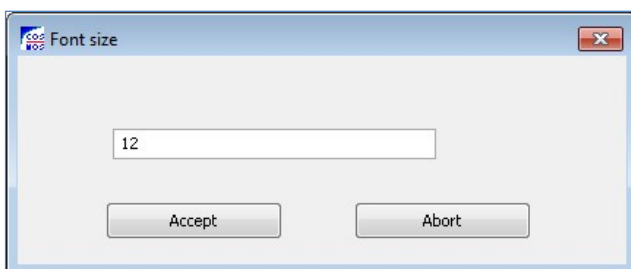
cursiv This option provides a cursive font style

bold + cursiv This option provides a bold and cursive font style

Font size

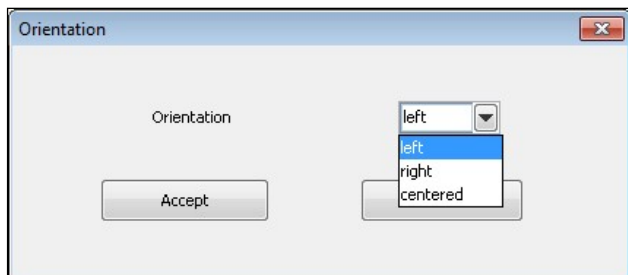
Please insert the desire font size

Information Only integers are valid.



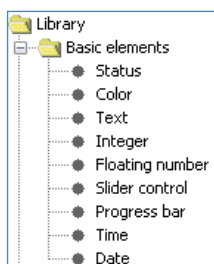
Orientation

Select the desired orientation of the text from the drop down box here.



left	The text is aligned to the left margin
right	The text is aligned to the right margin.
centered	The text is centered.

Graphic elements of the group *Basic Elements*

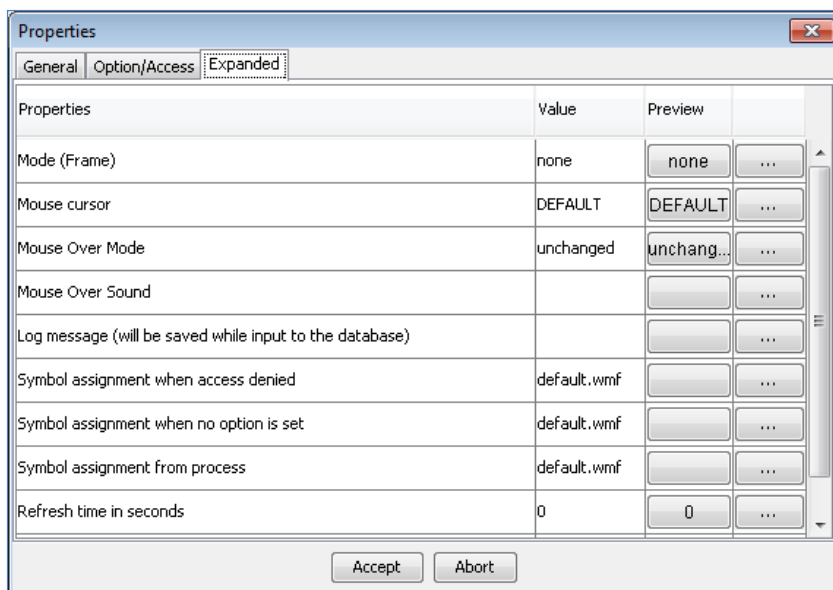


Type: Status

By the basic element *Status* it is possible to display symbols/images in dependency of the calculation process value. Thereby you can realize e.g. a color handling of a pump.

Supported formats: *.gif, *.bmp, *.jpg, *.wmf, *.png



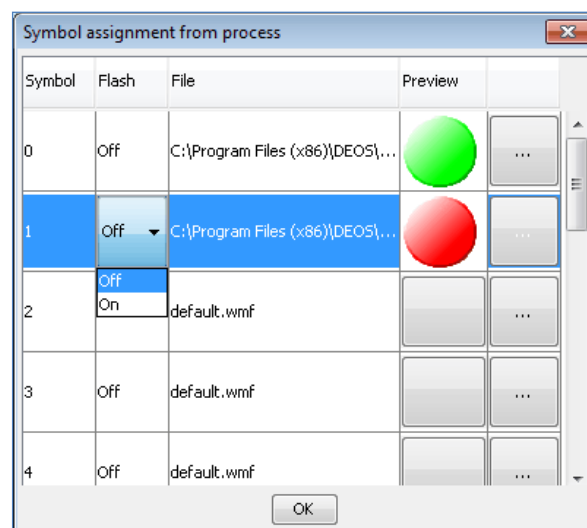


Symbol assignment from process

It is possible to assign one symbol/image per process value (0...15). Depending on the active process value the according image will be shown then.

To assign an image to the process value 0 click on the button on the right in row 0. The window to assign the symbol will open (see chapter [Symbol Assignment](#)).

The image assignment for the further process states is the same like it was for the process value 0. If the option *flash* is enabled then the image will be shown alternating with symbol 0 (Exception: Symbol 0 will alternate with symbol 1).



After finishing all assignments confirm with **OK**.

Refresh time in seconds

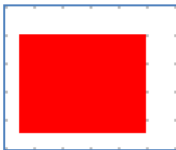
Refresh time is the time after which the symbol/image will be reloaded. This is only required for images which will change like a webcam.

Show selection list during input (0=No, 1=Yes)

If this attribute is 1 then a selection list will be shown. If this attribute is 0 then the value will be increased by 1 if it is an editable status and the next symbol will be shown. If the last symbol was shown then the value will be reset to 0.

Type: Color

It is possible to visualize a color which depends on a process value by using the basic element *Color*.



Properties	Value	Preview	
Mode (Frame)	none	none	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Color assignment when access denied	0		...
Color assignment when no option is set	0		...
Color assignment from process	-65536		...
Show selection list during input (0=No, 1=Yes)	0	0	...

Accept Abort

Color assignment from process

It is possible to assign one color per process value (0...15). Depending on the active process value the according color will be shown then.

To assign a color to the process value 0 click on the button on the right in row 0. The window to assign the color will open (see chapter [Color Assignment](#)).

The color assignment for the further process states is the same like it was for the process value 0. If the option *flash* is enabled then the color will be shown alternating with color 0 (Exception: Color 0 will alternate with color 1).

Color	Flash	Value	Preview	
0	Off	-65536		...
1	Off	-256		...
2	On	-16711936		...
3	Off	-4144960		...
4				...
5				...

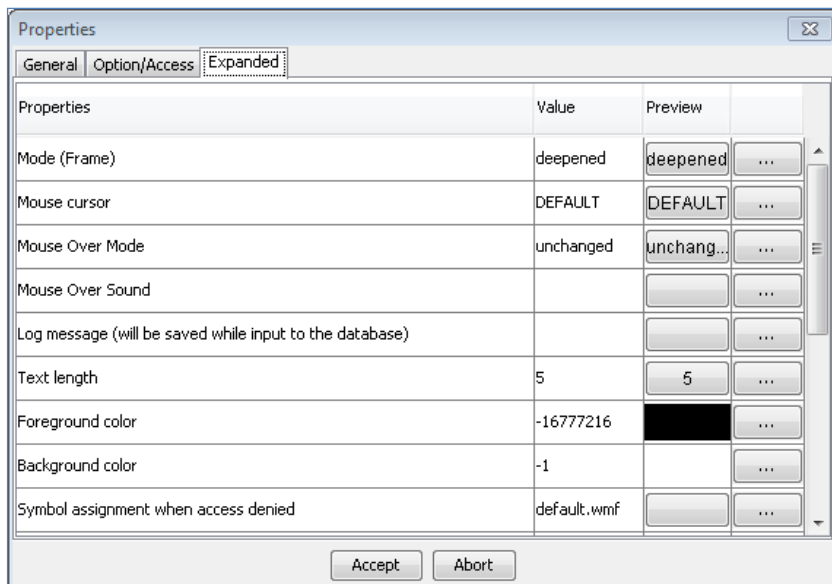
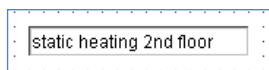
After finishing all assignments confirm with *OK*.

Show selection list during input (0=No, 1=Yes)

If this attribute is 1 then a selection list will be shown. If this attribute is 0 then the value will be increased by 1 if it is an editable status and the next symbol will be shown. If the last symbol was shown then the value will be reset to 0.

Type: Text

You can visualize texts by using the basic element *Text*.



Text length

Please configure the maximum length of the text (number of characters) here.

Disabled appearance (0=no, 1=yes)

You can visualize the element deactivated (it is possible to assign an address).

Flash (0=no, 1=yes)

If this value is not 0 then the element will be shown flashing. The flashing is realized in OPENweb as following:

Speed: 1 second on, 1 second off

Alternating visualization of the element in *foreground color* and *foreground flashing color*.

Alternating visualization of the background in *background color* and *background flashing color*.

Type: Integer

By the basic element *Integer* it is possible to visualize numbers with factor and offset.

Properties	Value	Preview	
Mode (Frame)	deepened	deepened	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Foreground color	-16777216		...
Background color	-1		...
Limit min value	0	0	...
Foreground color when value fell below Min	-16777216		...

Accept Abort

Limit min value Please insert the lowest valid value here. If this value is underrun then you can show it by a color change of the fore- and background color.

Limit max value Please insert the highest valid value here. If this value is exceeded then you can show it by a color change of the fore- and background color.

Factor Shown value = read value * **Factor** + Offset

Offset Shown value = read value * Factor + **Offset**

Number of positions before decimal point Number of position which should be shown in front of the decimal point.

Number of positions after decimal point Number of position which should be shown after the decimal point.

Pre-nulls Configure whether leading zeros should be shown or not (0=no, 1=yes)

Display Please select the visualization method of the numbers.

Decimal	Decimal visualization	e.g. 1,00
Hexadecimal	Hexadecimal visualization	e.g. AF
Binary	Binary visualization	e.g. 010
Octal	Octal visualization	e.g. 7

Disabled appearance (0=no, 1=yes) You can visualize the element deactivated (it is possible to assign an address).

Flash (0=no, 1=yes)

If this value is not 0 then the element will be shown flashing. The flashing is realized in OPENweb as following:

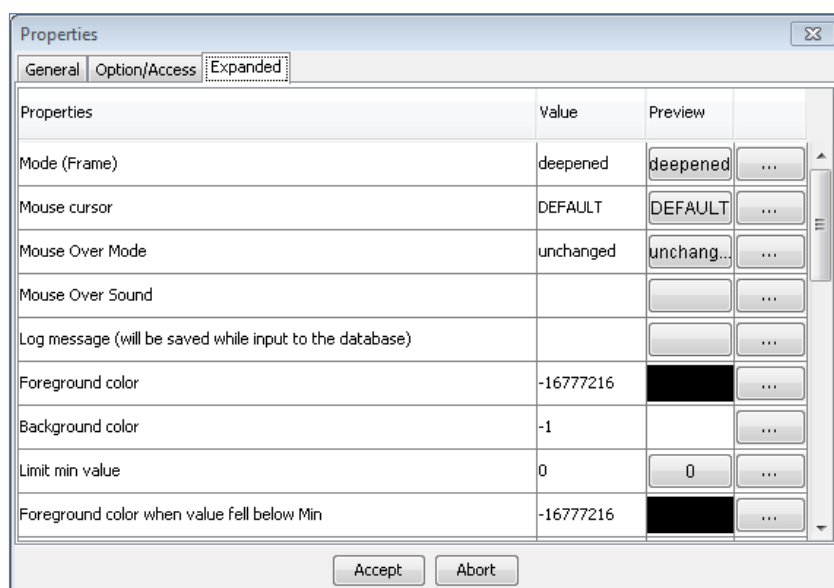
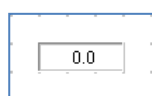
Speed: 1 second on, 1 second off

Alternating visualization of the element in *foreground color* and *foreground flashing color*.

Alternating visualization of the background in *background color* and *background flashing color*.

Type: Floating Number

By the basic element *Floating number* it is possible to visualize numbers with factor and offset.



Limit min value

Please insert the lowest valid value here. If this value is underrun then you can show it by a color change of the fore- and background color.

Limit max value

Please insert the highest valid value here. If this value is exceeded then you can show it by a color change of the fore- and background color.

Number of positions before decimal point

Number of position which should be shown in front of the decimal point.

Number of positions after decimal point

Number of position which should be shown after the decimal point.

Pre-nulls

Configure whether leading zeros should be shown or not (0=no, 1=yes)

Display

Please select the visualization method of the numbers.

Decimal	Decimal visualization	e.g. 1,00
Hexadecimal	Hexadecimal visualization	e.g. AF

Binary	Binary visualization	e.g. 010
Octal	Octal visualization	e.g. 7

Disabled appearance (0=no, 1=yes)

You can visualize the element deactivated (it is possible to assign an address).

Flash (0=no, 1=yes)

If this value is not 0 then the element will be shown flashing. The flashing is realized in OPENweb as following:

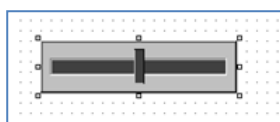
Speed: 1 second on, 1 second off

Alternating visualization of the element in *foreground color* and *foreground flashing color*.

Alternating visualization of the background in *background color* and *background flashing color*.

Type: Slider Control

It is possible to visualize a process value as slider by using the basic element *slider control*.



Properties

General Option/Access Expanded

Properties	Value	Preview	
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Start value of slider control	0	0	...
End value of slider control	100	100	...
Symbol assignment when access denied	default.wmf		...
Symbol assignment when no option is set	default.wmf		...
Foreground color	-12566464		...

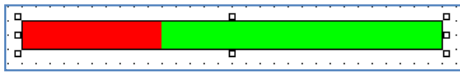
Accept Abort

Start value of slider control Please insert the start value of the slider control here.

End value of slider control Please insert the end value of the slider control here.

Type: Progress Bar

By the basic element *progress bar* it is possible to show a process value as progress bar.



Properties

General Option/Access Expanded

Properties	Value	Preview	
Mode (Frame)	none	none	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Foreground color	-65536		...
Background color	-16711936		...
Limit min value	0	0	...
Foreground color when value fell below Min	-65536		...

Accept Abort

Limit min value

Please insert the lowest valid value here. If this value is underrun then you can show it by a color change of the fore- and background color.

Limit max value

Please insert the highest valid value here. If this value is exceeded then you can show it by a color change of the fore- and background color.

Default value of the basic module

This value is for later extension. Currently the value will be ignored and only the values from the HTML-pages will be recognized.

Start value of progress bar

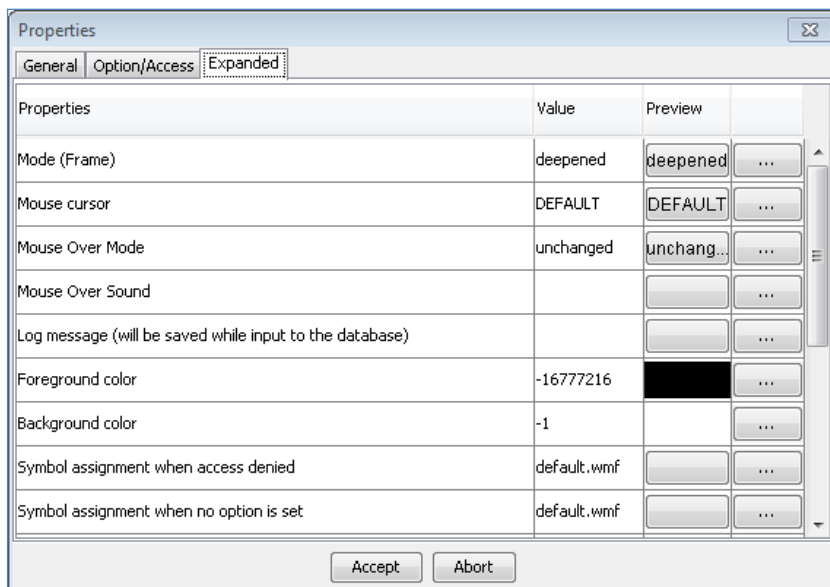
Please insert the start value of the progress bar here.

End value of progress bar

Please insert the end value of the progress bar here.

Type: Time

It is possible to show the time by the basic element *Time*.



Disabled appearance (0=no, 1=yes)

You can visualize the element deactivated (it is possible to assign an address).

Flash (0=no, 1=yes)

If this value is not 0 then the element will be shown flashing. The flashing is realized in OPENweb as following:

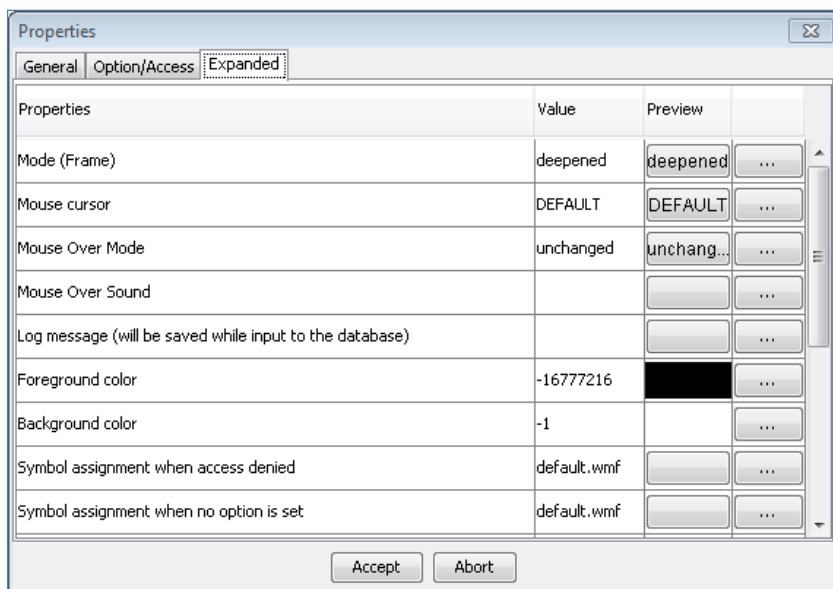
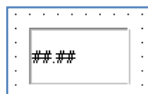
Speed: 1 second on, 1 second off

Alternating visualization of the element in *foreground color* and *foreground flashing color*.

Alternating visualization of the background in *background color* and *background flashing color*.

Type: Date

It is possible to show the date by the basic element *Date*.



Disabled appearance (0=no, 1=yes)

You can visualize the element deactivated (it is possible to assign an address).

Flash (0=no, 1=yes)

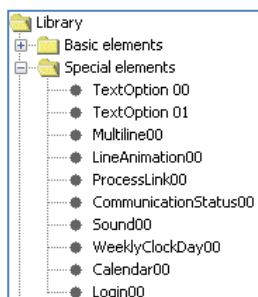
If this value is not 0 then the element will be shown flashing. The flashing is realized in OPENweb as following:

Speed: 1 second on, 1 second off

Alternating visualization of the element in *foreground color* and *foreground flashing color*.

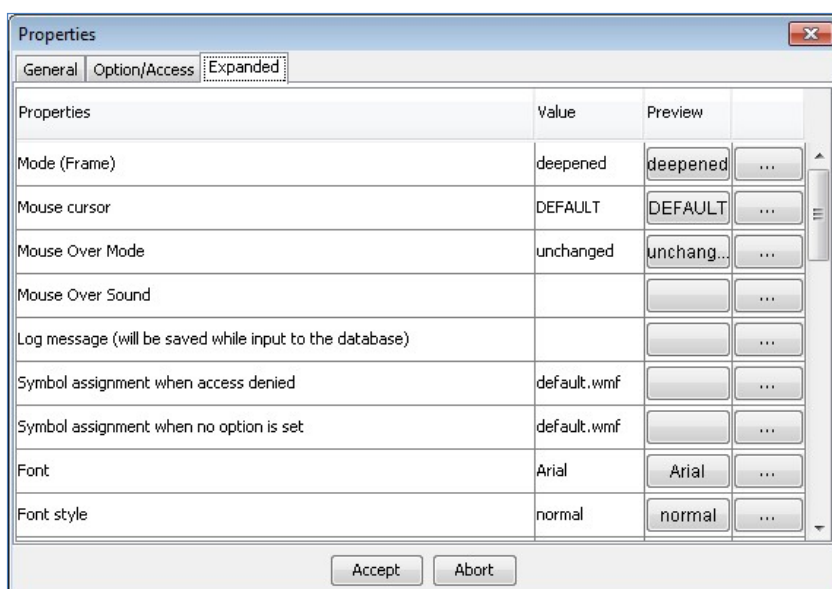
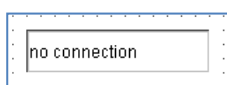
Alternating visualization of the background in *background color* and *background flashing color*.

Graphic elements of the group *Special Elements*



Type: TextOption00

You can visualize texts which depend on a process value by using the special element *TextOption00*.



Text 0..Text 15

It is possible to assign for every of the process value (0...15) a text. Dependent on the current process value the according text will be shown in the graphical visualization.

Disabled appearance (0=no, 1=yes)

You can visualize the element deactivated (it is possible to assign an address).

Flash (0=no, 1=yes)

If this value is not 0 then the element will be shown flashing. The flashing is realized in OPENweb as following:

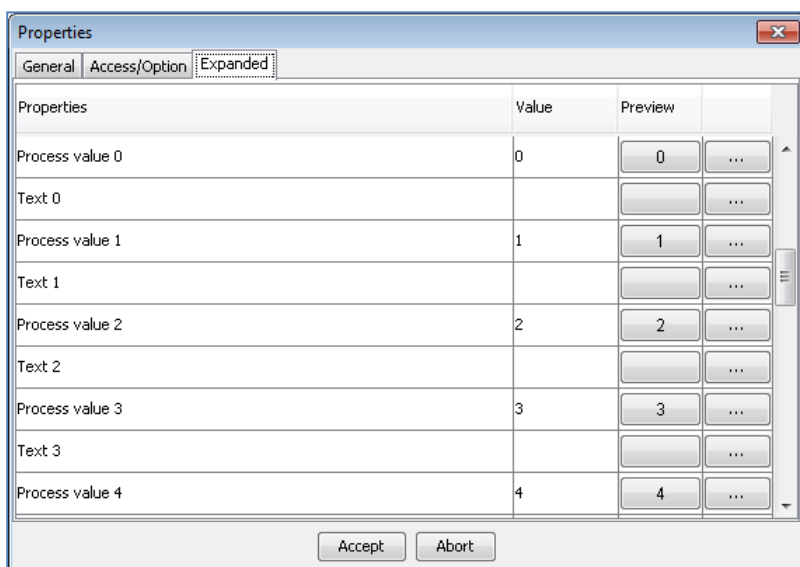
Speed: 1 second on, 1 second off

Alternating visualization of the element in *foreground color* and *foreground flashing color*.

Alternating visualization of the background in *background color* and *background flashing color*.

Type: TextOption01

Dependent on a process value a text will be visualized by the special element *TextOption01*. The process values can be freely parameterized (difference to *TextOption00*). Additionally a default text can be assigned in case that the process value does not match any of the assigned ones.



Process value 0 ... Assigned process value for each text.
Process value 15

Text 0..Text 15 It is possible to assign for every of the process value (0...15) a text. Dependent on the current process value the according text will be shown in the graphical visualization.

Standard text The default text is shown in case that the process value does not match any of the assigned ones

Disabled appearance (0=no, 1=yes) You can visualize the element deactivated (it is possible to assign an address).

Flash (0=no, 1=yes) If this value is not 0 then the element will be shown flashing. The flashing is realized in OPENweb as following:

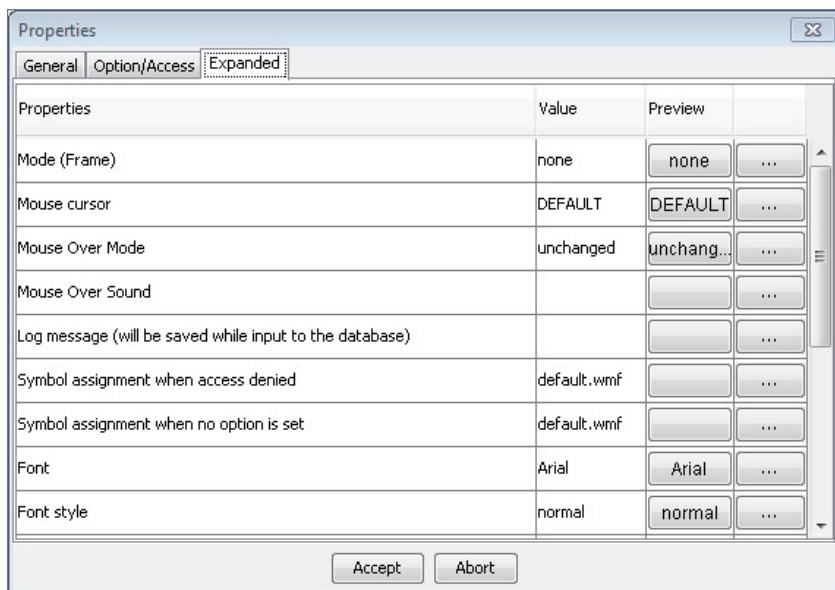
Speed: 1 second on, 1 second off

Alternating visualization of the element in *foreground color* and *foreground flashing color*.

Alternating visualization of the background in *background color* and *background flashing color*.

Type: Multiline00

By the module *Multiline00* a multiline text can be visualized which will be wrapped automatically.



Disabled appearance (0=no, 1=yes)

You can visualize the element deactivated (it is possible to assign an address).

Flash (0=no, 1=yes)

If this value is not 0 then the element will be shown flashing. The flashing is realized in OPENweb as following:

Speed: 1 second on, 1 second off

Alternating visualization of the element in *foreground color* and *foreground flashing color*.

Alternating visualization of the background in *background color* and *background flashing color*.

Type: LineAnimation00

By the special element *LineAnimation00* it is possible to draw lines with up to 16 fixed positions. These positions will be connected in straight line.

Properties	Value	Preview	
Mode (Frame)	none	none	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Symbol assignment when access denied	default.wmf		...
Symbol assignment when no option is set	default.wmf		...
Min-X	0	0	...
Max-X	100	100	...

Accept Abort

Min-X Lowest value on the x-axis

Max-X Highest value on the x-axis

Min-Y Lowest value on the y-axis

Max-Y Highest value on the y-axis

Line color Color of the line

Line width Width of the line (it is possible to assign an address)

X-Pos0...X-Pos15 X value of the fixed positions 0...15

Y-Pos0...Y-Pos15 Y value of the fixed positions 0...15

Type: ProcessLink00

By the special element *ProcessLink00* it is possible to show a process value depending symbol for up to 16 process values. The symbol with the highest number will be shown were the assigned process value is not null.



Properties

General Option/Access Expanded

Properties	Value	Preview	
Mode (Frame)	none	none	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Symbol assignment when access denied	default.wmf		...
Symbol assignment when no option is set	default.wmf		...
Process value 0	0	0	...
Symbol 0 (start image)	default.wmf		...

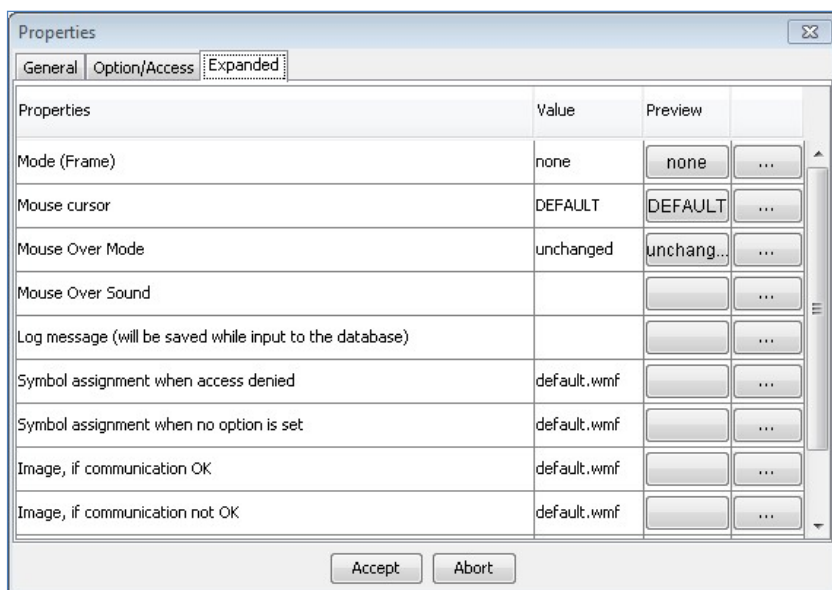
Accept Abort

Process value 0...15 Process value for the symbols 0...15

Symbol 0...15 Symbols 0...15. If all process values are null then the symbol 0 will be shown (Symbol 0 = start image).

Type: CommunicationStatus00

The status of the communication between client and OPENweb Server can be visualized by the special element *CommunicationStatus00*.



Image, if communication OK This image will be shown as long as the communication is OK.

Image, if communication not OK This image will be shown if the communication is no more OK.

Frame, if communication OK This frame will be shown as long as the communication is OK.

- 0 No frame
- 1 Simple black frame
- 2 Deepened frame
- 3 Heightened frame

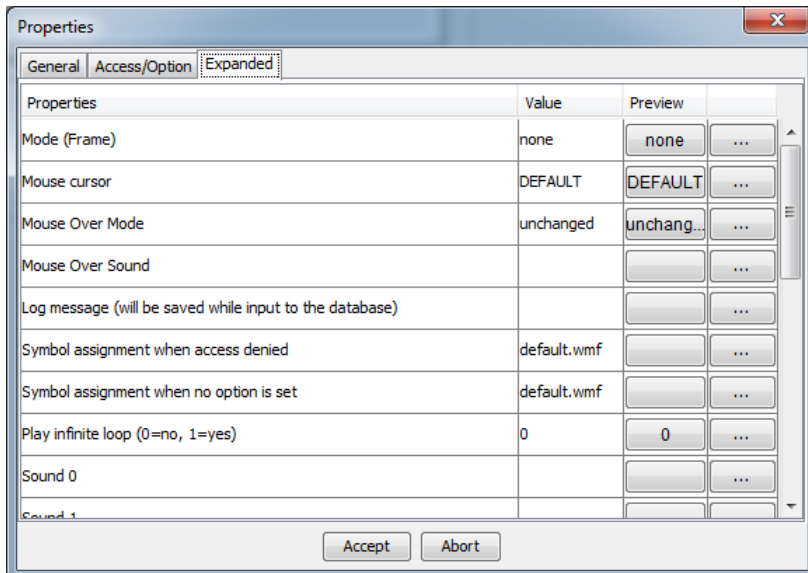
Frame, if communication not OK This frame will be shown if the communication is no more OK.

- 0 No frame
- 1 Simple black frame
- 2 Deepened frame
- 3 Heightened frame

Type: Sound00

By the module *Sound00* a sound is played dependent on a process value (at edge change), except if infinite loop is activated.

Supported sound formats: *.wav, *.au

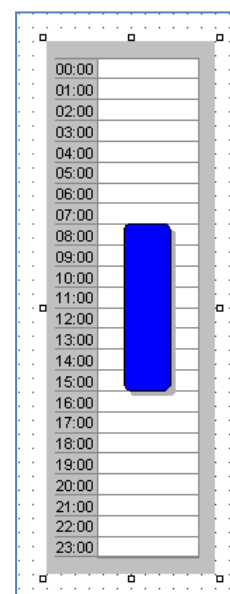
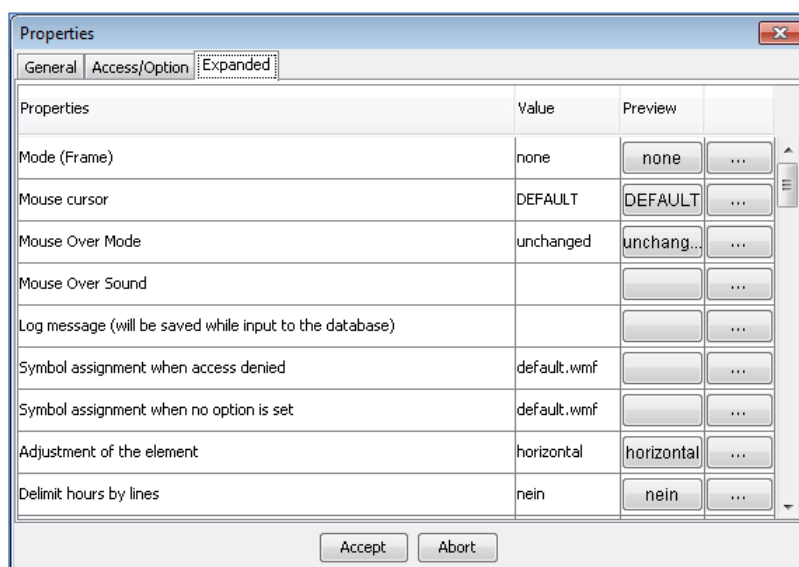


Play infinite loop Plays the sound in an infinite loop (0=no, 1=yes)

Sound 0...15 You can assign to each of the process values 0 ... 15 a sound file. The respective sound file of the active process value will be played then in the graphical visualization.

Type: WeeklyClockDay00

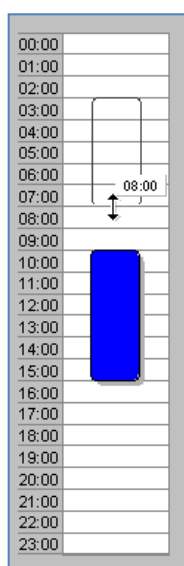
By the graphic object *WeeklyClockDay00* it is possible to visualize and parameterize the switch on and off point in time of a day in a bar diagram.



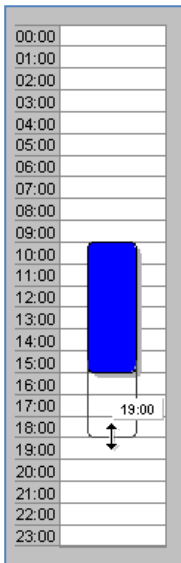
Adjustment of the element	vertical or horizontal
Delimit hours by lines	yes or no
Show times	Show the labeling of the hours
Text color	Please select the color of the font.
Bar color	Please select the color of the bar.
Color of the border	Please select the color of the border.
Background color of the time axis	Please select the color of the background of the time axis.
Round edges at the bar	Displays the edges of the bar rounded.
Shadow behind the bar	Paints a shadow behind the bar
Grid	Time grid (in minutes) in which times can be entered by the mouse.
1 ... 21 switch-on and –off points	It is possible to enter either constant values or links to a data point of the type "TIME".
Assigned clocks 1 and 2	16 Bit integers which determine which switch-on and –off points are valid. This assignment can also be done process value dependent. Bit 15 (decimal 32768) – switch-on and –off point 1 (or 17) ... Bit 0 (decimal 1) – switch-on and –off point 16 (or 32)

Usage:

An interval can be "painted" by a hold left mouse button. If this new interval overlaps with an existing interval then these two will be merged and saved as one entry.



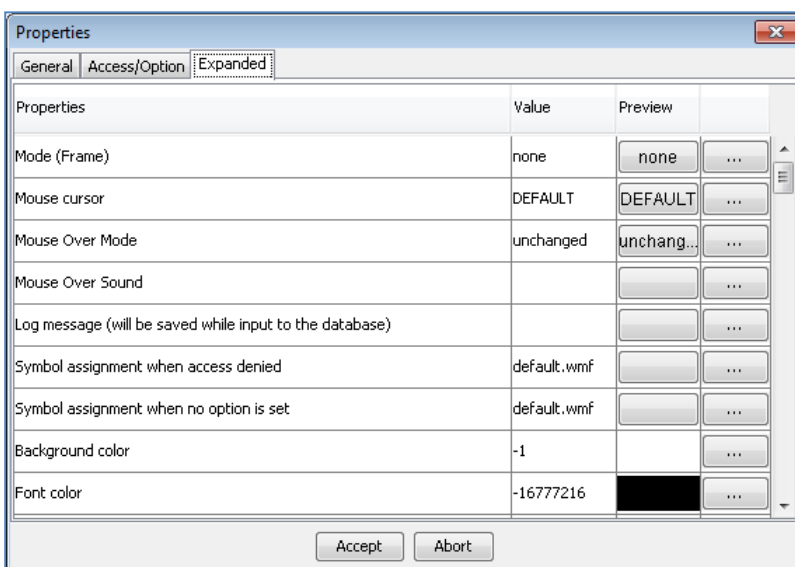
A present interval can be edited by clicking on one of the ends of the interval by the left mouse button and with hold left mouse button it is possible to change the position of the end.



The interval can be deleted by moving it to a length of 0 minutes. All changes at the switch-on and –off points will be written directly after releasing the mouse button.

Type: Calendar00

By the graphic object *Calendar00* it is possible to visualize and parameterize the switch on and off point in time (days). The design, font and number of simultaneously viewable months is freely adjustable in the graphic editor.



Font color	Color of all labels.
Header color	Color of the header.
Marker color	Color of a saved switch-on/ switch-off interval.
Selection color	Color of a new interval.
Marker color current day	Color of the frame of the current day.
First day of week	Sets the first day of a week in the visualization
Offset month	Normally the current month is on the top left in the calendar view. By the offset month it is possible to shift the displayed months by the positive or negative amount.
1 ... 21 switch-on and -off points	It is possible to enter either constant values or links to a data point of the type "TIME".
Assigned clocks 1 and 2	16 Bit integers which determine which switch-on and -off points are valid. This assignment can also be done process value dependent. Bit 15 (decimal 32768) – switch-on and -off point 1 (or 17) ... Bit 0 (decimal 1) – switch-on and -off point 16 (or 32)

Usage:

You can select single intervals by holding the left mouse button. A right click on such a selection shows the menu point to add the entry.



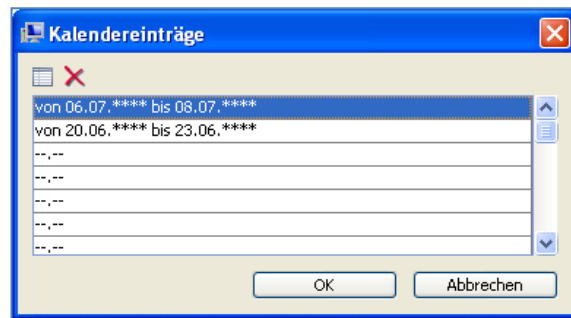
By a right click on an existing entry it is possible to delete it.



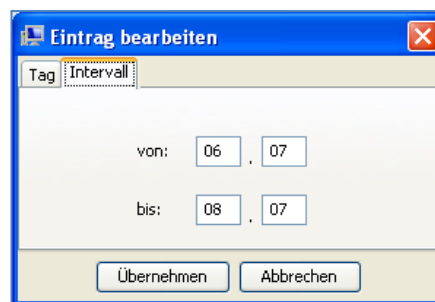
A right click on free space shows the menu point *Show list view* by which the data can be viewed and edited as a list.



By the mouse it is possible to select single entries. It can be removed from the list by the button *Delete entry*.



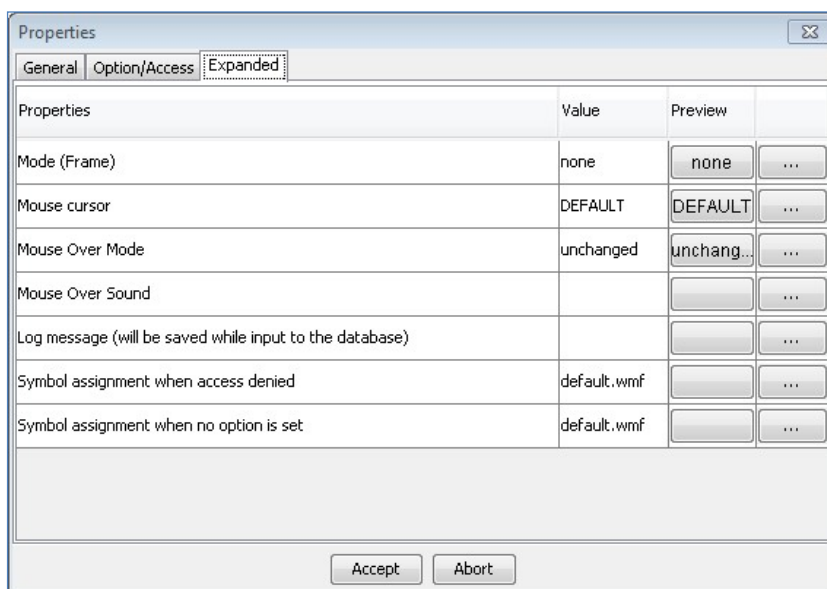
A click on *Edit entry* opens a further dialog by which the data can be changed.



The changed data list will be written to the controller if the list view has been closed by *OK*.

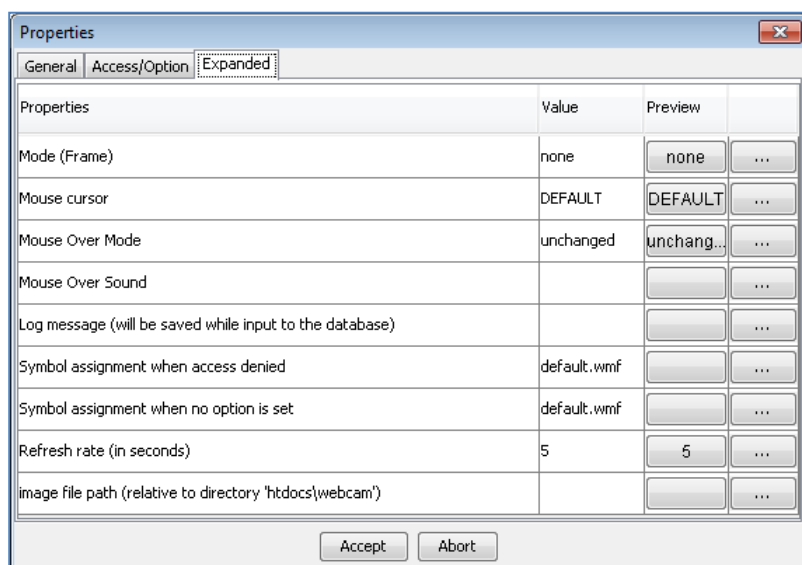
Type: Login00

By the special element *Login00* it is possible to deposit a graphic page as login page.



Type: WebCam00

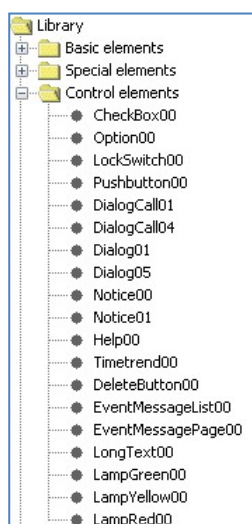
The graphic element *WebCam00* queries cyclical a picture-file from the OPENweb Server and displays it on the graphic page. To realize webcam-monitoring additional software is required which saves the current webcam picture to this file.



Refresh rate (in seconds) Time between the queries (in seconds)

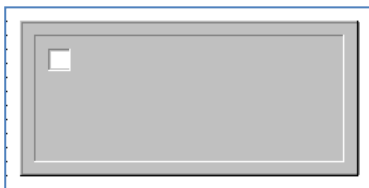
image file path The picture file has to be in the OPENweb workspace directory in the subdirectory 'htdocs\webcam'. The following image formats are supported: JPG, PNG and BMP

Graphic elements of the group *Control Elements*




Type: CheckBox00

By the control element *CheckBox00* a process value can be visualized as a check box.



Hint

The frame should be set to deepened .

Properties			
General Option/Access Expanded			
Properties	Value	Preview	
Mode (Frame)	deepened	deepened	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Symbol assignment when access denied	default.wmf		...
Symbol assignment when no option is set	default.wmf		...
Check box is set by value	1	1	...
Value will be set by reset of the check box	0	0	...

Accept Abort

Check box is set by value

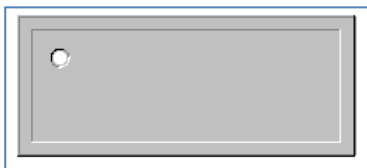
If the process value matches the set value then the checkmark is set ☒ otherwise not ☐ (it is possible to assign an address).

Value will be set by reset of the check box

On removing the checkmark the set value will be written to the process (it is possible to assign an address).

Type: Option00

By the control element *Option00* a process value can be visualized as option.





Properties

General Option/Access Expanded

Properties	Value	Preview	
Mode (Frame)	none	none	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Symbol assignment when access denied	default.wmf		...
Symbol assignment when no option is set	default.wmf		...
Option is set by value	0	0	...

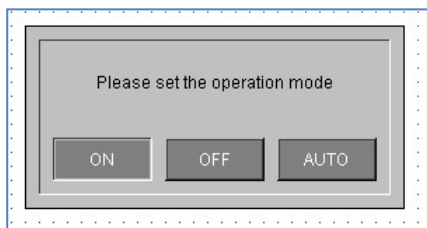
Accept Abort

Option is set by value

If the process value matches the set value then the option is set  otherwise not  (it is possible to assign an address). On setting the option the set value will be written to the process.

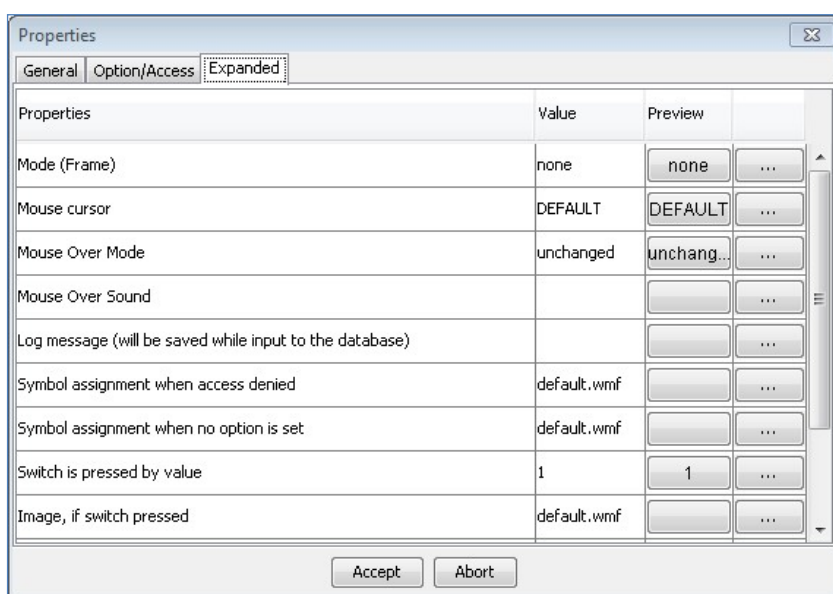
Type: LockSwitch00

By the dynamic element *LockSwitch00* a process value can be set to a specific value.



The *LockSwitch00* will be shown as transparent image and can therefore be dropped on any graphic element. Please consider that *LockSwitch00* should be the topmost element.

Hint The *frame* should be set *deepened* if *pressed* and *heightened* if *not pressed*



Switch is pressed by value

If the process value matches the set value the switch is pressed. The visualization depends on the attribute image or frame.

Image, if switch pressed

This image will be shown as long as the switch is pressed (see chapter [Symbol Assignment](#)).

Image, if switch not pressed

This image will be shown if the switch is not pressed (see chapter [Symbol Assignment](#)).

Frame, if switch pressed

This frame will be shown as long as the switch is pressed.

- 0 No frame
- 1 Simple black frame
- 2 Deepened frame
- 3 Heightened frame

Frame, if switch not pressed

This frame will be shown if the switch is not pressed.

- 0 No frame
- 1 Simple black frame
- 2 Deepened frame
- 3 Heightened frame

Type: PushButton00

By the control element *PushButton00* it is possible to write a value to the controller if the button is either pressed or let off.



Properties			
General Option/Access Expanded			
Properties	Value	Preview	
Mode (Frame)	none	none	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Symbol assignment when access denied	default.wmf		...
Symbol assignment when no option is set	default.wmf		...
Transmitted value when pressed	1	1	...
Transmitted value when let off	0	0	...

Accept Abort

Transmitted value if pressed

This value will be written to the controller if the element gets pressed.

Transmitted value if let off

This value will be written to the controller if the element is no more pressed.

Image, if switch pressed

This image will be shown as long as the switch is pressed (see chapter [Symbol Assignment](#)).

Image, if switch not pressed

This image will be shown if the switch is not pressed (see chapter [Symbol Assignment](#)).

Frame, if switch pressed

This frame will be shown as long as the switch is pressed.

- 0 No frame
- 1 Simple black frame
- 2 Deepened frame
- 3 Heightened frame

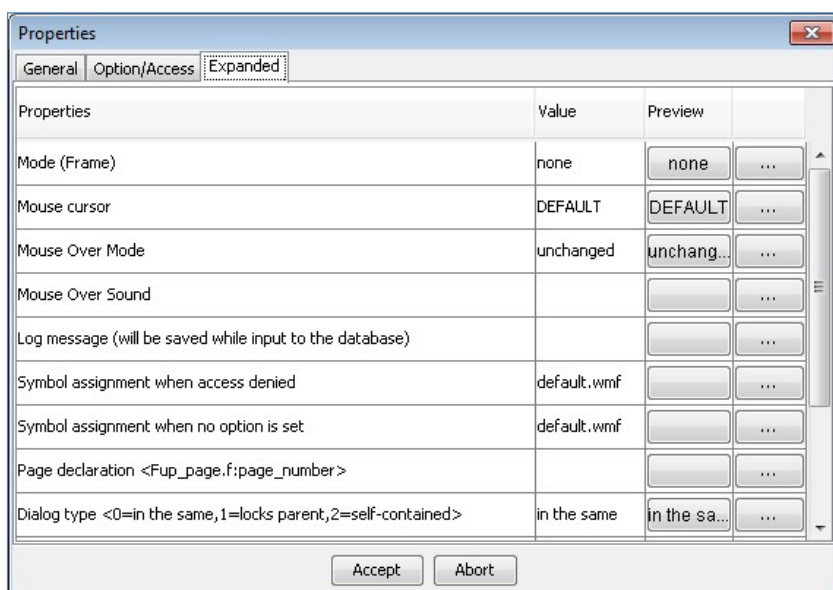
Frame, if switch not pressed

This frame will be shown if the switch is not pressed.

- 0 No frame
- 1 Simple black frame
- 2 Deepened frame
- 3 Heightened frame

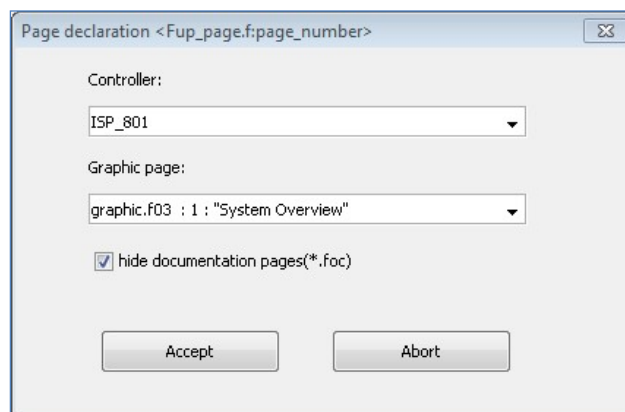
Type: DialogCall01

By the dynamic element *DialogCall01* it is possible to call a graphic page. As symbol a transparent image is used. Please put the transparent image on a text with frame 3. If you click at runtime on the text then the assigned graphic page will open.



Page declaration <fuppage.f:pagenumber>

Please insert here according to the given syntax above the FUP page followed by a colon and then the page number of the graphic page. You can gather the page number from the property dialog of the title of the according page. The page number can differ from the number in the menu *Graphic* of the FUP-Editor.



Dialog type Please select the dialog type.

- 0** The configured graphic page replaces the current graphic page. Therefore the second graphic page will be opened in the same window.
- 1** The configured graphic page will be opened in an own window and is always in front of the calling graphic page. Therefore the called graphic page must be closed to operate on the calling one (this lock functionality might differ in different browser versions).
- 2** The configured graphic page will be opened in an own window which does not have any impact on any other graphic page.

Password request before dialog call You can select whether a password query should be performed before the graphic page is called or not.

- no** No password query will be done
- yes** A password query will be done

Password layer of the called dialog If this value is not 0 then the called graphic page will be opened with the set password layer otherwise the same password layer like the calling one will be used (e.g. 0x4000).

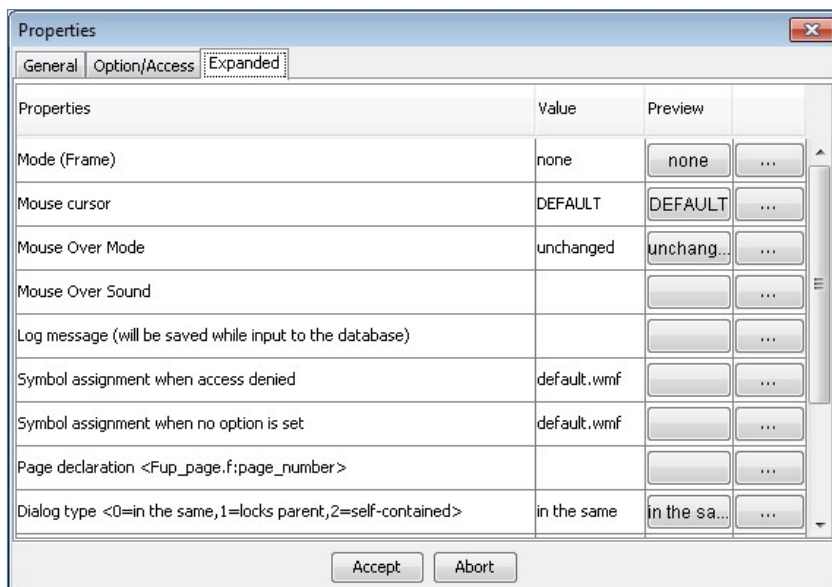
Enabled password layer If the password query is enabled then the following dialog will only be called if the password layer is enabled.

Print tracing of dialog calls

- no** Print tracing disabled
- yes** Print tracing enabled

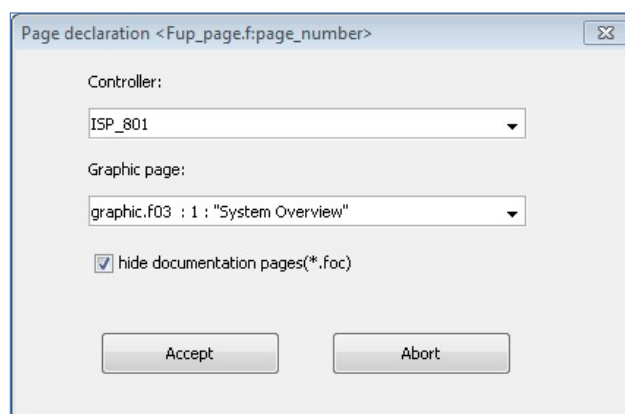
Type: DialogCall04

By using the dynamic element *DialogCall04* a graphic page can be called.



Page declaration <fuppage.f:pagenumber>

Please insert here according to the given syntax above the FUP page followed by a colon and then the page number of the graphic page. You can gather the page number from the property dialog of the title of the according page. The page number can differ from the number in the menu *Graphic* of the FUP-Editor.



Dialog type Please select the dialog type.

- 0 The configured graphic page replaces the current graphic page. Therefore the second graphic page will be opened in the same window.
- 1 The configured graphic page will be opened in an own window and is always in front of the calling graphic page. Therefore the called graphic page must be closed to operate on the calling one (this lock functionality might differ in different browser versions).
- 2 The configured graphic page will be opened in an own window which does not have any impact on any other graphic page.

Password request before dialog call You can select whether a password query should be performed before the graphic page is called or not.

no No password query will be done

yes A password query will be done

Password layer of the called dialog If this value is not 0 then the called graphic page will be opened with the set password layer otherwise the same password layer like the calling one will be used (e.g. 0x4000).

Enabled password layer If the password query is enabled then the following dialog will only be called if the password layer is enabled.

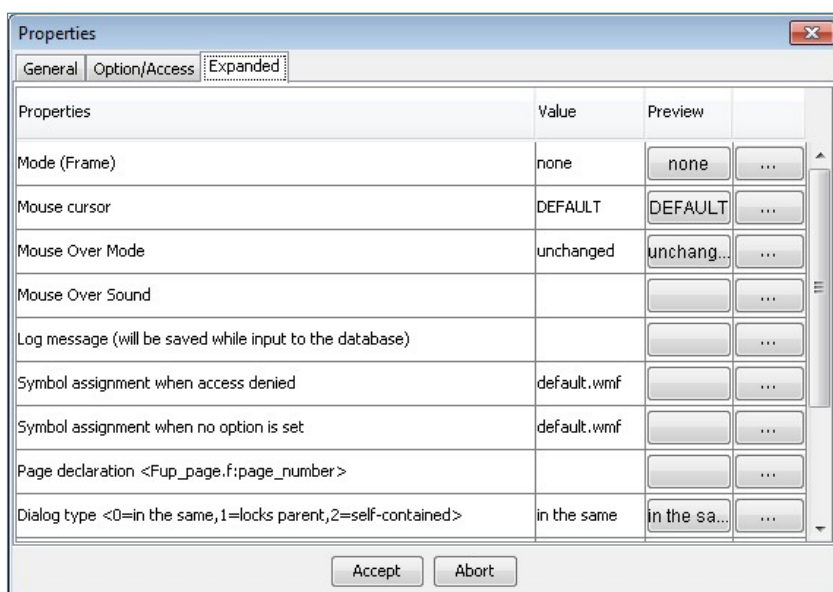
Parameter value Setup of the parameters (see chapter [Parameter Value](#)).

Print tracing of dialog calls **no** Print tracing disabled

yes Print tracing enabled

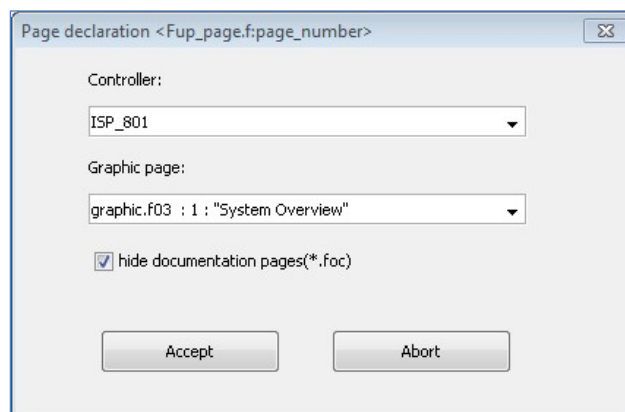
Type: DialogCall06

By the graphic element "DialogCall06" it is possible to call a graphic page like "DialogCall04" does. The difference is that the target page is not statically restricted to one page but can be selected from a list of up to 50 graphic pages process depended.



Page declaration <fuppage.f:pagenumber>

Please insert here according to the given syntax above the FUP page followed by a colon and then the page number of the graphic page. You can gather the page number from the property dialog of the title of the according page. The page number can differ from the number in the menu *Graphic* of the FUP-Editor.



Dialog type Please select the dialog type.

- 0** The configured graphic page replaces the current graphic page. Therefore the second graphic page will be opened in the same window.
- 1** The configured graphic page will be opened in an own window and is always in front of the calling graphic page. Therefore the called graphic page must be closed to operate on the calling one (this lock functionality might differ in different browser versions).
- 2** The configured graphic page will be opened in an own window which does not have any impact on any other graphic page.

Password request before dialog call You can select whether a password query should be performed before the graphic page is called or not.

- no** No password query will be done
- yes** A password query will be done

Password layer of the called dialog If this value is not 0 then the called graphic page will be opened with the set password layer otherwise the same password layer like the calling one will be used (e.g. 0x4000).

Enabled password layer If the password query is enabled then the following dialog will only be called if the password layer is enabled.

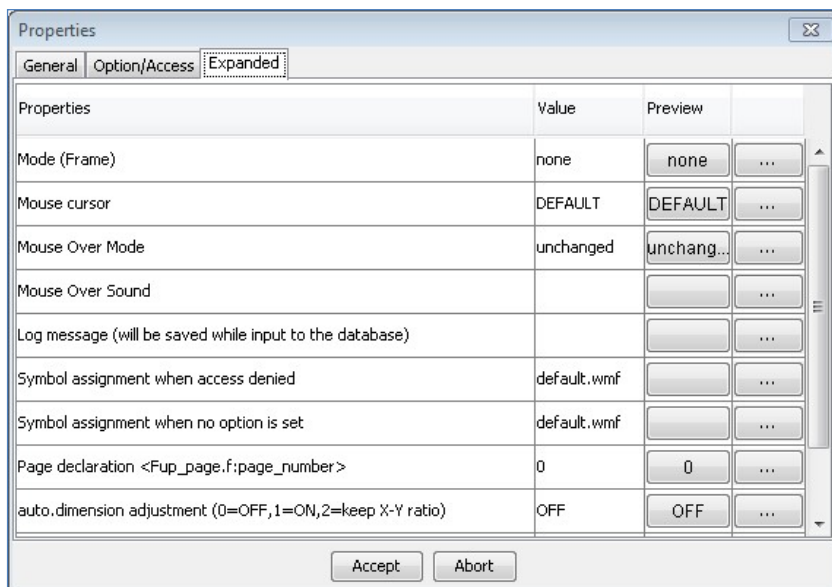
Parameter value Setup of the parameters (see chapter *Parameters*).

Print tracing of dialog calls

- no** Print tracing disabled
- yes** Print tracing enabled

Type: Dialog01

By using the element *Dialog01* it is possible to insert elements from other graphic pages.



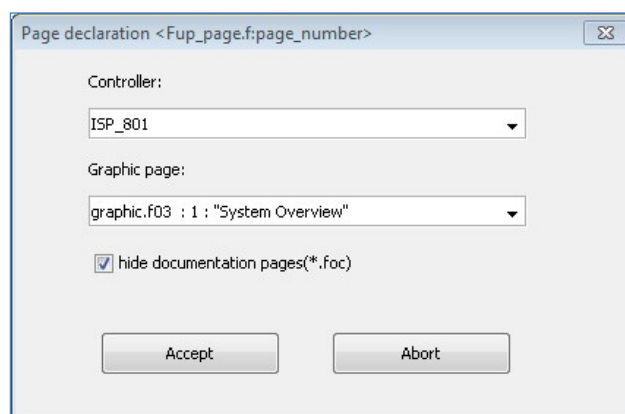
The Properties dialog box for Dialog01 has three tabs: General, Option/Access, and Expanded. The Expanded tab is currently selected. It contains a table with the following properties:

Properties	Value	Preview	
Mode (Frame)	none	none	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Symbol assignment when access denied	default.wmf		...
Symbol assignment when no option is set	default.wmf		...
Page declaration <Fup_page.f:page_number>	0	0	...
auto.dimension adjustment (0=OFF, 1=ON, 2=keep X-Y ratio)	OFF	OFF	...

At the bottom of the dialog are 'Accept' and 'Abort' buttons.

Page declaration <fuppage.f:pagenumber>

Please insert here according to the given syntax above the FUP page followed by a colon and then the page number of the graphic page. You can gather the page number from the property dialog of the title of the according page. The page number can differ from the number in the menu *Graphic* of the FUP-Editor.



The Page declaration dialog box for <Fup_page.f:page_number> contains the following fields:

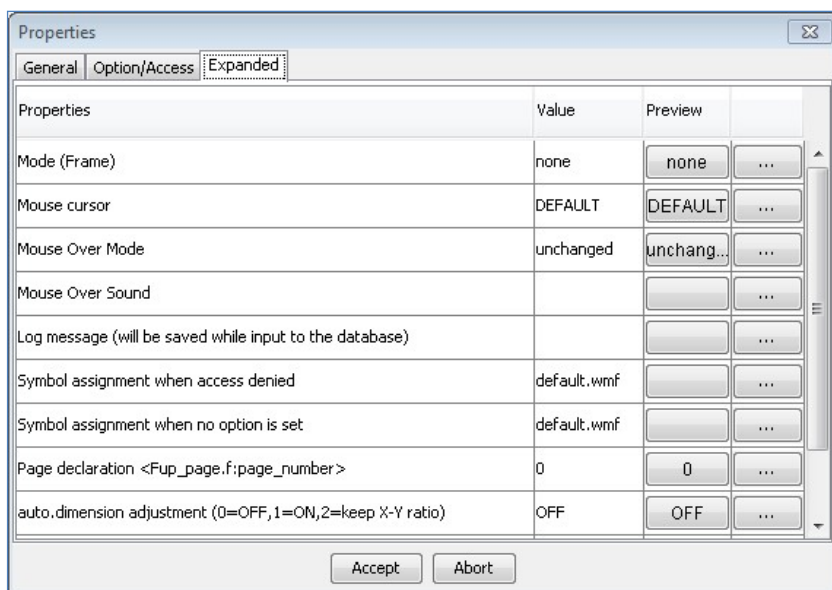
- Controller: ISP_801
- Graphic page: graphic.f03 : 1 : "System Overview"
- ☒ hide documentation pages(*, foc)

At the bottom are 'Accept' and 'Abort' buttons.

Auto dimension adjustment	0	OFF
	1	ON
	2	Lock X/Y proportions
Dialog creation	Dialog creation by	
	0	OPENweb
	1	FUP XL
Print tracing of dialog calls	no	Print tracing disabled
	yes	Print tracing enabled

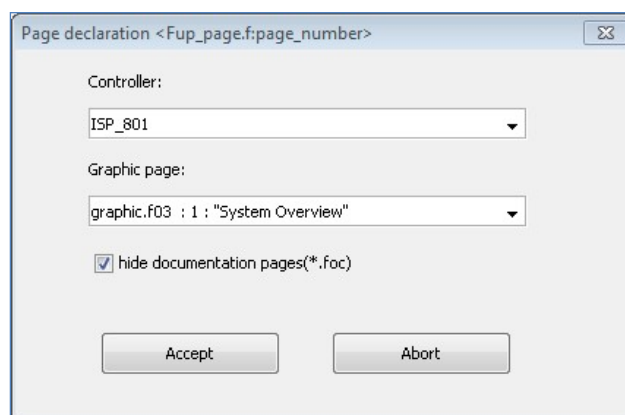
Type: Dialog05

By using the element *Dialog05* it is possible to insert elements from other graphic pages. Additionally to *Dialog01* it is possible to set transfer parameters.



Page declaration <fuppage.f:pagenumber>

Please insert here according to the given syntax above the FUP page followed by a colon and then the page number of the graphic page. You can gather the page number from the property dialog of the title of the according page. The page number can differ from the number in the menu *Graphic* of the FUP-Editor.



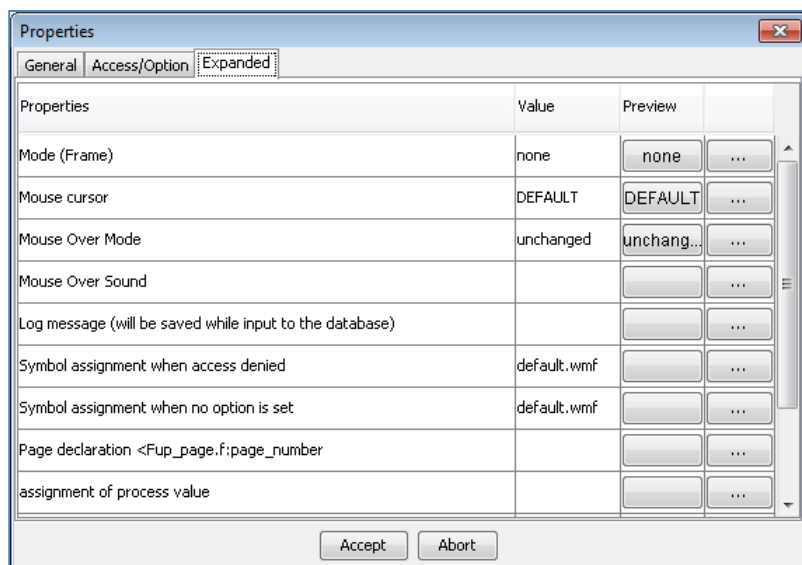
Auto dimension 0 OFF
adjustment 1 ON
 2 Lock X/Y proportions

Parameter value See chapter [Parameter Value](#)

Print tracing of dialog calls no Print tracing disabled
 yes Print tracing enabled

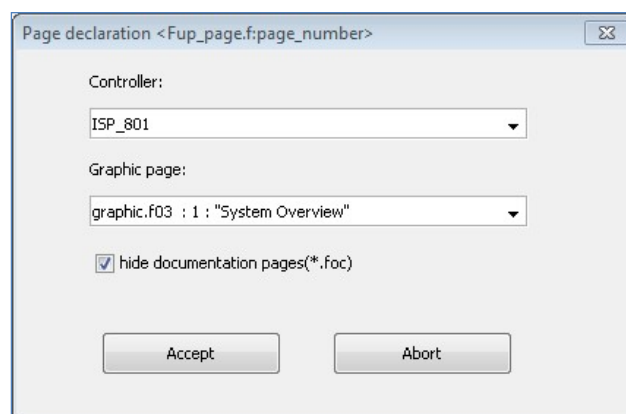
Type: Dialog06

By the graphic element “Dialog06” it is possible to show other graphic pages on one graphic page process dependently. Up to 50 different assignments are possible.



Page declaration <fuppage.f:pagenumber>

Please insert here according to the given syntax above the FUP page followed by a colon and then the page number of the graphic page. You can gather the page number from the property dialog of the title of the according page. The page number can differ from the number in the menu *Graphic* of the FUP-Editor.



Auto dimension 0 OFF
adjustment 1 ON
 2 Lock X/Y proportions

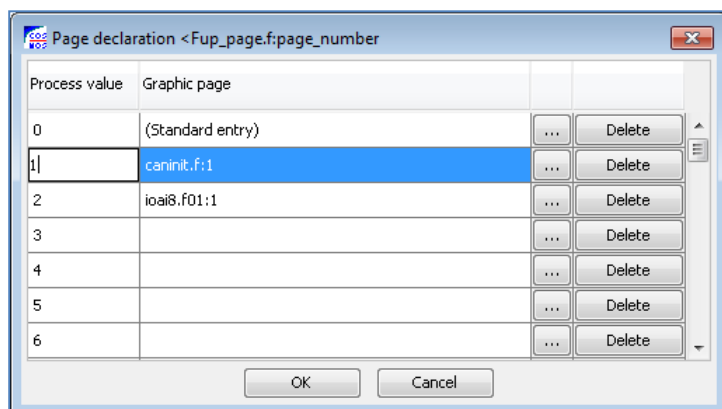
Parameter value See chapter [Parameter Value](#)


Process Assignment Value List of the process values. A click on the 3 dots opens the assignment dialog.

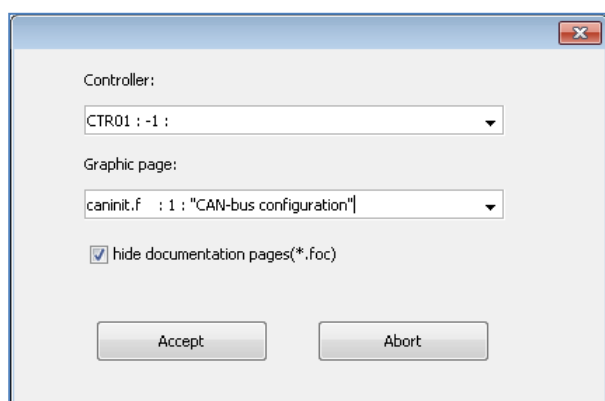
Draw background **color** If the option is set to “yes” then the background color of the currently shown page will be recognized. If the option is set to “no” then the background of the graphic page will be shown transparent.

Assignment of process value to graphic page:

In this dialog it is possible to assign up to 50 graphic pages to process values. The entry in the first line is used as default entry and will always then be shown if the process value does not match any assignment. The column of the process values is predefined with the values 0-49 but can be changed directly in the table.



By the *delete* button a page assignment will be removed. A click on the button  opens the dialog to assign the pages.



Type: Notice00

By using the element *Notice00* it is possible to insert texts which will only be saved on the OPENweb Server. The content of the note is freely editable (ASCII text).

Properties	Value	Preview	
Mode (Frame)	none	none	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Symbol assignment when access denied	default.wmf		...
Symbol assignment when no option is set	default.wmf		...
File name to save notices			...
Password layers with write authorization	0xFFFF	0xFFFF	...

Accept Abort

File name to save notices

The name of the file in which the note should be saved on the OPENweb Server.

Password layers with write authorization

Only users with this password layer are able to edit the note.

Type: Notice01

By using the element *Notice01* it is possible to insert texts which will only be saved on the OPENweb Server. The content of the note is freely editable (ASCII text). *Notice01* works exactly like *Notice00* but is able to access notes on other systems.

Properties	Value	Preview	
Mode (Frame)	none	none	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Symbol assignment when access denied	default.wmf		...
Symbol assignment when no option is set	default.wmf		...
File name to save notices			...
Password layers with write authorization	0xFFFF	0xFFFF	...

Accept Abort

File name to save notices

The name of the file in which the note should be saved on the OPENweb Server.

Password layers with write authorization

Only users with this password layer are able to edit the note.

Type: Help00

By using the element *Help00* it is possible to show any document as long as the browser has an according plug-in to show the file.

Properties	Value	Preview
Mode (Frame)	none	none ...
Mouse cursor	DEFAULT	DEFAULT ...
Mouse Over Mode	unchanged	unchang... ...
Mouse Over Sound	
Log message (will be saved while input to the database)	
Symbol assignment when access denied	default.wmf
Symbol assignment when no option is set	default.wmf
Help file to show	

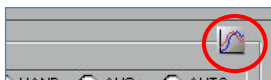
Accept Abort

Help file to show

This file will be opened if the element gets clicked. The file will be selected by an according dialog and deposited in the controller program.

Type: Timetrend00

By the element *Timetrend00* the Timetrend window of the OPENweb can be called.



Properties

General Option/Access Expanded

Properties	Value	Preview	
Mode (Frame)	none	none	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Symbol assignment when access denied	default.wmf		...
Symbol assignment when no option is set	default.wmf		...
Formula name			...

Accept Abort

Formula name

It is possible to set a formula here to initialize the Timetrend dialog.

Notice

Spaces, umlauts and special characters are allowed in version 5.06a and later.

Type: DeleteButton00

By using the element *DeleteButton00* it is possible to close a dialog window.

Properties

General Option/Access Expanded

Properties	Value	Preview	
Mode (Frame)	none	none	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Symbol assignment when access denied	default.wmf		...
Symbol assignment when no option is set	default.wmf		...

Accept Abort

Type: EventMessageList00

By the element *EventMessageList00* it is possible to show the active error messages of one or more controller groups.

Properties	Value	Preview	
Mode (Frame)	none	none	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Symbol assignment when access denied	default.wmf		...
Symbol assignment when no option is set	default.wmf		...
Additional package number			...
Update time in seconds	60	60	...

Accept Abort

Additional package number

Additional to the own controller group the error messages of the set controller groups will be shown (hexadecimal controller group numbers separated by commas).

Update time in seconds

In the set interval the error message list will be refreshed.

Type: EventMessagePage00

By the element *EventMessagePage00* it is possible to get to the first error message page in the tree. It will be displayed in a new window.

Properties	Value	Preview	
Mode (Frame)	none	none	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Symbol assignment when access denied	default.wmf		...
Symbol assignment when no option is set	default.wmf		...
Width of the error message window	800	800	...
Height of the error message window	600	600	...

Accept Abort

Width of the error message window

You can configure the width of the error message window here.

Height of the error message window

You can configure the height of the error message window here.

Type: LongText00

By the element *LongText00* it is possible to visualize texts which are separated on up to three memory locations.

Properties	Value	Preview	
Mode (Frame)	none	none	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Symbol assignment when access denied	default.wmf		...
Symbol assignment when no option is set	default.wmf		...
Show scrollbar	1	1	...
Font	Arial	Arial	...

Accept Abort

Show scrollbar Shows the scroll bar if this value is not null.

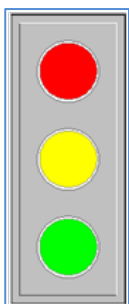
1. Part of LongText First part of the text (it is possible to assign an address)

2. Part of LongText Second part of the text (it is possible to assign an address)

3. Part of LongText Third part of the text (it is possible to assign an address)

Type: LampGreen00, LampYellow00, LampRed00

By the element *LampGreen00*, *LampYellow00* or *LampRed00* it is possible to visualize a green, yellow or red lamp.







Properties

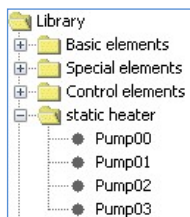
General Option/Access Expanded

Properties	Value	Preview	
Mode (Frame)	none	none	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Symbol assignment when access denied	default.wmf		...
Symbol assignment when no option is set	default.wmf		...
Lamp is set by value	1	1	...

Accept Abort

Lamp is set by value If the process value matches the set value then the green , the yellow  or the red  lamp will be visualize. If it does not match then the lamp is transparent .

Graphic elements of the group *Static Heater*



Type: Pump00, Pump01, Pump02, Pump03

It is possible to visualize a pump in flow direction by the elements *Pump00*, *Pump01*, *Pump02* or *Pump03*.



Pump00



Pump01



Pump02





Pump03


Properties			
General Option/Access Expanded			
Properties	Value	Preview	
Mode (Frame)	none	none	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Symbol assignment when access denied	default.wmf		...
Symbol assignment when no option is set	default.wmf		...
Operating notification	0	0	...
Event message	0	0	...

Accept Abort

Operation notification

If the process value is 0 then the pump will be visualized transparent . If it is not 0 then the pump is green  (it is possible to assign an address).

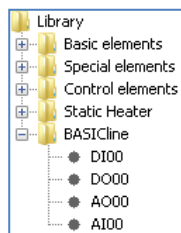
Event message

If the process value is 1 (recognize event inverse) then a red flashing pump will be visualized  (it is possible to assign an address).

Event inverse

The attribute event message will be validated inversed (yes, no)

Graphic elements of the group *BASICline*

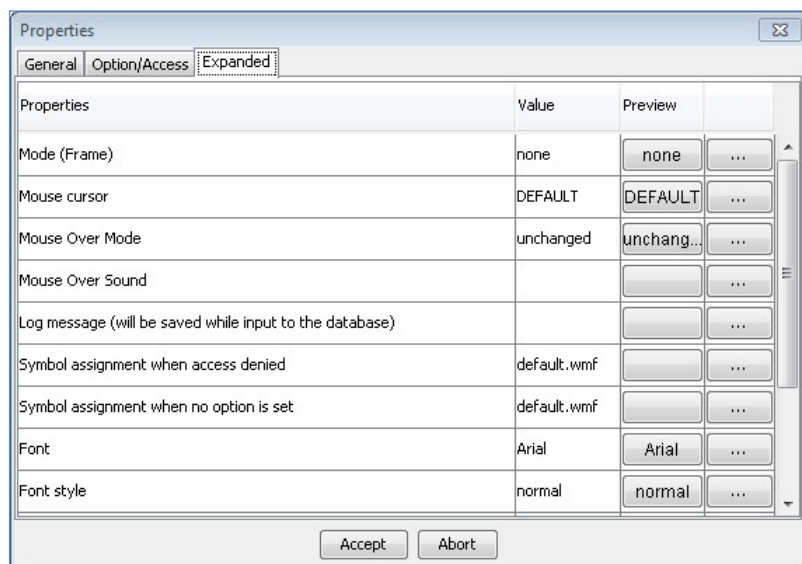


Type: DI00

By the element *DI00* it is possible to enter a digital input terminal.



Two combo boxes to select the terminal number and the controller number will be provided.



Type: DO00

By the element *DO00* it is possible to enter a digital output terminal.

One combo box to select the terminal number will be provided.

Properties

General

Option/Access

Expanded

Properties	Value	Preview	
Mode (Frame)	none	none	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Symbol assignment when access denied	default.wmf		...
Symbol assignment when no option is set	default.wmf		...
Font	Arial	Arial	...
Font style	normal	normal	...

Accept

Abort

Type: AO00

By the element *AO00* it is possible to enter an analog output terminal.

One combo box to select the terminal number will be provided.

Properties

General

Option/Access

Expanded

Properties	Value	Preview	
Mode (Frame)	none	none	...
Mouse cursor	DEFAULT	DEFAULT	...
Mouse Over Mode	unchanged	unchang...	...
Mouse Over Sound			...
Log message (will be saved while input to the database)			...
Symbol assignment when access denied	default.wmf		...
Symbol assignment when no option is set	default.wmf		...
Font	Arial	Arial	...
Font style	normal	normal	...

Accept

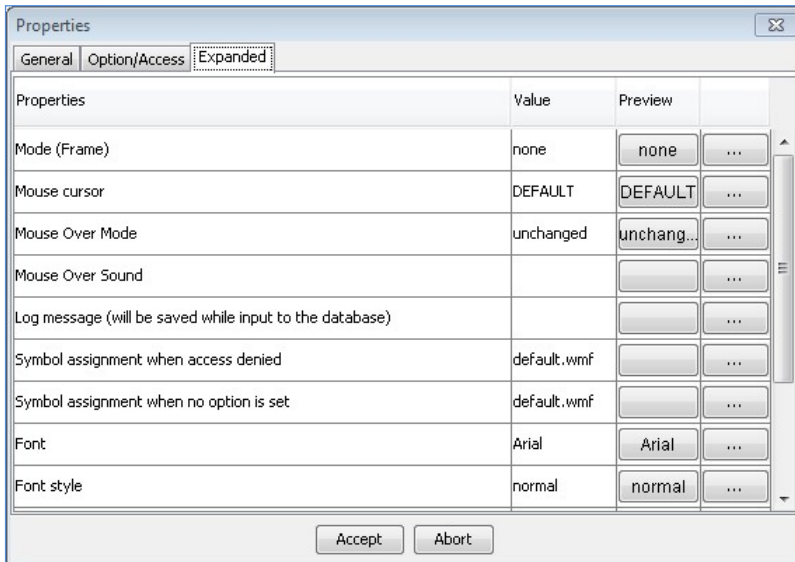
Abort

Type: AI00

By the element AI00 it is possible to enter an analog input terminal.



Two combo boxes to select the terminal number and the controller number will be provided.



Parameter Value

It is possible to define parameters in the text inputs of the properties dialog. These Parameters have to be defined in curly brackets (e.g. "{My Example Parameter}"). These parameters will be used in combination with the graphic elements *DialogCall04* | *Dialog05*. These graphic elements have an additional property called *parameter value* which is a list of parameter assignments. If a graphic page is called by one of the mentioned graphic elements then all defined parameters will be replaced by the assigned values.

The 'Properties' dialog box has three tabs: 'General', 'Access/Option', and 'Expanded'. The 'General' tab is active. It contains the following fields and controls:

- Name:** {Parameter1} (with a selection icon)
- Info text:** (empty text field)
- ☐ Use info text as log message
- Type:** Text (dropdown menu)
- Updating:** EDA (dropdown menu)
- Number:** 1 (text field)
- Bus:** 0 (text field)
- X-Pos:** 10 (text field with selection icon)
- Y-Pos:** 10 (text field with selection icon)
- Width:** 130 (text field with selection icon)
- Height:** 50 (text field with selection icon)
- Angle:** 0 (text field with selection icon)
- Buttons:** Accept, Abort

In the parameter value dialog all defined parameters of the target graphic page are listed.

The 'parameter value' dialog box displays a table with two columns: 'Key' and 'Value'. The 'Key' column contains 'Parameter1' and 'Parameter2'. The 'Value' column is empty. To the right of the table are buttons: 'Add', 'Edit', 'Remove', '...', and 'OK'.

Key	Value
Parameter1	
Parameter2	

You can add a parameter by a click on *Add*.

The 'Key - Value' dialog box has two input fields: 'Key' and 'Value'. The 'Key' field contains 'Parameter1' and the 'Value' field contains 'My Example Text 1'. There are 'OK' and 'Cancel' buttons at the bottom.

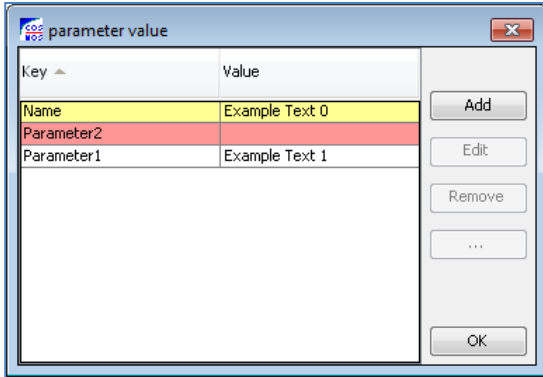
Key: Parameter1

Value: My Example Text 1

Buttons: OK, Cancel

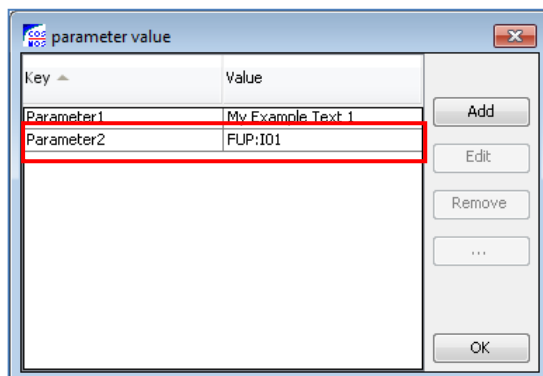
Please insert afterwards the *Key* and *Value*.

The entries of the parameter dialog can be edited in an external program. Therefore you have to select all entries by [CTRL] + [A]. After you have selected the entries you have to copy them by [CTRL] + [C] to the clipboard. Now you can paste it to any external program (e.g. Microsoft Office Excel). Excel will automatically insert the names and values into different columns. This feature works also the other way round. Select the two columns and copy them. Then click on the first entry in the parameter dialog and insert the columns by [CTRL] + [V] into the list.



Unassigned parameters will be marked **red** while additional added parameters which are not in the target graphic page will be marked **yellow**.

Hint: It is additionally possible to link the value of the parameter to the value of any address:



Properties Dialog of the Graphic Elements

Invoke the properties dialog of the graphic-elements using the context menu *Properties* or doing a double click at the selected graphic-element.

If the basic element *Color* or the basic element *Status* is a not concatenated element it will be invoked the color selection dialog or the image selection dialog directly. If it is existent a multiple selection, the multiple selection dialog will be displayed. All the same properties are displayed and all other properties are blank. When changing a property or entering a property in a blank field, all selected elements will adopt this properties. The tab *Expanded* will only be displayed during multiple selection, if all selected graphic elements are of the same type.

If an attribute (property) has the possibility of a process-connection it is given a notice (address declaration possible) behind the attribute. More information to address declaration are in the section *Addressing*.

The tabs *General* and *Option/Access* are the same for all graphic-elements. So they are explained only once. The tab *Expanded* is given for each type of a graphic element in groups.

Tab - General

Name	Display of the FUP element to which the graphic element is linked. If the element is not linked then the set text will be shown for the basic modules text, integer, float, date and time (address declaration possible).
Info text	This text will be shown as tooltip.
Use info text as log message	If the check is set then this info text will be used for logging if no other text is set.
Type	Here the current type of the graphic element is shown.
Updating	<p><i>DA</i> permanent display; value is updated consistently</p> <p><i>EA</i> input value</p> <p><i>EDA</i> input and permanent display; value is updated consistently and can be entered</p>
Number	Number of the graphic-element. The graphic-elements will be drawn in the order of these numbers.
Bus	1 for own controller or name of the controller in which the value is. Therefore it is possible to gather values from other controllers and visualize them.
X-Pos	X-position of the graphic element or declaration of the FUP-element the x-position is linked to (address declaration possible).
Y-Pos	Y-position of the graphic element or declaration of the FUP-element the x-position is linked to (address declaration possible).
Width	Width of the graphic element or declaration of the FUP-element the width is linked to (address declaration possible).
Height	Height of the graphic element or declaration of the FUP-element the height is linked to (address declaration possible).
Angle	Angle of the graphic element or declaration of the FUP-element the angle is linked to (address declaration possible).

Tab – Option/Access

The screenshot shows a 'Properties' dialog box with three tabs: 'General', 'Option/Access', and 'Expanded'. The 'Option/Access' tab is active. It contains the following fields and controls:

- Access (binary):** A row of 16 buttons labeled F, E, D, C, B, A, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0. The hexadecimal value '0xC0DE' is entered in the adjacent text box.
- Option (binary):** A row of 16 buttons labeled F, E, D, C, B, A, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0. The hexadecimal value '0x0000' is entered in the adjacent text box.
- Option value (process link):** A checkbox and a text box with a three-dot menu icon.
- Show element:** A checkbox and a text box containing the value '1'.
- Background element:** A checked checkbox.
- Buttons for 'Accept' and 'Abort' at the bottom.

Access	Input of the access-template
Option	Input of the option-template
Option value	By dint of options graphic-elements can be faded in or out in dependency of a calculation process. Only if the bit of the linked process value and the stated option are set, the graphic-element will be displayed (address declaration possible).
Show element	By dint of this attribute graphic-elements can be faded in or out during runtime. In contrast to <i>Option</i> this will be done directly. The options only are interpreted during loading the page (address declaration possible).
Background element	The element is located to the background if the check is set. But if the element is concatenated to an address or if the flashing is enabled, the element will not be located to the background.

Tab – Expanded

There are a lot of different and individually configurable extensions for the different graphic elements. These will be configured on the tab *Expanded* of the graphic elements (see chapter [Description of the Graphic Elements](#))

Assigning an address

Assigning an address in the FUP-Editor

Please click on the box with three dots to assign an address.

The screenshot shows a text input field with the value '0'. To the right of the field is a small icon consisting of three dots inside a square, which is used to open a selection dialog.

The graphic editor will be closed and the following dialog will show up on the FUP page.

The screenshot shows a small dialog box with the title 'Please Select a FUP Element ...'. It contains a single button labeled 'Cancel'.

Please select now the input or output which you want to link to the graphic element or cancel the selection by a click on *Cancel*. After the selection of a FUP element the link will be shown.

The screenshot shows the same text input field as before, but now it contains the text 'FUP:A02'. The three-dot menu icon is still present to the right.

Behind every address assignment it is possible to state the bit offset and bit count in round brackets separated by a colon. If using it then it is mandatory to state the bit offset **and** bit count.

Name: ☐

If the checkmark is set ☒ then it is an address assignment. In the example the address A02 of the FUP page is used. If the checkmark is not set ☐ then it is a value. If checking the checkmark manually then "FUP:" will be inserted. By unchecking the check box the "FUP:" will be removed.

Assigning an address by using the number format

The address consists of the identifier **FUP:**, the internal address/byte in the controller and the type declaration.

Example	FUP:132:FL	Float	read 4 Bytes from text memory
	FUP:4:UI[6]	Texts	read 12 Bytes from text memory
	FUP:153:BIT[1]	Bit-value	read 1 Byte* from bit memory
	FUP:133:BIT[2]	Bit-value	read 2 Byte* from bit memory

*Bits are deposited as bytes in the memory.

Behind every address assignment it is possible to state the bit offset and bit count in round brackets separated by a colon. If using it then it is mandatory to state the bit offset **and** bit count.

Assigning an address by using the label:

The address consists of the identifier **FUP:** and the label from the file *mainbdf.lab*.

Example	FUP:Regver:FL	Float	read 4 Bytes from text memory
	FUP:Regnam:UI[10]	Texts	read 20 Bytes from text memory

Behind every address assignment it is possible to state the bit offset and bit count in round brackets separated by a colon. If using it then it is mandatory to state the bit offset **and** bit count.

Assigning an address by using a different FUP page:

The address consists of the identifier **FUP:**, the FUP page name and separated by a colon the label of the element.

Example	FUP:stat_hz.f:A03	read A03 from FUP page stat_hz.f
----------------	--------------------------	----------------------------------

Behind every address assignment it is possible to state the bit offset and bit count in round brackets separated by a colon. If using it then it is mandatory to state the bit offset **and** bit count.

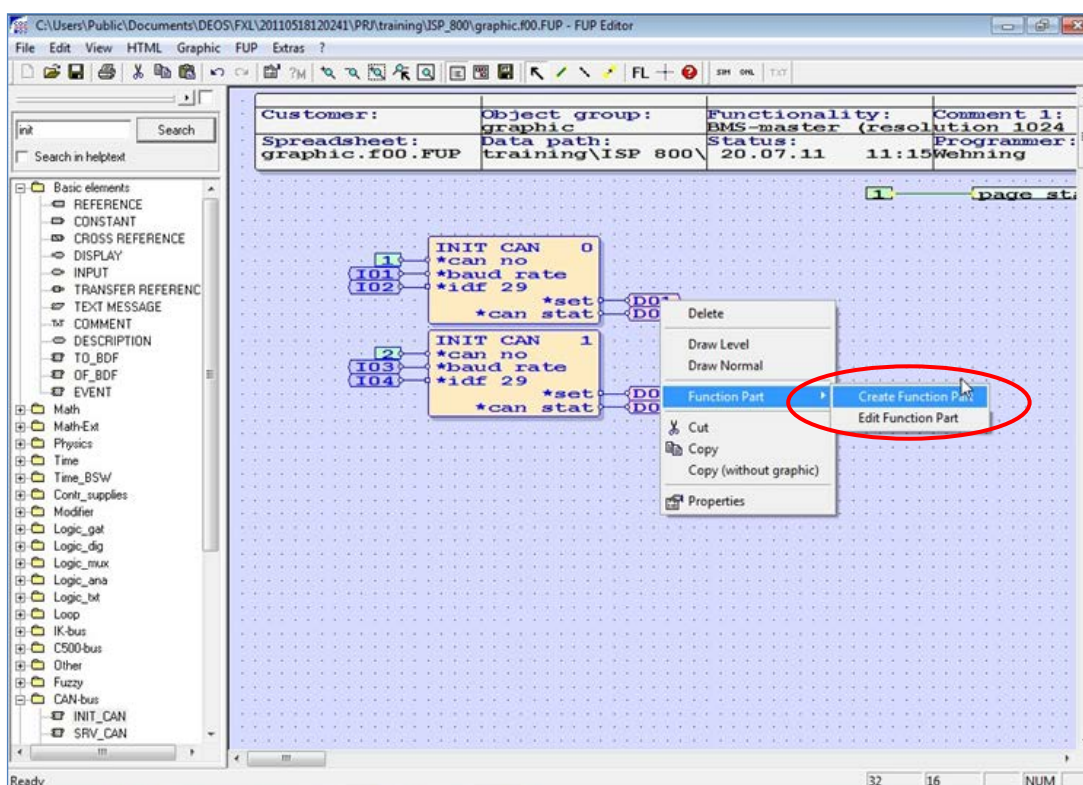
Function Parts

General

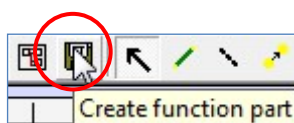
Function View parts are designed to make ease programming in FUP XL Editor. A function part is a group of FUP elements which can be added into every controller by mouse click. Therefore parts, with equal functionality, do not have to be reprogrammed all the time. The following explains how to create and use function parts.

Create

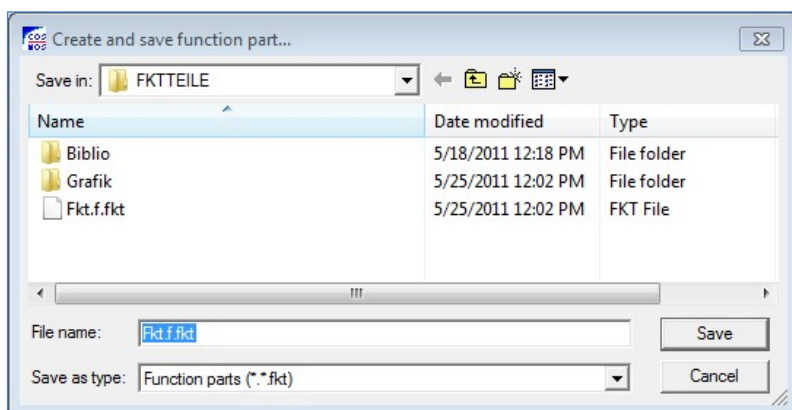
Select all required elements and modules and call by the context menu *Function Part* → *Create Function Part* to create a function part.



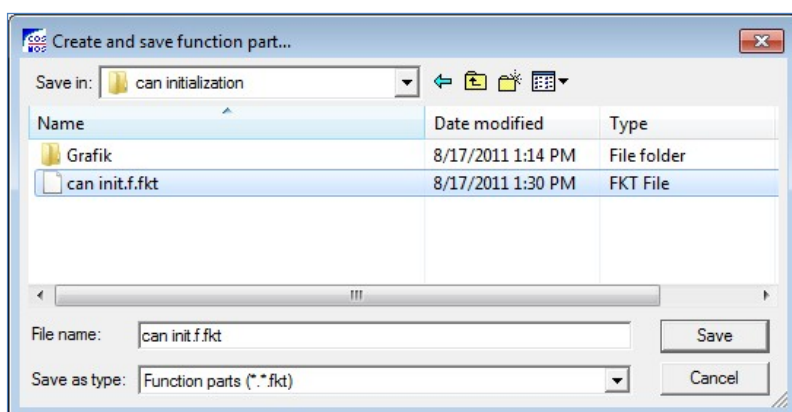
You can also click on the button *Create Function Part* in the toolbar.



The following dialog will show up.




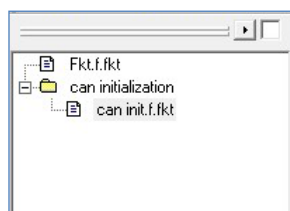
Notice The function part directory can be configured in FUP XL at “Extras → Options → Directories”.



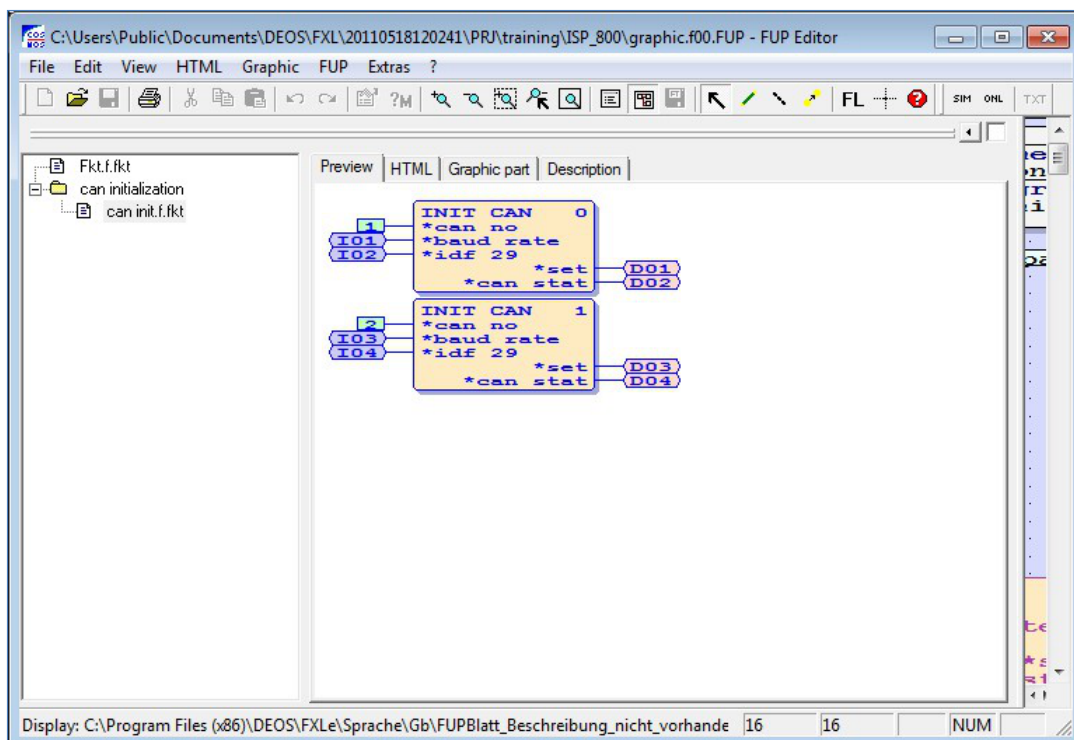
Insert a name for the function part at *File name* and click on *Save*. You are able to define a directory structure for a better overview of the function parts.

Use

To call the function part list click either on the according symbol in the toolbar or call the menu point *View → Function Parts*. In the left window part the function list will show up and if you have created directories the function parts will be sorted in accordingly. By a click on the button  you can extend the view and get a *Preview* of the function part, the *HTML part*, the *Graphic part* as well as an individual *Description* of the function part.

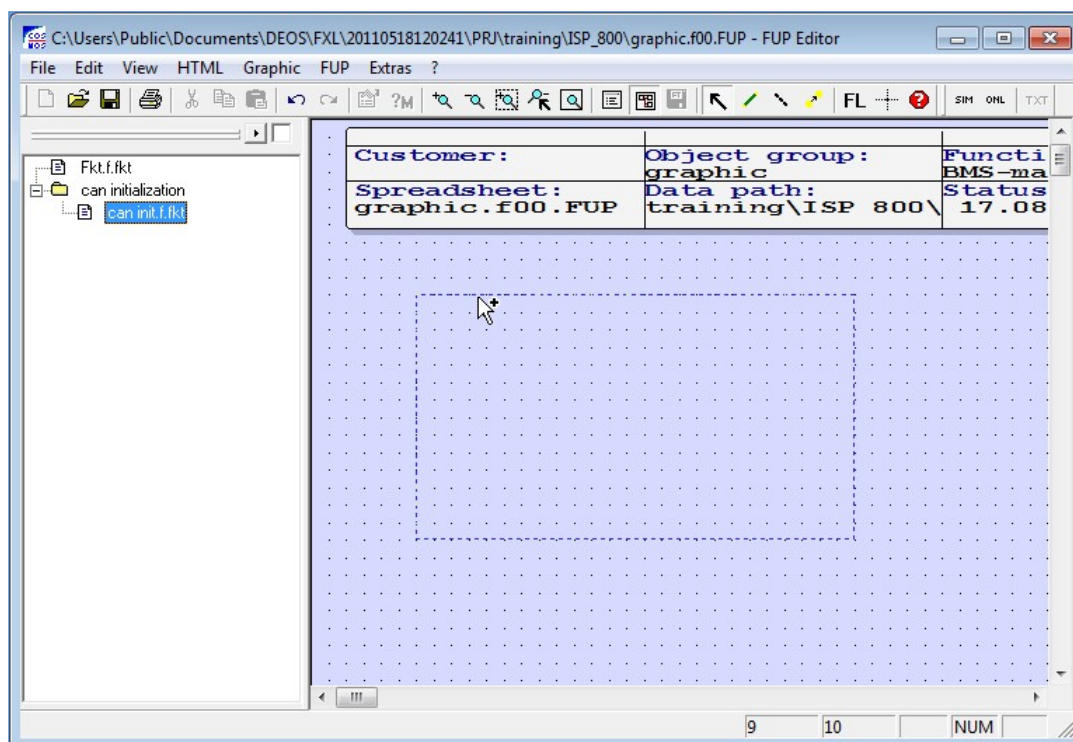


The extended view is shown by the next picture.

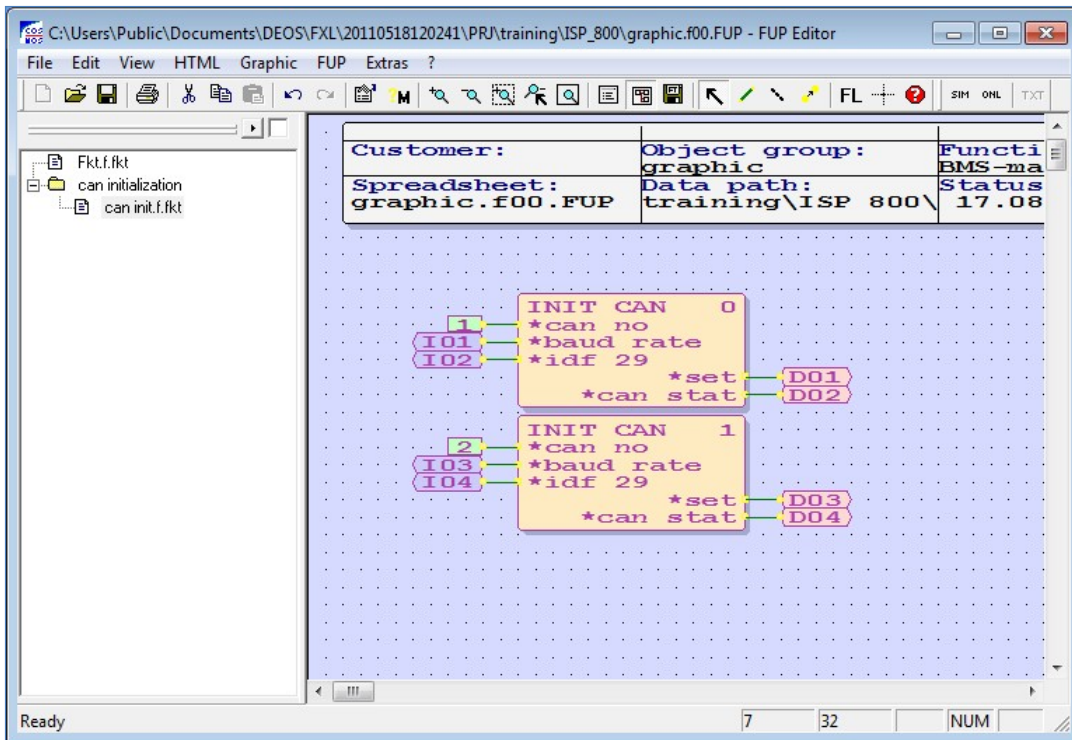


The *Preview* shows the programmed function part. The other tabs show different previews of the according visualizations. The tab *Description* shows the description created in Word 2000 or higher. You can edit the description by double clicking on the window.

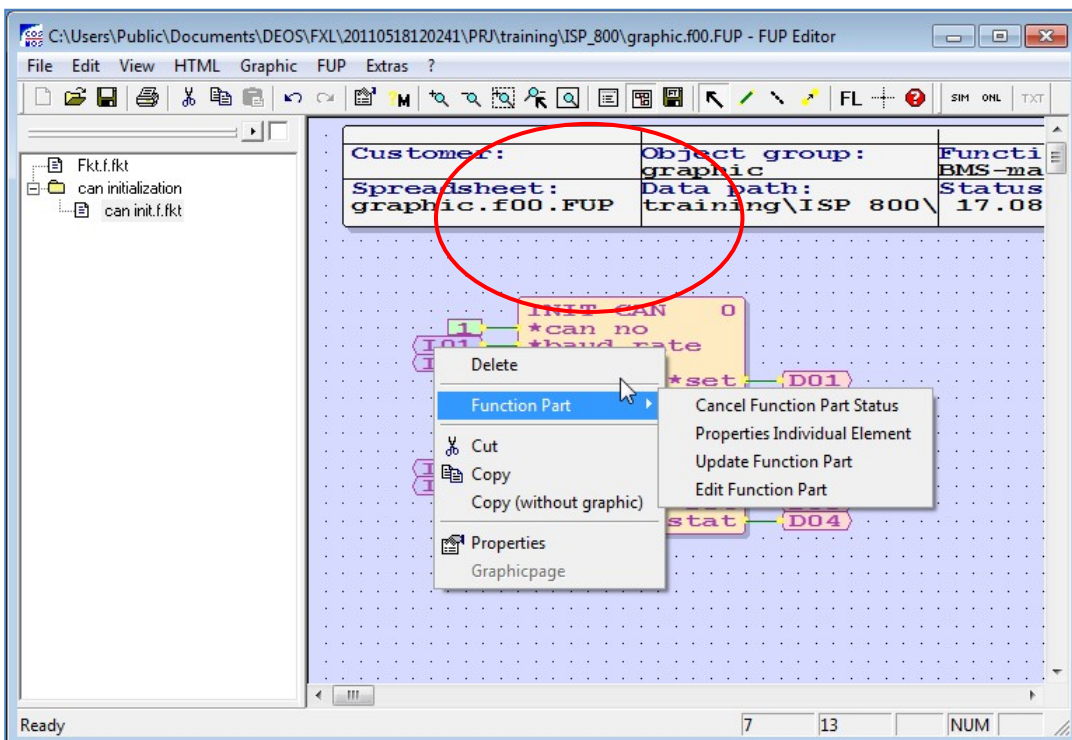
To use the function part you just have to click on the function part in the list and drag it on the FUP page.



After releasing the mouse button the function part is inserted in the FUP page.



Context Menu



Cancel Function Part Status

To cancel the function part status you have to click on the menu point *Function Part* → *Cancel Function Part Status*. Afterwards the function part is no more a coherent unit.

Properties Individual Element

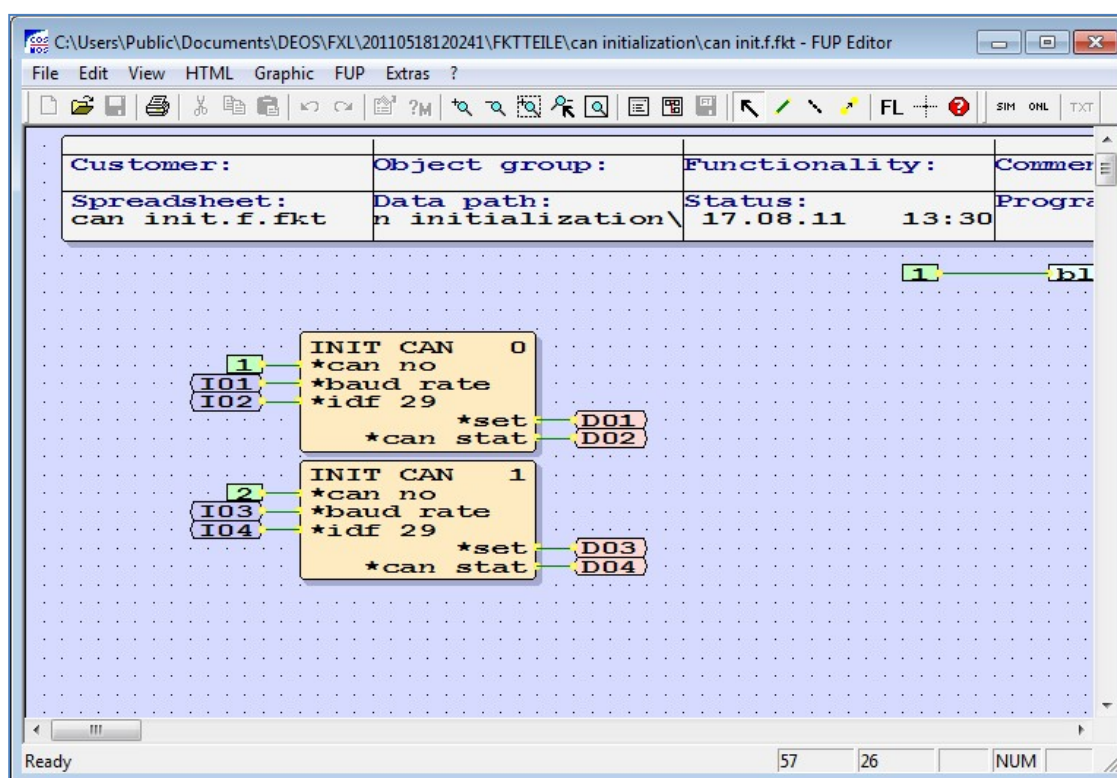
The properties of single elements of the function part can be changed by the menu point *Function Part* → *Properties Individual Element*. Thereby the typical properties dialog will open.

Update Function Part

By this menu point the function part can be updated. This may be required if the function part has changed and the changes should be applied in the currently used function part.

Edit Function Part


To edit a function part you have to select it and call this function. The function part will be opened in an own FUP Editor and can be edited.



After editing the function part you have to save it. Now you can update in FUP pages the function part by the menu point *Function Part* → *Update Function Part*.

Simulation

With *Simulation* you can execute a function test of the FUP-page without available or connected hardware. You can even run the simulation with FUP-pages which are erroneous or not ready.

The simulation will be called as standalone program in the FUP Editor. To do so press on the button  in the toolbar or on the menu point *FUP – Simulation*.



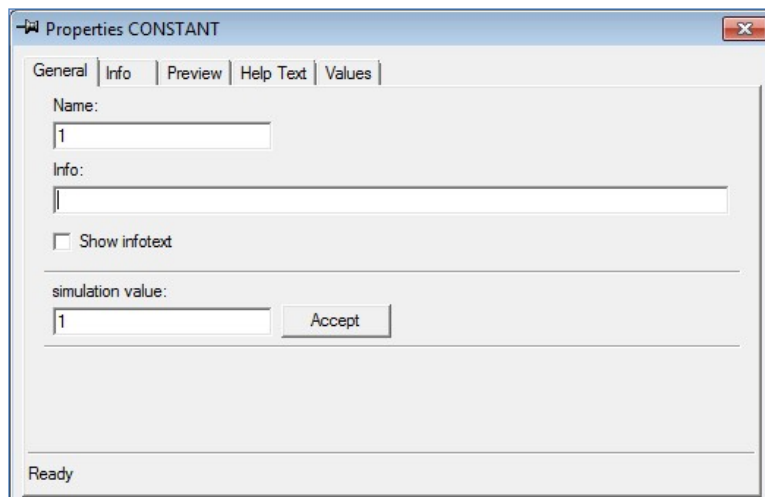
You can read the current states of connections when you rest with the mouse over a line. Then the state or the current value will be displayed. The text *KW* has the meaning of *no value*, i.e. the value cannot be displayed. If you want to display the current state steady you have to press the *space button*.

During the simulation you can change values over the context menu *Properties* of the FUP-page or by the context menu *Input of value* or by a double click on the elements.

Here you can configure data, e.g. a value of On/Off in the field *Value*.

You will transfer the changed value to the simulation program if you confirm by clicking the button *Accept*.

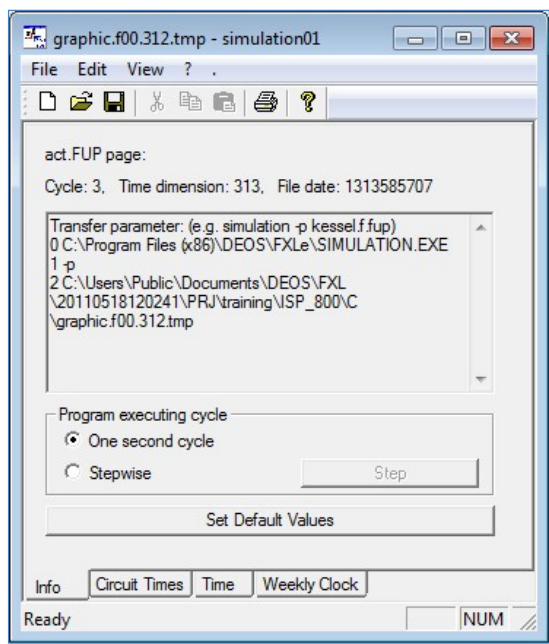
The values will be changed by the context menu *Properties*.



Notice During the simulation mode you cannot edit anything in the FUP-Editor.

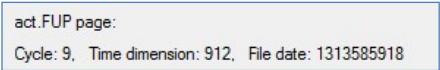
You can adjust the time, switch times and runtime in different tabs to create real conditions.

Tab - Info



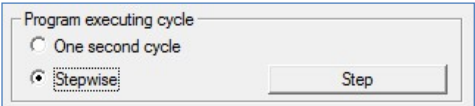
This window provides information about the current FUP page. Additionally you can set whether the program should cycle stepwise or in one second intervals.

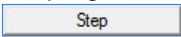
act. FUP page



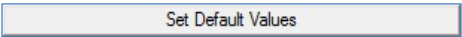
<i>Cycle</i>	Number of current cycles
<i>Time dimension</i>	Runtime in milliseconds
<i>File date</i>	Date of the file

Program executing cycle



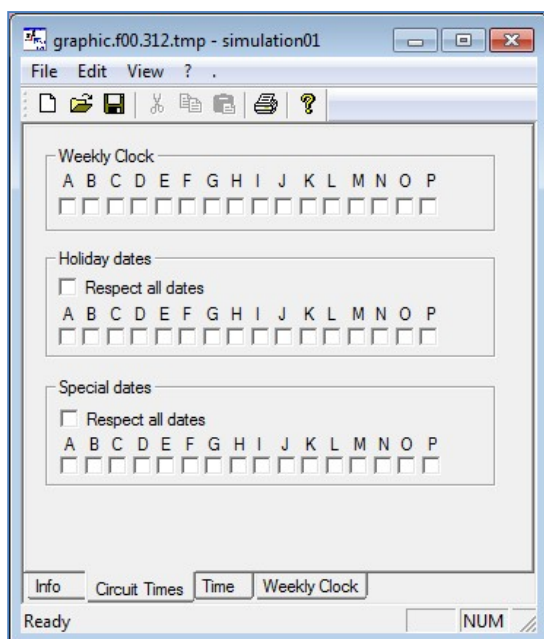
<i>One second cycle</i>	Endless execution of the program in one second steps
<i>Stepwise</i>	Stepwise program execution by clicking the button 

Set Default Values



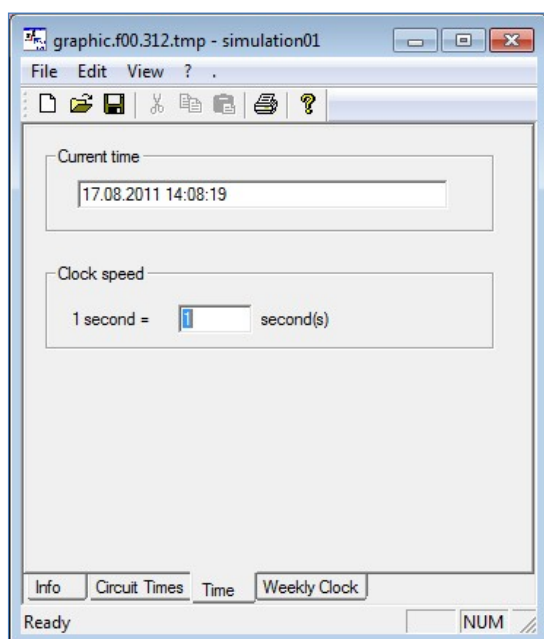
Apply the default values.

Tab – Circuit Times



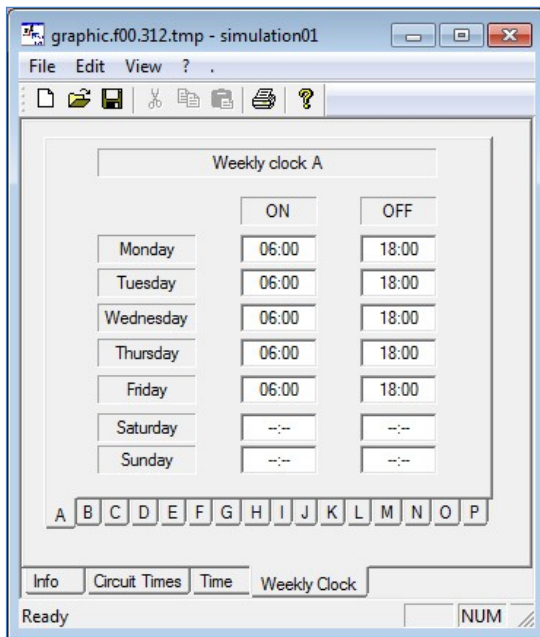
The *Weekly Clock*, the *Holiday dates* and the *Special dates* can be directly enabled here for the simulation.

Tab - Time



You can enter any valid time into the input field *Current time*. The simulation program applies that time as system time. To speed up long run processes it is possible to configure how many seconds should be performed per real second.

Tab – Weekly Clock



Here you can enter the circuit times by several tabs of weekly clocks. You can enter the circuit times singularly or you can select multiple ones. Then all selected weekly clocks get the same time.

Hint You can also frame the weekly clocks which have to be changed with the mouse. Thereupon the circuit times are selected.

Notice Please notice that the weekly clocks at the tab *Circuit times* have to be deactivated, if you want to test the entered circuit times. Otherwise e.g. the weekly clock A would be switched on all the time.

Exit the simulation

To exit the simulation you just have to click again on the button  in the toolbar.

Online

The online function can only be executed with OPEN EMS controller.

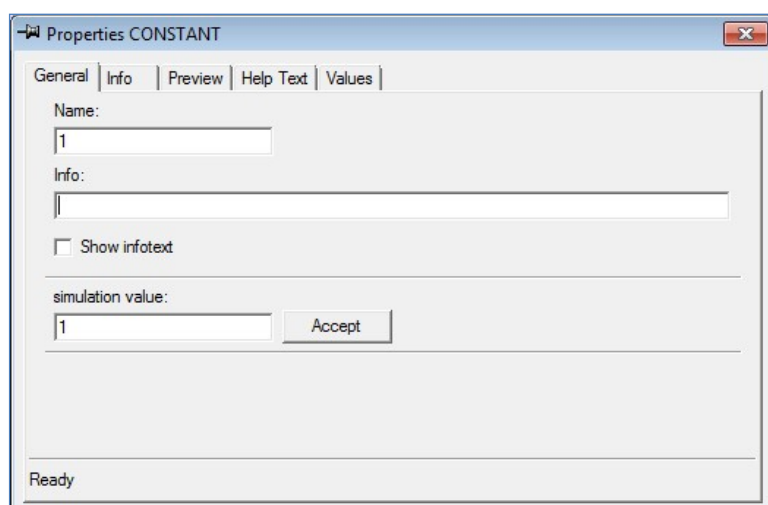
Here you need a connection between your computer and the hardware. The current program has to be uploaded. You can read the current states of connections when you rest with the mouse over a line. Then the state or the current value will be displayed. The text *KW* has the meaning of *no value*, i.e. the value cannot be displayed. If you want to display the current state steady you have to press the *space button*.

Different-colored lines describe the binary states. You can configure the colors in the menu *Extras – Options* on the tab *FUP*. Online you can change values over the context menu *Properties* of the FUP-page or by the context menu *Input of value* or by a double click on the elements.

Here you can configure data, e.g. a value of On/Off in the field *Value*.

You will transfer the changed value to the hardware online if you confirm by clicking the button *Accept*.

In the following the value will be changed by the context menu *Properties*.



Notice During the online mode you cannot edit something in the FUP-Editor.

7. Macro

Macros are used for rapid and easy programming of often reoccurring functions.

General

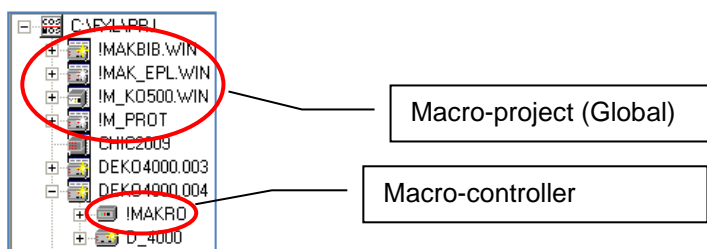
Macro FUP-pages are special FUP pages to automate repeated functions / operational procedures. All dynamic elements of a macro FUP page are administrated in the related macro-definition file. The macro-definition file is a simple text file which can be edited with the set standard editor. When pasting macro FUP pages the time and effort for a new project reduces to the editing of the macro-definition file. The sources of a macro can be saved as libraries at a macro-project or at a macro-controller.

Macro FUP pages are shortly named *macro* furthermore and the sources of the macros are shortly named macro source furthermore.

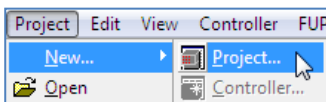
The macro (macro FUP page) is a copy of a macro source. As long as a FUP page in a project has the macro-status, the macro and the macro-state are linked together, as the macro knows its source. Thereby the time and effort of the project reduces to edit the definition file. Simultaneously the changes at the macro source are transferred to all used macros rapidly. With one click all macros will be updated without opening the FUP-Editor of the project. For individual changes the macro-status can be disabled and the FUP page can be edited as normal.

Create

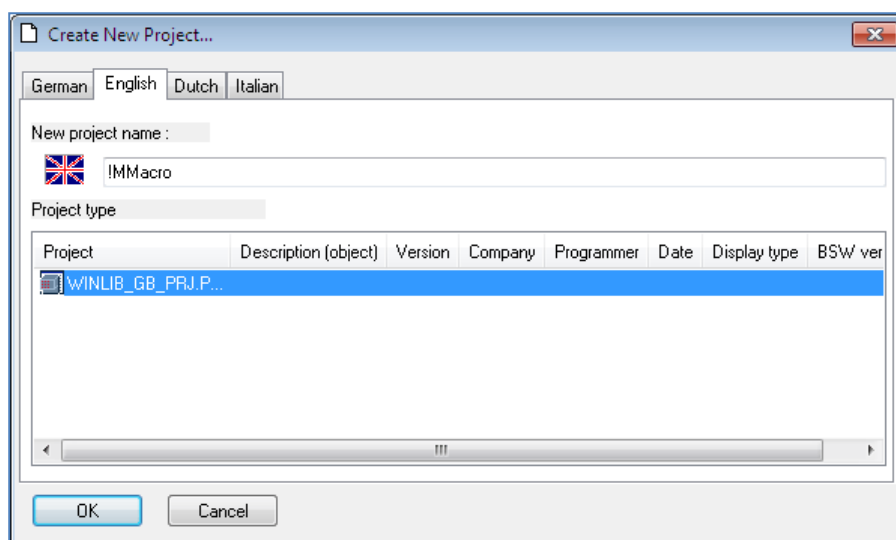
Every FUP page can be used as macro source. The name of a macro-project or macro-controller must begin with **!M**.



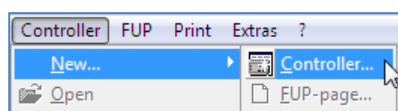
To use a FUP-page as macro you have to create a macro-project (global macro) or a macro-controller (local macro) and copy the FUP-pages into the macro-controller. A global macro can be copied to all projects and directly been used. A local macro can only be used in the according project. A new global macro will be created by creating a new project first (*Project – New... - Project*).



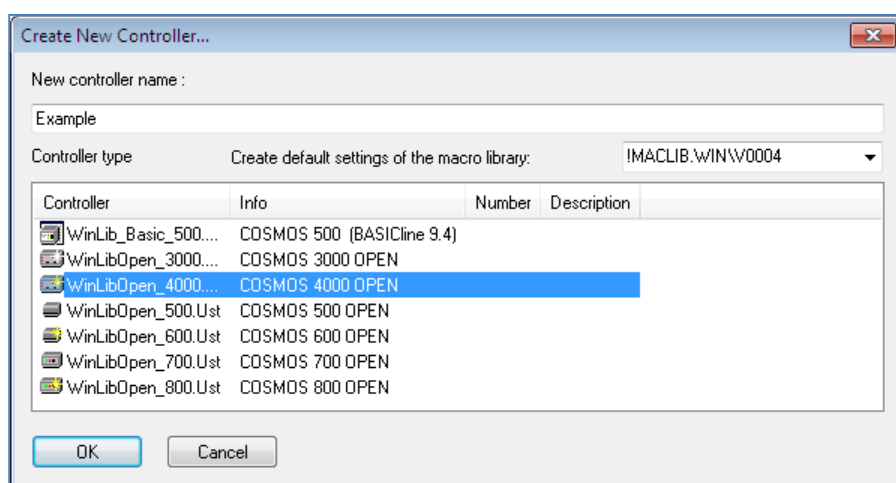
Please take care that the project name begins with **!M** (e.g. **!MMacro**). This step is required for global macros.



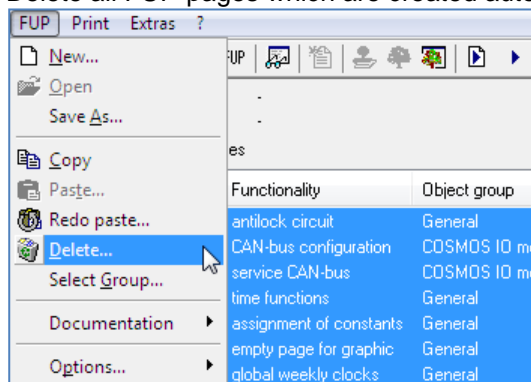
Afterwards you have to create a new controller in the project (for global and local macros) by *Controller – New....*



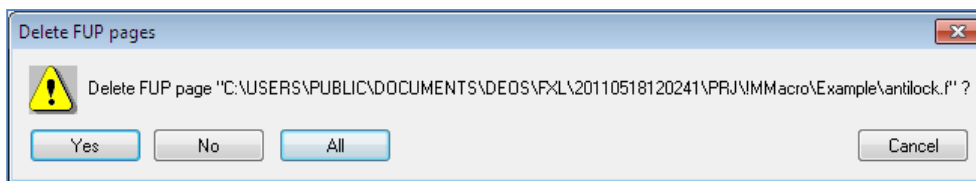
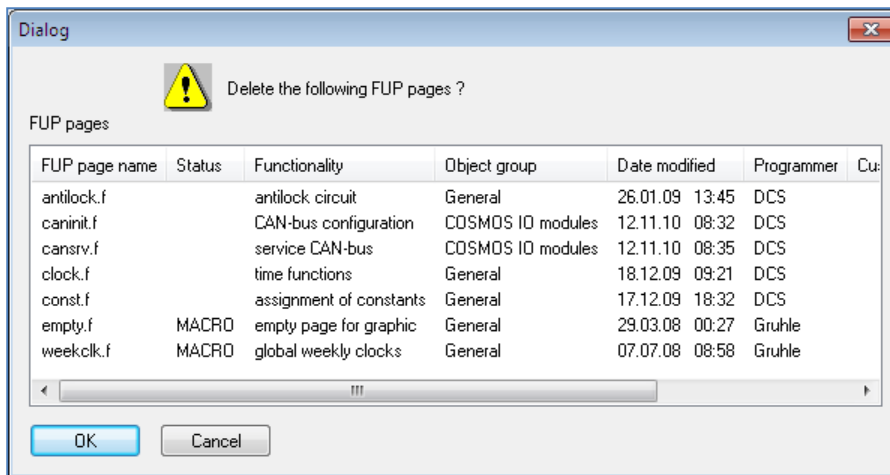
The name for global macros can be individually but for local macros it must begin with *!M*. Please select the controller accordingly (COSMOS 4000 OPEN).



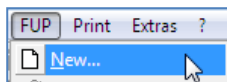
Delete all FUP-pages which are created automatically.



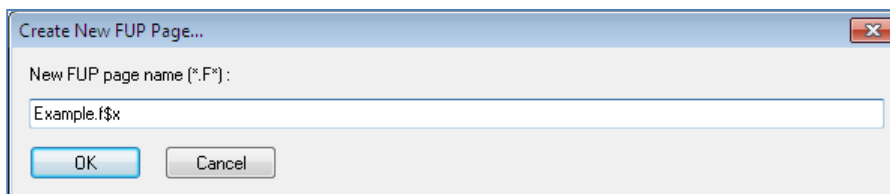
Confirm the deletion with *OK* and *All*.



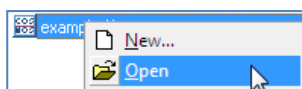
Create a new FUP-page by *FUP – New...* which you require for programming your macro.



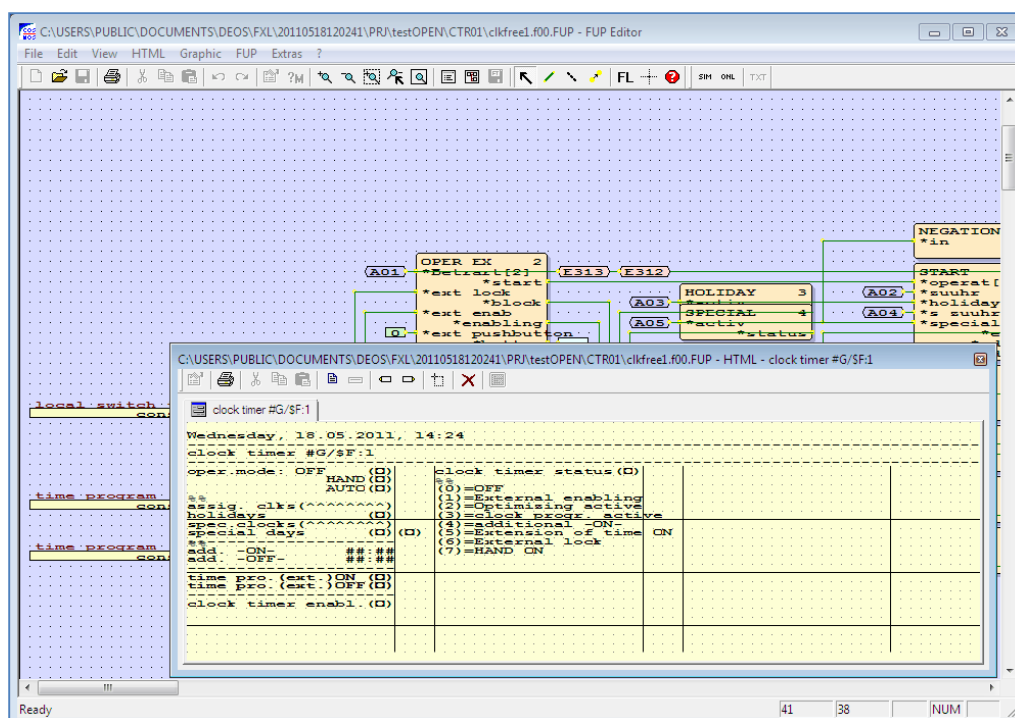
The name should end with *.f\$x to provide automatic generation of names and therefore prevent to name FUP-pages equally.



Finally you open the FUP-page by *FUP – Open* or by a double click on the FUP-page.



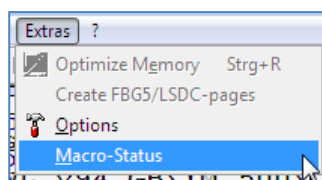
Replace all elements in the FUP-page by definitions which should be managed by the definition file. A definition has to begin with **def** and can end with individually (special characters and blanks are not allowed).



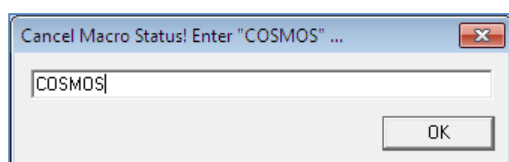
In the example the following elements were replaced by definitions:

Description	Definition
HTML-page title	defitle
Terminal identifier (Used in HTML- and FUP-page!)	deft00
Constant	defi00
Reference	defe00
Customer	defc
Function	deff
Object	defo
Programmer	defp

Now set the macro state in the FUP-Editor:

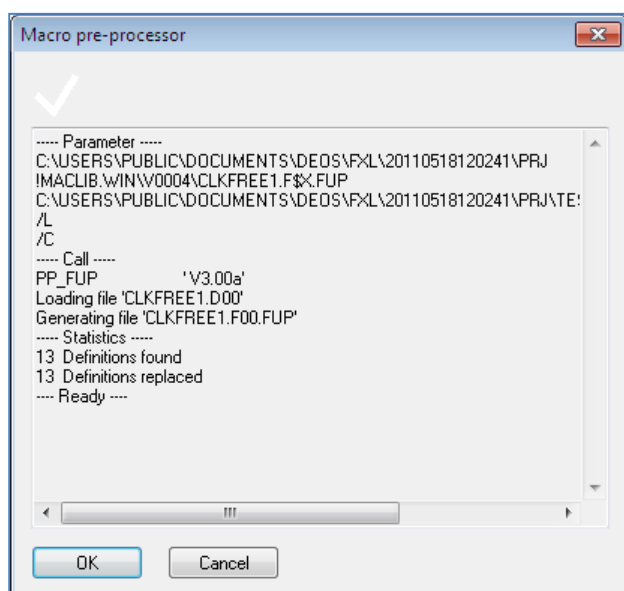
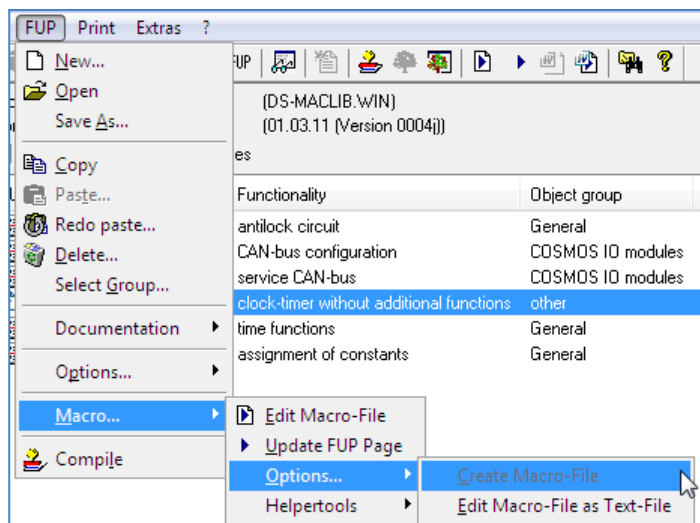


You have to call the menu in the FUP-Editor *Extras – Macro-state*, enter **COSMOS** and confirm with OK.



Close the FUP-Editor now.

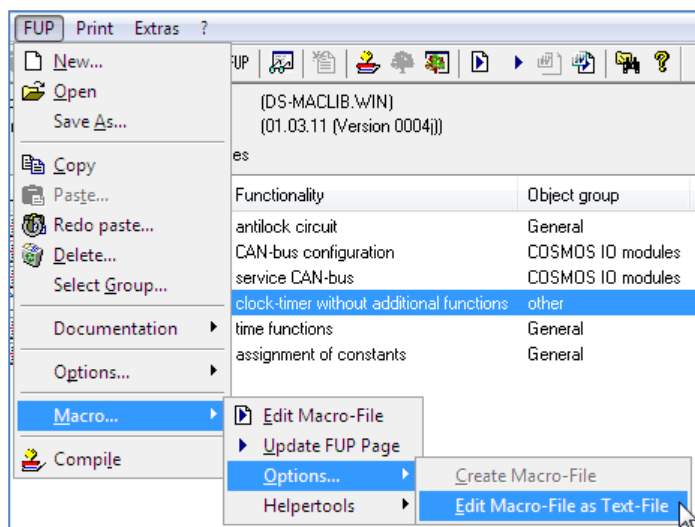
Create now the definition file by calling the FUP XL menu “FUP → Macro... → Options → Create macro file”.



You can edit the definition file afterwards.

Edit Text File

You have to call the menu “FUP → Macro... → Options → Edit Macro-File as Text-File”. There you can edit the identifiers/comments of the definitions.



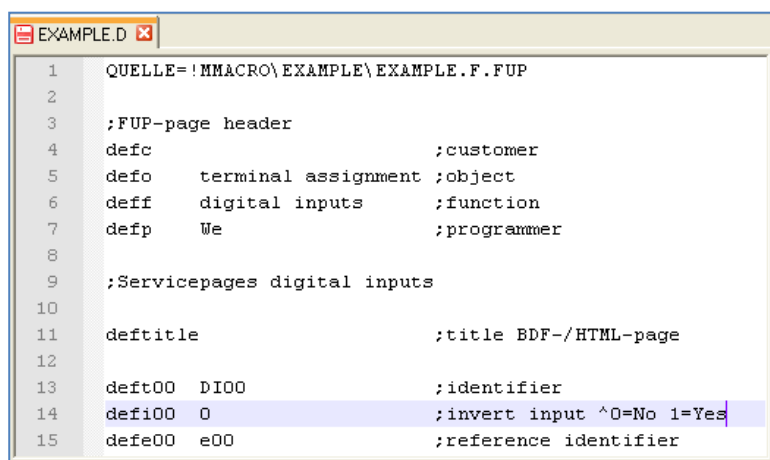
The default editor (configurable at “Extras → Options → General → default editor for text files”) will open. You can now define identifiers/comments for the definitions separated by a semicolon ‘;’ and further notices separated by ‘^’. Furthermore delete the double quote “”.

Format of a line with definition:

Definition	Default value		;	Comment	^	Notice	Combobox setting
defxxx	xxxx		;	comment	^	notice	(more notices) {picture=1} ...

Format of a line without definition:

```
;;      bright comment line
;;%%   bright comment line with bold font
```

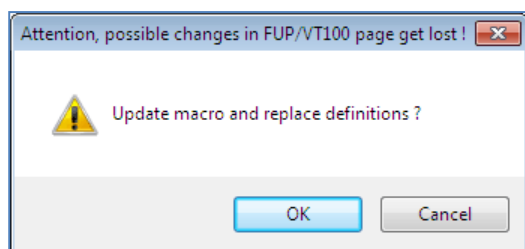


Definitions can be reused.

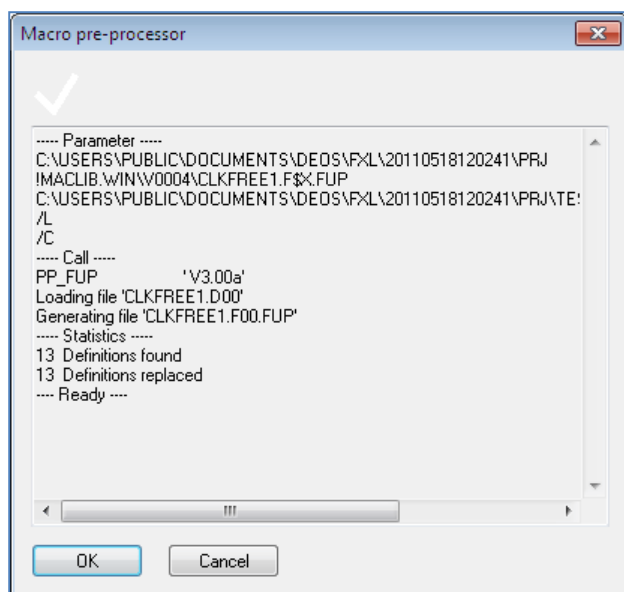
Example def_o Heating; controller identifier
 def_f Pump {def_o}; Tooltip

Save the settings and close the window afterwards. Confirm the following prompt with **OK**.

Hint You can open the definition file as text file by pressing [Shift] + .



Afterwards a window will be opened which shows the routines which were done. Confirm this one with **OK**.



Usage

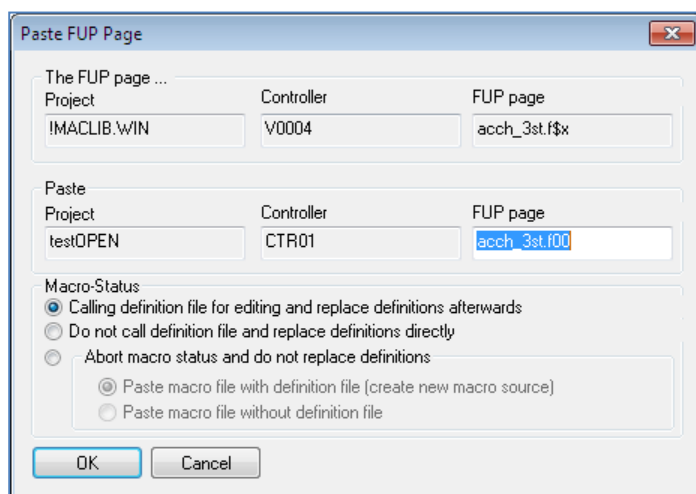
Copy the macro source and paste it into you FUP-project. The macro state will become active when inserting.

There are four different possibilities available of how to handle the definition file.

- 1 Calling definition file for edition and replace definitions afterwards
- 2 Do not call definition file and replace definitions directly
- 3 Abort macro status and do not replace definitions → Paste macro file with definition file (create new macro source)
- 4 Abort macro status and do not replace definitions → Paste macro file without definition file

1- Calling definition file for edition and replace definitions afterwards

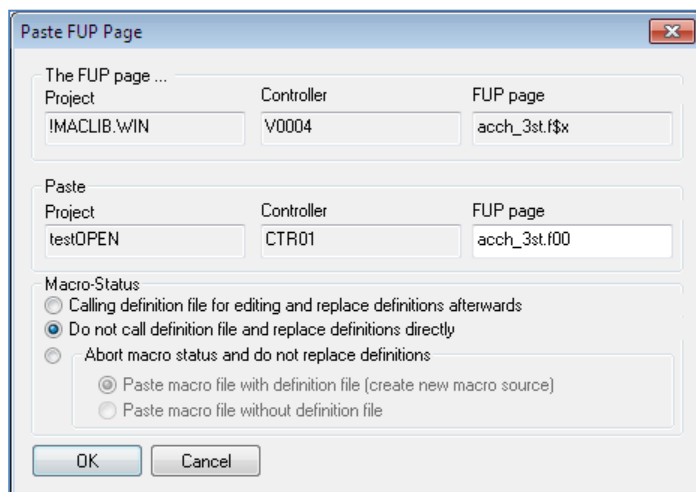
Paste the FUP-page as macro to the project, whereas the definition file is called for editing.



The definition file is called for editing and afterwards the macro source will be copied to the project. Thereby the definitions will be replaced. The copied FUP-page gets the status *macro* and will be marked.

2 - Do not call definition file and replace definitions directly

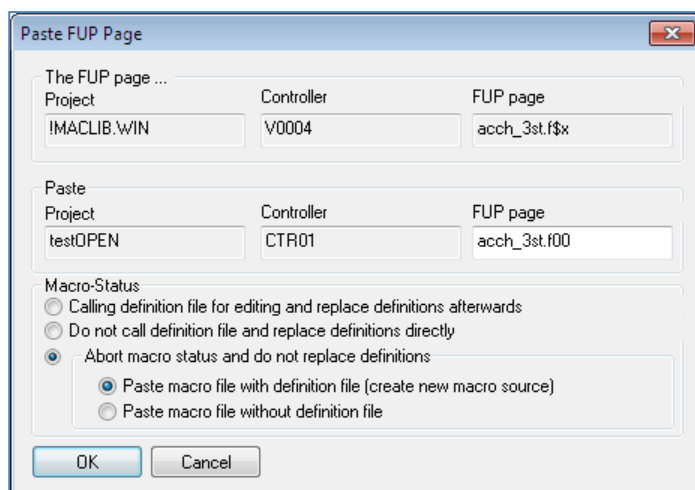
Paste the FUP-page to the project as macro. The definition file is not called for editing.



The definition file is not opened. The macro source is copied to the project. Thereby the definitions are replaced by the standard texts. The copied FUP-page gets the status *macro* and will be marked.

3 - Abort macro status and do not replace definitions → Paste macro file with definition file

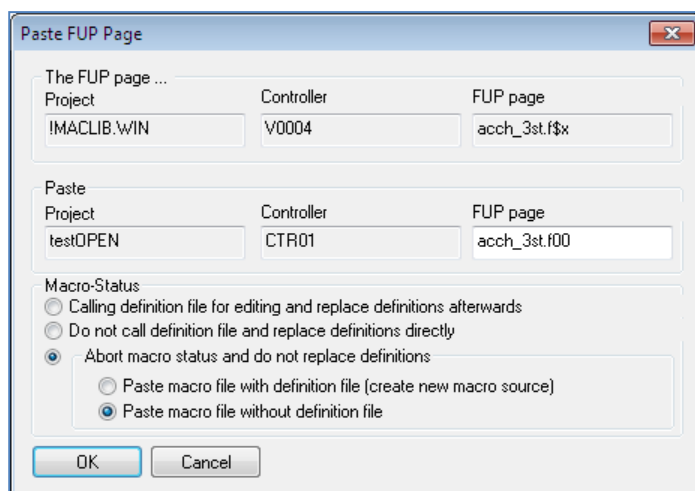
Create new macro source with definition file.



The macro source is copied to the project to create a new macro source. Thereby the definition will not be replaced. Afterwards the definition file is called to edit.

4 - Abort macro status and do not replace definitions → Paste macro file without definition file

Create new macro source without definition file.



The macro source is copied to the project. Thereby the definition file will not be copied and the definition will not be replaced.

After insertion an input dialog will open to assign the definitions of the in- and outputs and further references.

CA\USERS\PUBLIC\DOCUMENTS\DEOS\FXL\20110518120241\PRJ\TESTOPEN\CTR01\CLKFREE1.F00

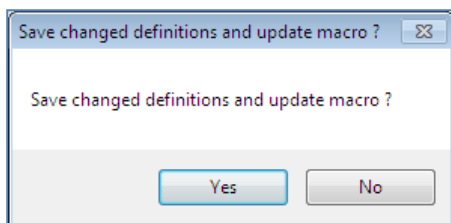
Definition	Definition declaration	Choice...	C...	Comments

				free clock timer

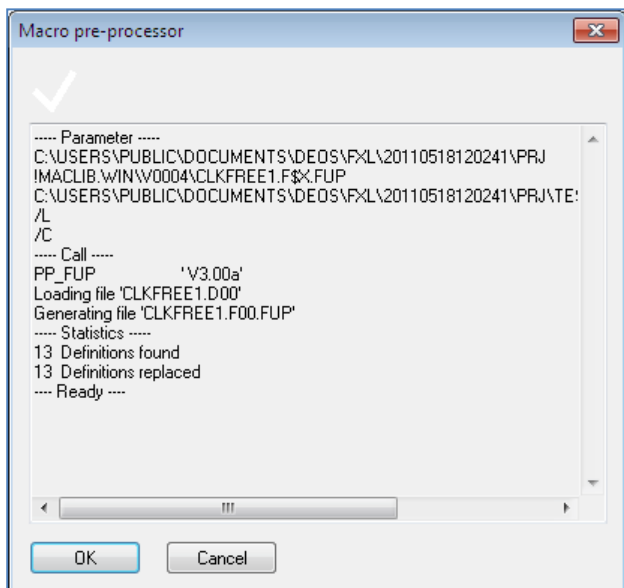
def_k				customer
def_o	other			name of installation
def_f	clock-timer without additional functions			function
def_p	Gruhle			programmer
def_i	free clock-timer\without additional functions			information text

Save changed definitions and update FUP page

Print Cancel



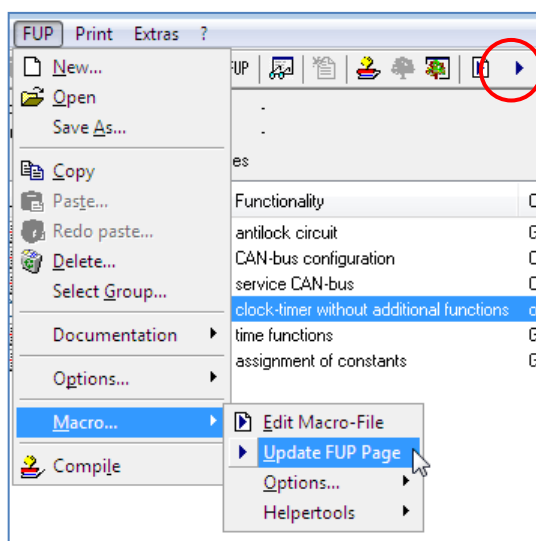
The executed routines will be shown afterwards. Confirm this window with OK.




The macro source is now created.

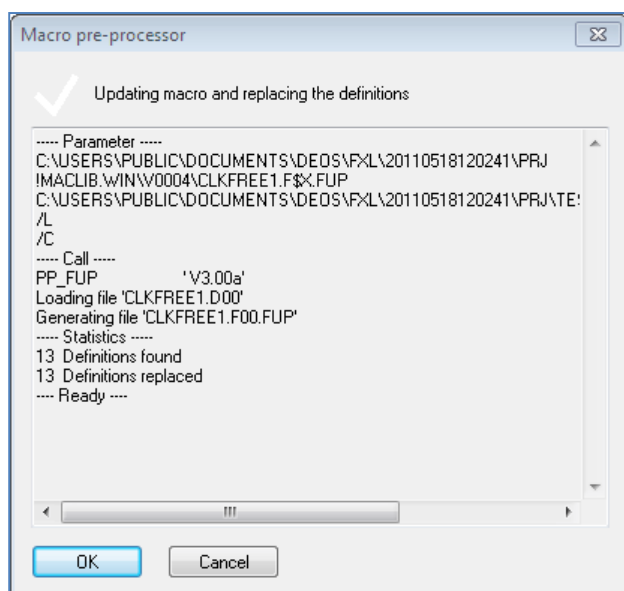
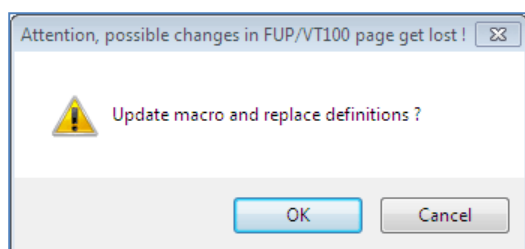
Update FUP-Page

If you have changed the macro source then call “FUP → Macro... → Update FUP-page”.



Notice *Update FUP-page* can also be called by using the button  at the toolbar.

The macro will be updated. Thereby the macros source will be copied to the project and the definitions will be set.

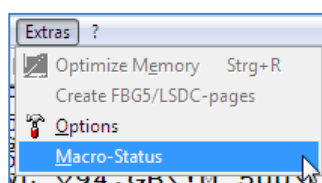


Notice The definition file will remain after updating. If new definitions are added then you have to insert them manually into the definition file.

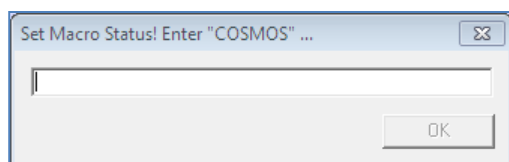
Multiple selections are possible by mouse or group selection.

Remove / Set Macro State

The macro state can be changed in the menu of the **FUP-Editor** at *Extras –Macro-Status*.



Please insert the word **COSMOS** and confirm with the button [OK].



Notice If the macro state is set and the processes *update FUP-page* or *edit macro* file are running then the FUP-page will be overwritten by the macro source. Therefore changes which are done after removing the macro state in the FUP-page may get lost when resetting the macro state while refreshing.

Convert DOS Macro

If a DOS macro is converted in FUP XL then the project identifier in the source definition of the definition file will automatically be changed to *.win*. Therefore macro projects with the ending *.win* have to be converted.

Compressed Access/Option Setting

The access/option of COSMOS BASICline systems can be set by a definition using the compressed access/option setting.

The compressed access/option setting is a compound of nibbles by the selected access and option buttons. Thereby the nibbles of the option will be inserted between the nibbles of the access. Pay attention that the first three nibbles result in the word *DEF*. Therefore the access always starts with 0xD and the option is always 0xEF. Therefore it is possible to set 16 compressed access/option settings per macro.

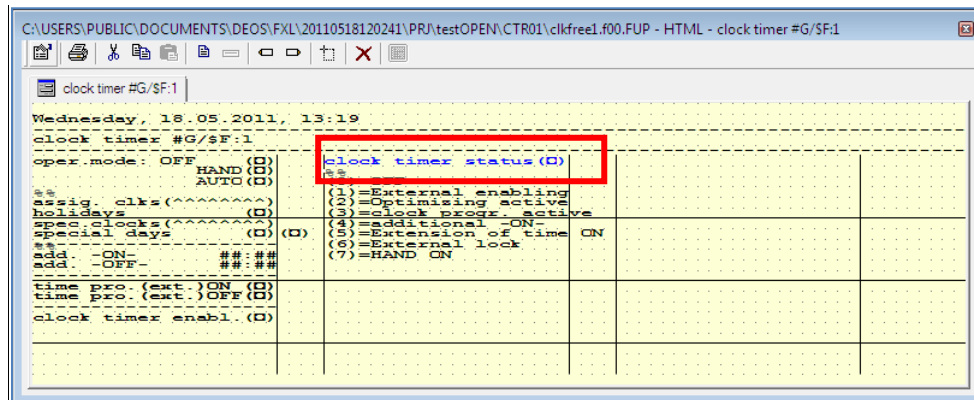
Information A nibble is a half-byte (4 bits).

Access	Option	Definition in the definition file
0xD0	0xEF	DEF0 or def0
0xD1	0xEF	DEF1 or def1
0xD2	0xEF	DEF2 or def2
0xD3	0xEF	DEF3 or def3
0xD4	0xEF	DEF4 or def4
0xD5	0xEF	DEF5 or def5
0xD6	0xEF	DEF6 or def6
0xD7	0xEF	DEF7 or def7
0xD8	0xEF	DEF8 or def8
0xD9	0xEF	DEF9 or def9
0xDA	0xEF	DEFA or defA
0xDB	0xEF	DEFB or defB
0xDC	0xEF	DEFC or defC
0xDD	0xEF	DEFD or defD
0xDE	0xEF	DEFE or defE
0xDF	0xEF	DEFF or defF

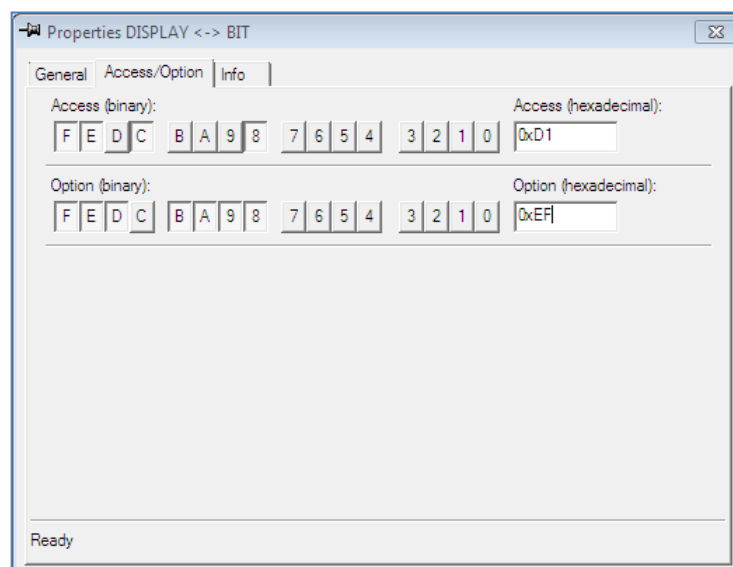
After the definition it is required to set four nibbles. The following table shows the most used compressed access/option settings.

Desired access	Desired option	Definition setting	
0xFF	0x00	F00F	(always visible)
0xCE	0x00	C00E	(stupid caretaker)
0xCC	0x00	C00C	(smart caretaker)
0xC0	0x00	C000	(service technician)
0x80	0x00	8000	(do not show text)

Example The access and the option of the text “clock timer status” should be set by the definition def1.



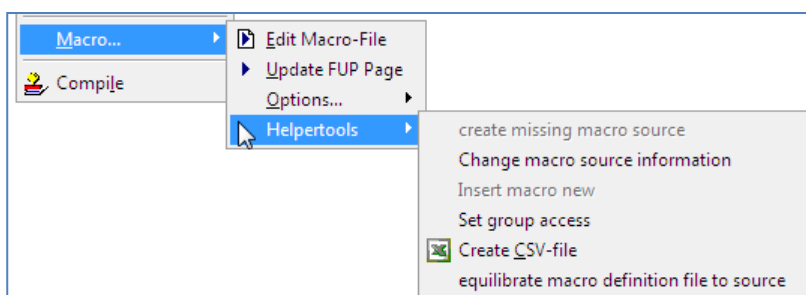
The access of the HTML elements will be set to 0xD1 and the option to 0xFE.



The definition in the macro file will be set like following:

```
def1 clock timer const.f dig_null
def1 8000
```

Helpertools



Create Missing Macro Source

By the menu *FUP – Macro – Helpertools – create missing macro source* it is possible to create a missing macro source. It cannot be guaranteed that this created macro source matches the real macro source. Definitions which cannot be resolved clearly will be inserted into the macros source as comment.

Notice Definitions which cannot be resolved clearly are numbers, empty definition settings and multiple definitions with the same name. Therefore this tool is only classified as Helpertool and not as recover function of a macro source.

Change Macro Source Information

By the menu *FUP – Macro – Helpertools – change macro source information* it is possible to change the information of the macro source by a list..In this list the source information will be visualized in the fragments *Project source information*, *CTRL- source information* and *FUP page name- source information*. By a multiple selection the macro source information can be changed. By the button [change] the new macro sources will be inserted into the definition files.

Notice While changing the macro source information no syntax control will be done. The set definitions in the definition files and the really required definitions in the new set macro source are not checked as well. Therefore this tool is only classified as Helpertool and should only be used by advanced FUP-developers

Insert Macro New

In a test controller it is possible to check a macro for formal errors if using the function in the menu *FUP – macro – Helpertools – Insert macro new*. Thereby all macros which are in the clipboard will be inserted into the test controller with the extension "*.f01". All present definition files will be overwritten.

Notice Changed definition settings will get lost. Therefore this tool is only classified as Helpertool and should only be used by advanced FUP-developers.

Set Group Access

By the menu *FUP – Macro – Helpertools – Set group access* it is possible to copy the access of the 1.caretaker and the 2.caretaker of the HTML-pages, the FBG5-pages, the TUP-pages and the graphic pages to the access bits 0x0FF0. Thereby it is possible to realize 5 different user groups in one tree. It is only required to delete in the root directory of the tree for the according users the bits of the other groups.

Notice This function works also on FUP-pages which are not a macro. Therefore this tool is only classified as Helpertool and should only be used by advanced FUP-developers.

Create CSV File

For the purpose of checking the set definitions in the macro definition files you can generate a common CSV-file of all selected FUP-pages by the menu *FUP – Macro – Helpertools – Create CSV file*.

Equilibrate Macro Definition File to Source

By the menu *FUP – Macro – Helpertools – equilibrate macro definition file to source* it is possible to equilibrate a macro definition file with the macro source definition file. Thereby the set definitions in the definition file will remain.

8. BACnet

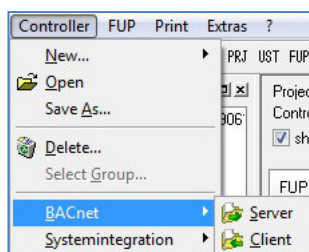
General

There are different approaches to parameterize and setup BACnet objects.

1. You can setup and parameterize the objects directly in the FUP-Editor during the development and apply them afterwards via the BACnet-Server in one step.
2. Every object can be setup by the BACnet-Server configuration in FUP XL and the parameterization is then done in the system integration environment.

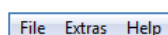
First the setup and parameterization via the FUP-Editor will be explained. Afterwards the system integration as BACnet-Server and finally the system integration as BACnet-Client will be explained.

In order to start the BACnet configuration select first the according controller and afterwards call the menu point *Controller – BACnet (either Server or Client)*.

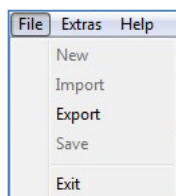


Screen Layout

Menubar



File



New

By this menu point it is possible to create new BACnet-Clients manually (menu point only active for *BACnet Client*).

Import

By this menu point it is possible to import *EDE*-files (*Engineering Data Exchange*) (menu point only active for *BACnet Client*). After the import it is only required to link the objects by drag&drop to the according HTML-elements (label).

Notice The term *EDE* (*Engineering Data Exchange*) stands for a data file with the extension .csv for the information transfer between the involved manufacturers.

Export

Creation of an EDE files (menu point only active for *BACnet Server*).

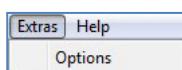
Save

The configuration of the BACnet objects can be saved by this menu point. You can save by the button , too.

Exit

This menu entry exits the program.

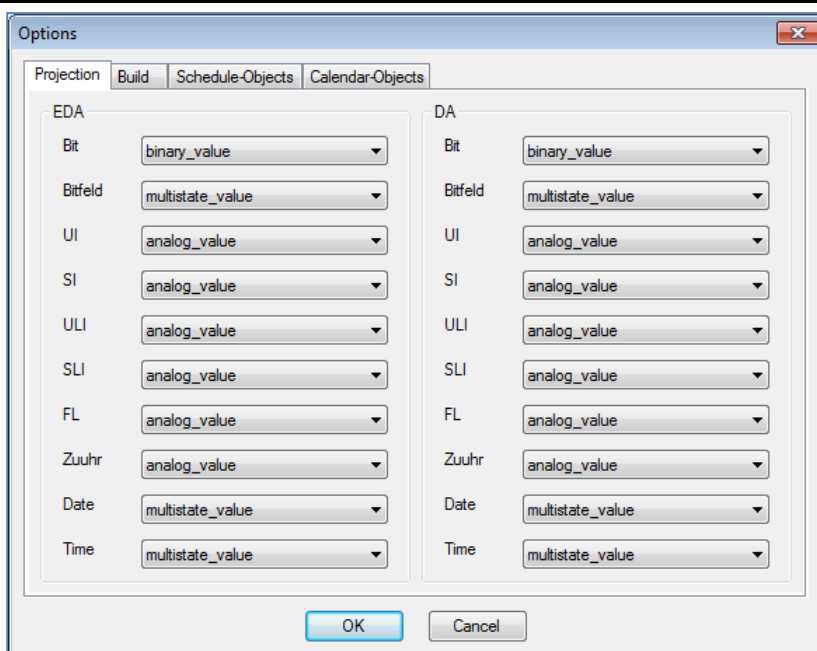
Extras



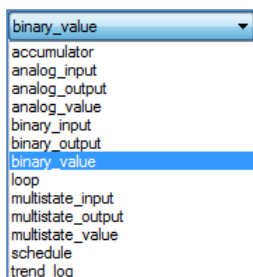
Options

By this menu entry it is possible to setup the projection, the name creation, the *Schedule* and *Calendar-Objects*.

Tab - Projection

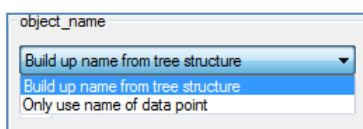
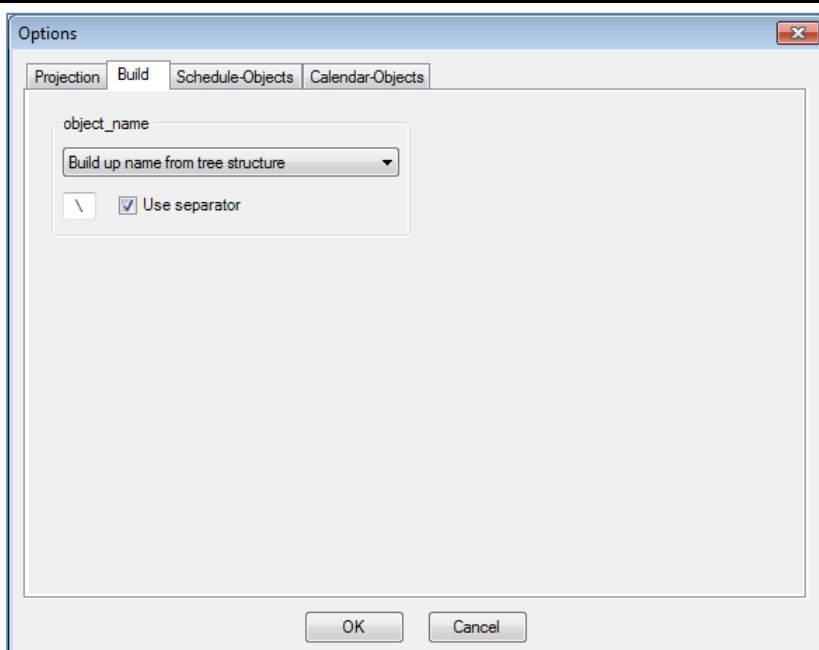


In the projection the automatic conversion of the data points can be configured, according to their FUP data type. If a data point is dragged by drag&drop from the HTML page to the BACnet area then it will be converted according to the settings.



Notice This is only possible if **no** EDE file is available.

Tab - Build

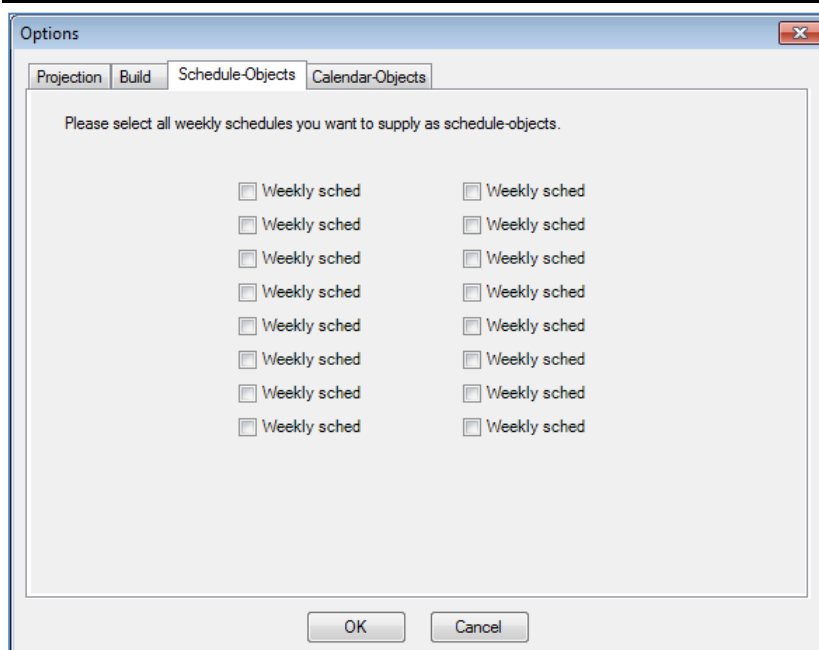


On the tab *Build* it is possible to configure the way the object names (object_name) of the BACnet objects should be created. There are 2 possibilities:

1. **Build up name from tree structure:** The names are generated from the freely configurable tree structure.
2. **Only use name of data point:** Only the set data point identifier is used for the name.

If the name is created by the tree structure then it is possible to set a character (according to the allowed characters of the font) as separator. Characters which are not allowed will be replaced by an underscore. If the data point identifier is used then this option is disabled.

Tab - Schedule-Objects

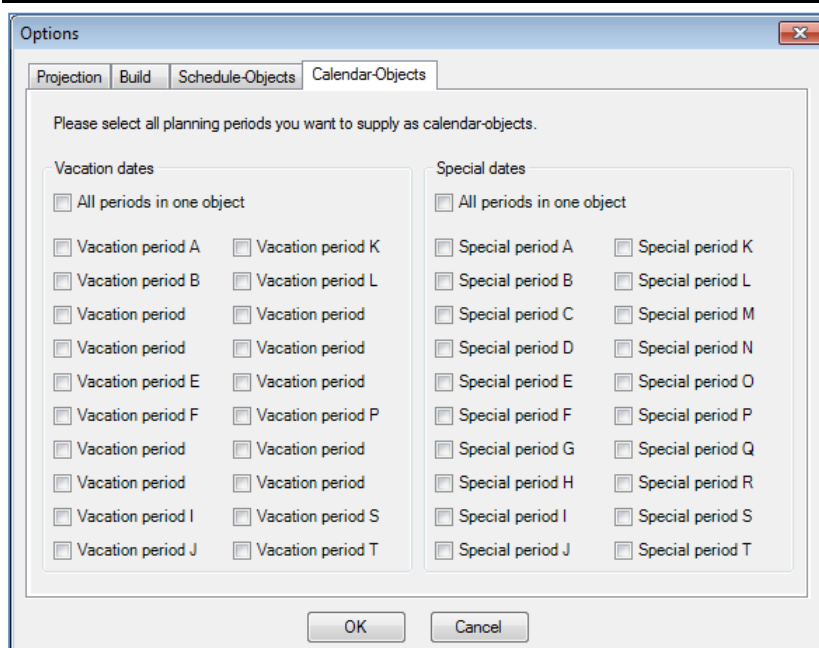


On this tab the weekly clocks can be set as BACnet schedules. To do so the desired weekly clocks have to be selected. The program will create these weekly clocks afterwards automatically as BACnet schedule objects.

Notice The weekly clocks A ... P allow only 1 switch on/off time per day. Furthermore these weekly clocks do **not** allow *Exception Scheduling*.

If multiple switch times per day are required or should the *Exception Scheduling* be used then the free BACnet Schedules have to be used. The free BACnet Schedules support the whole BACnet scope.

Tab - Calendar Objects



On this tab it is possible to select the vacation and special periods which should be created as calendar objects. The vacation and special dates can be merged as one object.

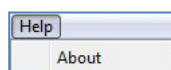
Notice They are copies of the holiday and special dates as BACnet Calendar objects.

The following limitation have to be considered:

1. A single holiday or special period supports only one date pair (1 entry per object).
2. All entries have to be set from BACnet without year setting.

If *All periods in one object* is used then only one BACnet object with 20 entries (A ... T) will be created. If the entries are changed from within BACnet then the order may change. It is not allowed in the control program to parameterize a selection of the periods. Everywhere where the periods are used it is required to assign all periods (A ... T).

Help

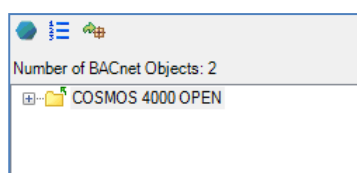


About

A dialog will be shown which shows information about the version and the manufacturer of the program.



Toolbar (center)



On the toolbar in the center are 3 icons with the following functionalities:



Switch of the tree view between "normal" and "divided by BACnet object types".

Resetting of all instance numbers.



Notice The old instance numbers will be lost.



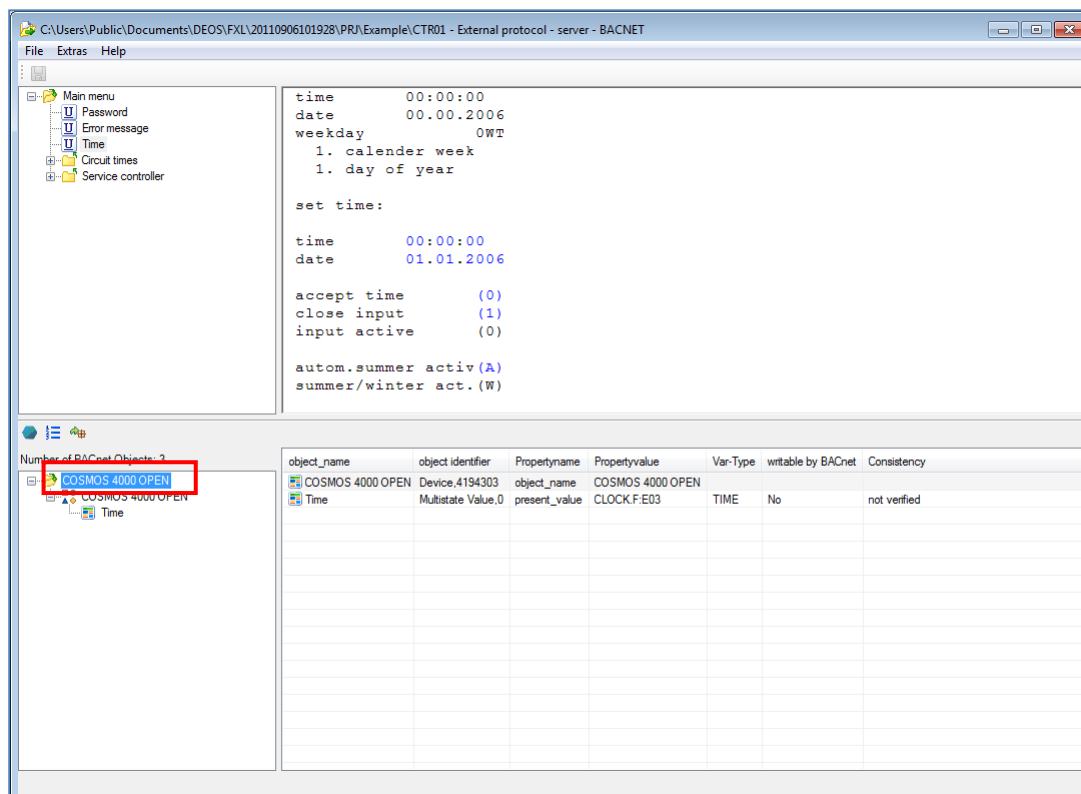
Import of the BACnet objects previously parameterized in the FUP.

Parameterization Views

In the bottom right window are two types of views for the parameterization.

Directory View

If the selection in the tree at the bottom left is on a directory then a list of all linked labels will be shown in the window right to it. This view is designed to parameterize the properties of the linked labels.

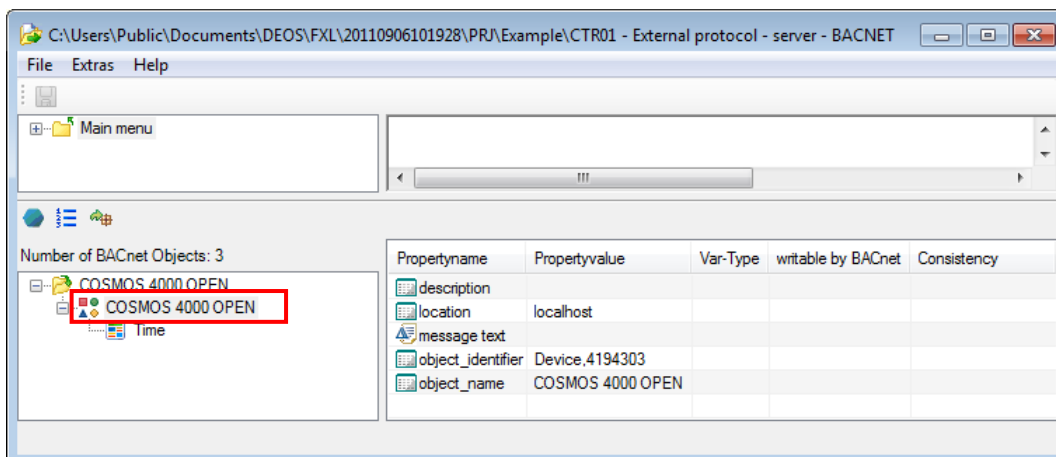


The titles in the table of the configured BACnet objects have the following meaning:

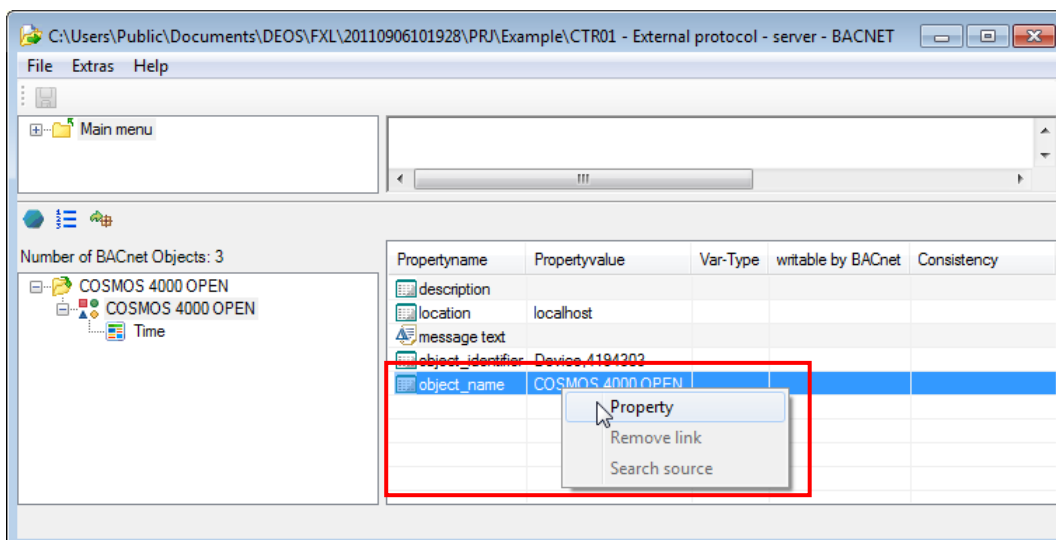
object_name	It is equivalent to object_name (please recognize the object name generation)
object_identifier	Object Type and Instance Number
Propertyname	Property, which is linked to the label
Propertyvalue	FUP page name: Label name which is linked
Var-Type	Type of variables in COMSOS
writable by BACnet	Shows whether the property is writable by BACnet or not
Consistency	The result of the consistency check will be shown here.

BACnet Object View

If a single BACnet object is selected then all parameterizable properties of the object will be listed in the table.



By selecting a single property and calling the context menu it is possible to parameterize single properties.



BACnet Server Configuration

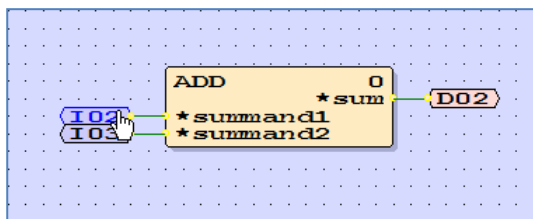
There are different approaches to parameterize and setup BACnet objects.

1. You can set and configure the objects directly in the FUP-Editor while programming and apply them afterwards in the BACnet server configuration in one step.
2. Every object can be set in the BACnet server configuration in FUP XL. The parameterization can be done afterwards in the external protocol environment.

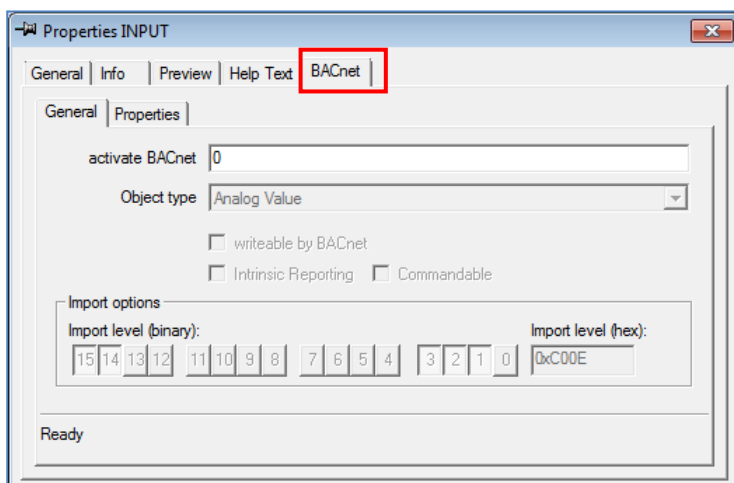
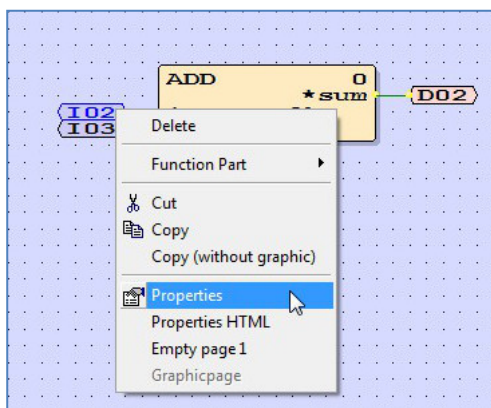
First the setup and parameterization in the FUP-Editor and afterwards the configuration of the BACnet server of the COSMOS controller will be explained.

BACnet Objects in the FUP-Editor

BACnet objects can be set directly in the FUP-Editor while programming inputs and outputs. This includes *analog*, *binary* and *multistate inputs, outputs and values* (see table about *object types*).



Select the desired basic module *input* or *display* and open the properties by the context menu.



Please select the tab *BACnet* on the opened properties dialog.

Tab - General

Please insert a 1 into the input field on the tab *BACnet – General* to enable BACnet. It is possible to enter a definition for macro purposes, too.

Please select afterwards the *object type*.

It is possible to choose from the following *object types*:

Analog	Input	This describes the properties of an analog measured value.
	Output	This describes the properties of an analog positioning value.
	Value	This describes the properties of an analog value; mostly this is a “calculated” value.
Binary	Input	This describes the properties of a binary measured value.
	Output	This describes the properties of a binary command.
	Value	This describes the properties of a binary value; mostly this is a “calculated” value.
Multistate	Input	This describes the properties of a multiple-staged input.
	Output	This describes the properties of a multiple-staged output.
	Value	This describes the properties of a multiple-staged value; mostly this is a “calculated” value.

Properties INPUT

General | Info | Preview | Help Text | BACnet

General | Properties

activate BACnet: 1

Object type: Analog Value

☒ writeable by BACnet
☒ Intrinsic Reporting ☒ Commandable

Import options

Import level (binary): 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0

Import level (hex): 0xC00E

Ready

Please configure the basic properties of the object.

Intrinsic Reporting

This is the object for the internal monitoring and messaging of events. Messages will be sent to the BMS by this mechanism. This option has to be set if the object should trigger a message (error). Then the according properties have to be filled.

Commandable

This setting is only available for *value* objects. It should only be set if the *value* object has to support the *priority array* (16 priorities).

Writable by BACnet

This option sets whether the *present value* of the object is writable by BACnet. If the check is set then the *present value* is writable by BACnet otherwise not.

Notice

If the *present value* of an input object should be writable in the case that *out of service* is true then this option has to be set.

Properties INPUT

General | Info | Preview | Help Text | BACnet

General | Properties

activate BACnet: 1

Object type: Analog Value

☒ writeable by BACnet
☒ Intrinsic Reporting ☒ Commandable

Import options

Import level (binary): 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0

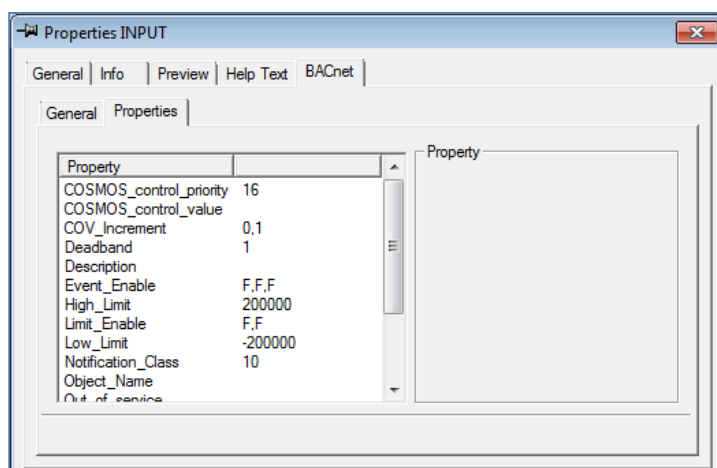
Import level (hex): 0xC00E

Ready

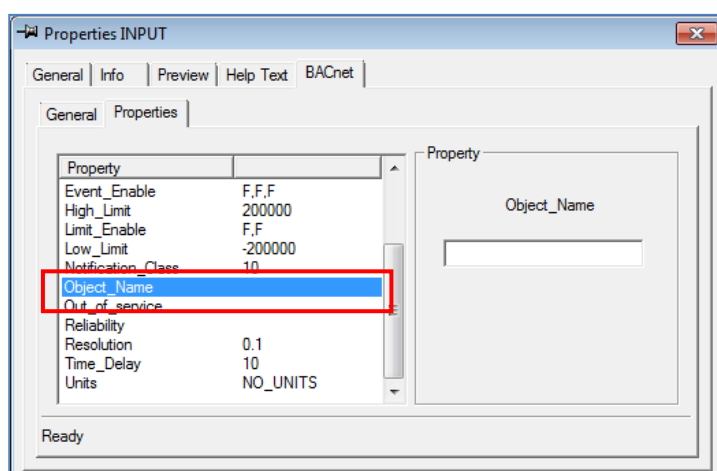
Afterwards the import level has of the object to be set. By the import layer it is possible to select the BACnet objects while importing in the *BACnet server configuration*.

The import level can be used to group BACnet objects (e.g. as set points, measured values, IOs, etc.) and will be used afterwards for the import in the BACnet server configuration.

Tab - Properties



Different properties are supported according to the object type. The properties will be set on the tab *BACnet – Properties*.

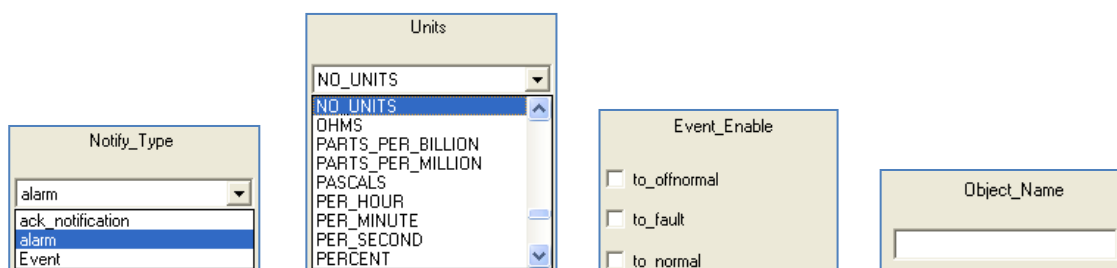


The object name is a mandatory property and therefore has to be set because it identifies the object. This name has to be **unique** in a device.

The following table shows the configurable properties in the FUP-Editor dependend on the object type:

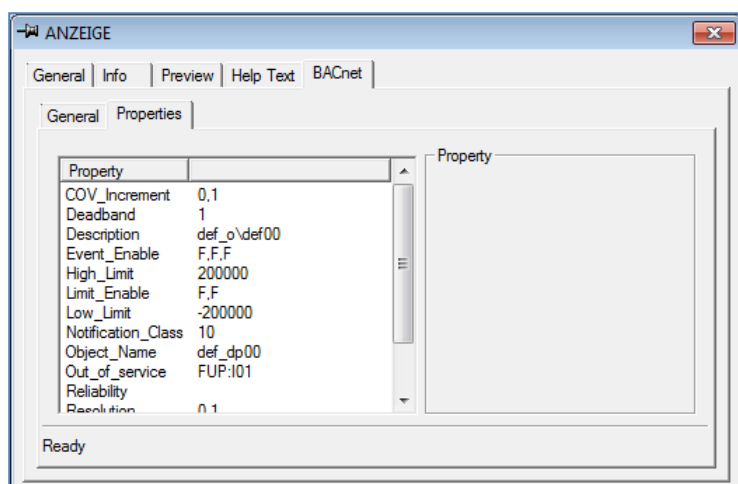
Property	Object Type								
	Analog			Binary			Multistate		
	Input	Output	Value	Input	Output	Value	Input	Output	Value
Active_Text				x	x	x			
Alarm_Value				x		x			
COSMOS_control_priority		x	x		x	x		x	x
COSMOS_control_value		x	x		x	x		x	x
COV_Increment	x	x	x						
Deadband	x	x	x						
Description	x	x	x	x	x	x	x	x	x
Device_Type	x	x		x	x		x	x	
Event_Enable	x	x	x	x	x	x	x	x	x
Fault_Values							x		x
Feedback_Value					x			x	
High_Limit	x	x	x						
Inactive_Text				x	x	x			
Limit_Enable	x	x	x						
Low_Limit	x	x	x						
Max_Pres_Value	x	x							
Min_Pres_Value	x	x							
Notification_Class	x	x	x	x	x	x	x	x	x
Notify_Type	x	x	x	x	x	x	x	x	x
Number_Of_States							x	x	x
Object_Identifier	x	x	x	x	x	x	x	x	x
Object_Name	x	x	x	x	x	x	x	x	x
Polarity				x	x				
Present_value	x	x	x	x	x	x	x	x	x
Resolution	x	x	x						
State_Text							x	x	x
Time_Delay	x	x	x	x	x	x	x	x	x
Units	x	x	x						
Update_Interval	x								

For an easy configuration of the properties drop-down menus are prepared. Text fields are provided to configure texts or numbers. The following images show some examples:



Please save the FUP page after the configuration of the objects and properties by the menu point *File - Save*. Afterwards continue according to [Import BACnet Objects from FUP](#).

A pre-parameterization by definitions which are done in the macro editor is possible, too. Therefore just enter the definitions. Furthermore it is possible to link further properties – not just *present value* – with a label. It has to be assured that the result is BACnet compliant.



The following properties can be linked to a label:

- COSMOS_control_value
- Deadband
- Event_Enable
- High_Limit
- Limit_Enable
- Low_Limit
- Out_Of_Service
- Reliability

Notice Not always all of the properties have to be set.

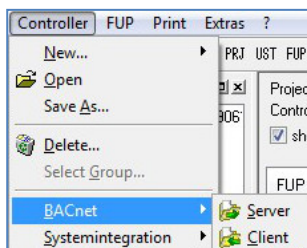
Some properties are only required if the object supports *Intrinsic Reporting*.

The following is a list of properties which only have to be set if ***Intrinsic Reporting*** is **activated** in the according object. The properties are object type dependent.

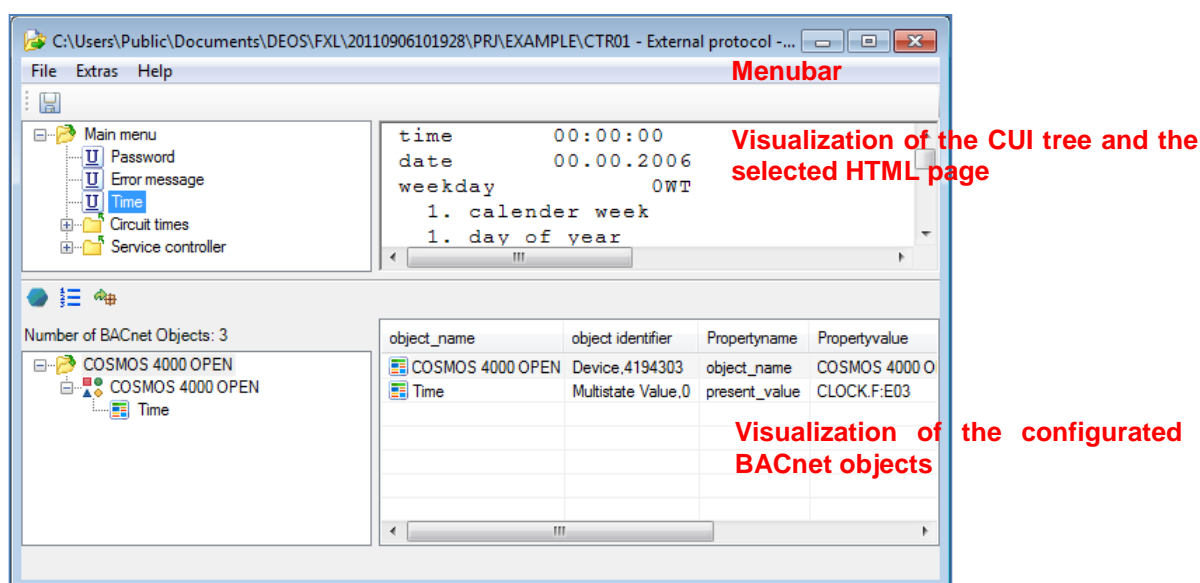
- Deadband (analog object only)
- Alarm_Value (binary input/value object only)
- Alarm_Values (multistate input/value object only)
- Event_Enable (all)
- Fault_Values (multistate input/value object only)
- Feedback_Value (binary/multistate output object only)
- High_Limit (analog object only)
- Limit_Enable (analog object only)
- Notification_Class (all)
- Notify_Type (all)
- Time_Delay (all)

Parameterization - BACnet Server Configuration

The BACnet server provides BACnet objects. Participants in a network providing data to other participants are called *server*. Call the parameterization of the BACnet server by the menu point *Controller* → *BACnet* → *Server* or by the context menu *BACnet* → *Server*.



The following dialog will open.



The view of the BACnet server configuration is basically divided into 2 areas. In the upper area the CUI tree (left) and the selected HTML page (right) are shown. In the lower area the configured BACnet objects (left) and their properties (right) are visualized.

The elements from the upper area, which should be provided by the OPEN EMS as BACnet objects, can be put into the lower area by drag&drop.

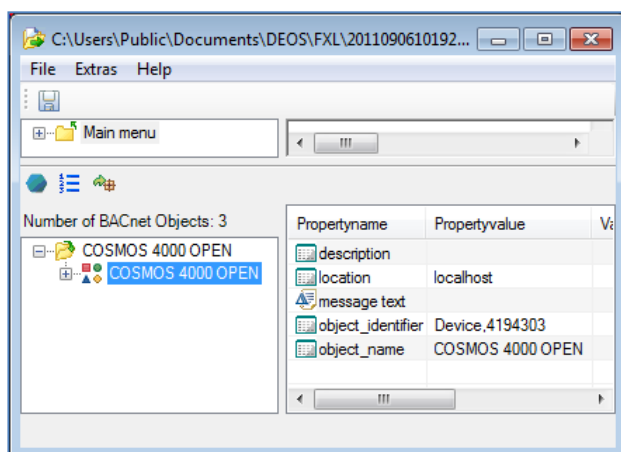
Configuration of the BACnet Device ID

Automatic Configuration of the BACnet Device ID

Every BACnet Device in the BACnet network has to have a unique *BACnet Device ID*. A valid *Device ID* is between 0 and 4194302. If the *Devide ID* in the BACnet configurator is 4194303 then it is **not a valid Device ID**. A OPEN EMS uses this number to automatically allocate a valid *BACnet Device ID*. To do so the last 2 octets of the IP address are used. Examples are listed in the following table:

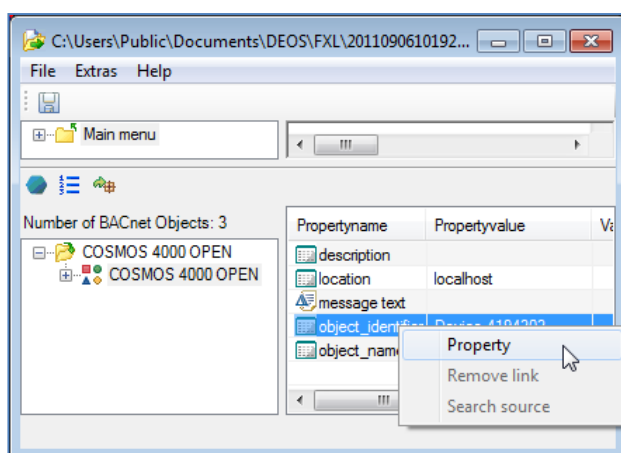
IP Adresse	BACnet Device ID
192.168.170.123	170123
192.168.10.21	10021
192.168.0.1	1

Manual Configuration of the BACnet Device ID

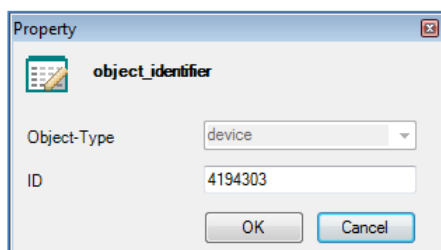


If the automatic allocation of the *Device ID* is not desired then the *Device ID* can be changed manually.

To change the *Device ID* it is required to select the *device object* in the tree.



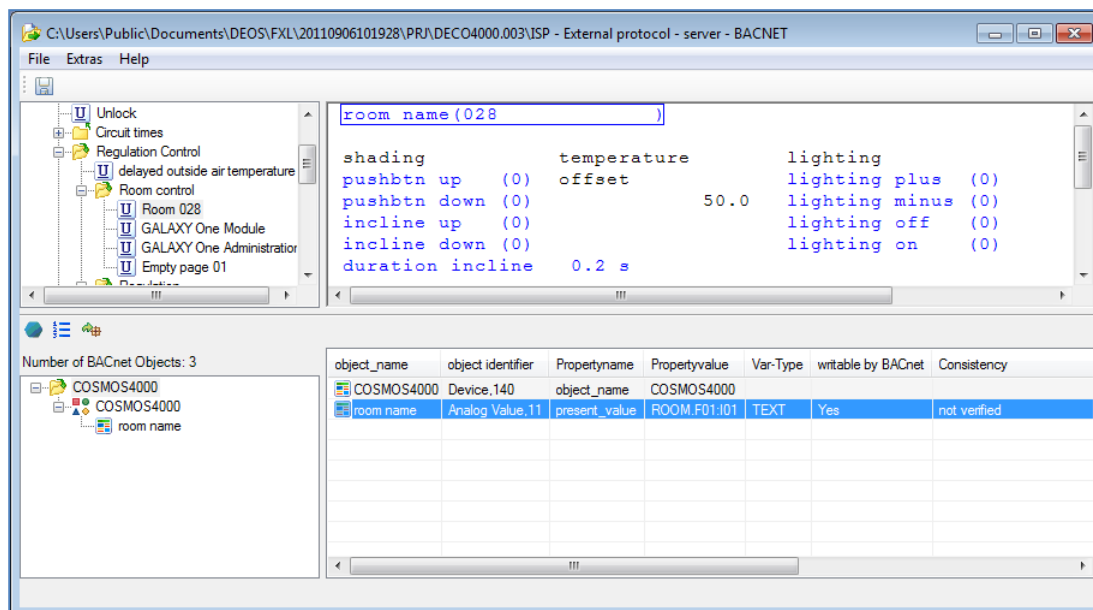
Afterwards select the line *object_identifier* and call the context menu. Click on *Properties*.



This dialog will open. At *ID* it is now possible to enter a new *Device ID*. Confirm the new *Device ID* by a click on *OK*.

Create BACnet Objects by Drag&Drop manually

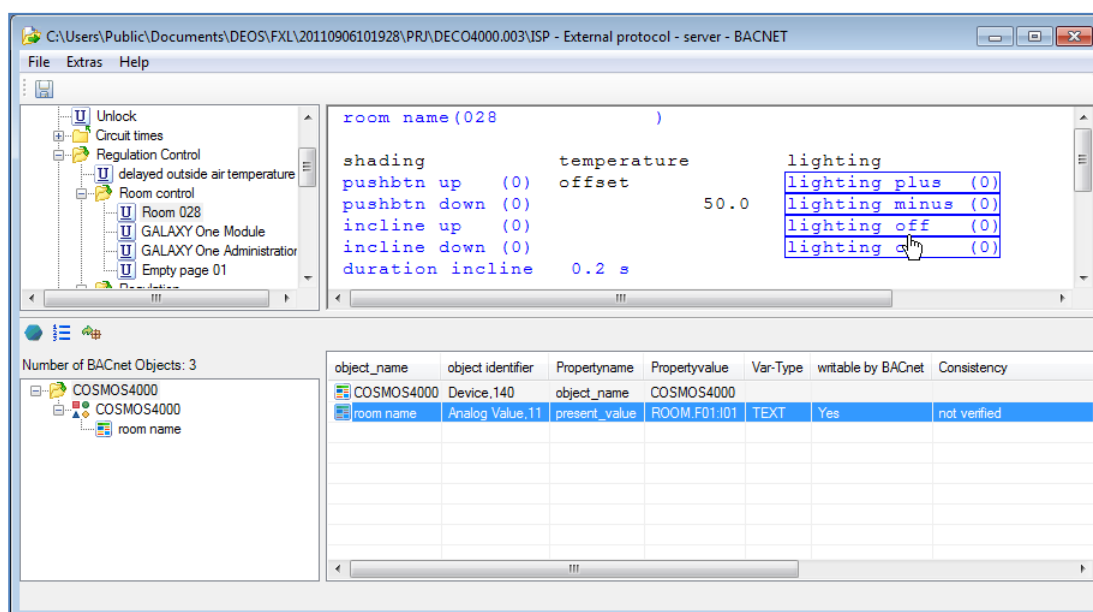
The label from the user interface (top right) can be put into the table (bottom right) by drag&drop. Thereby the label gets linked to the *Present Value*.



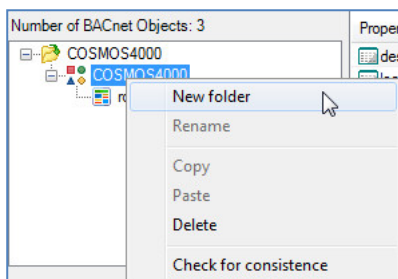
Notice If a pretext is set for an input or display then this pretext is used automatically as *object_name*.

If an input or display without pretext and a static text is inserted simultaneously by drag&drop then the static text is used as *object_name*. Texts can be adjusted individually at any time.

By a multiple selection multiple BACnet objects can be created by drag&drop. This should only be done with elements which have a pretext.

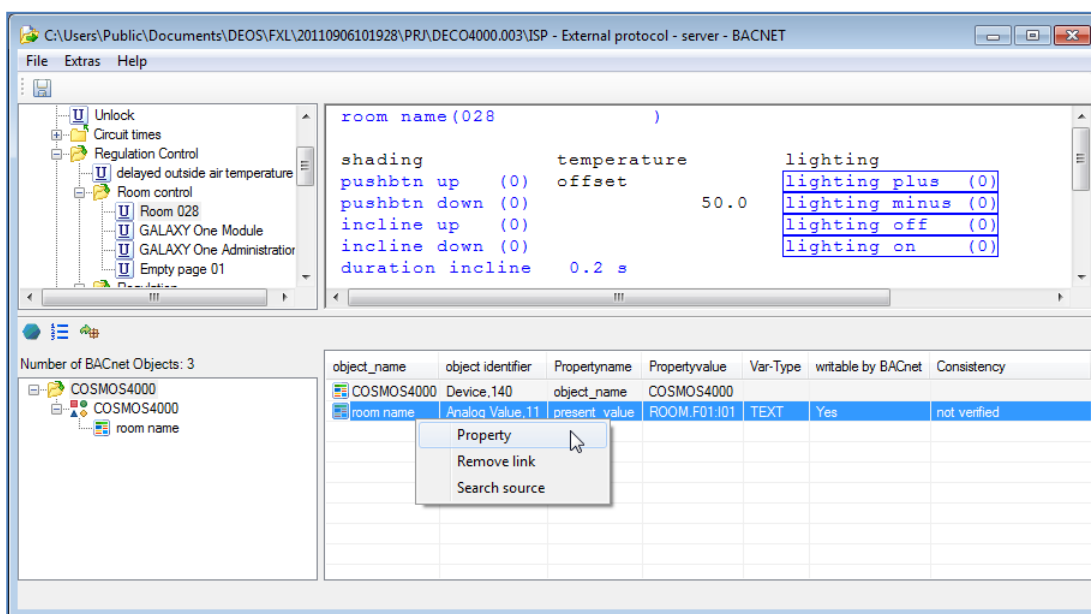


Hint A selection can also be dragged onto the tree at the bottom left.

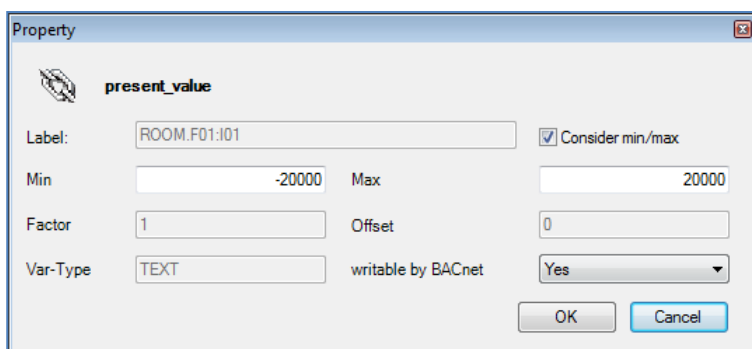


By the context menu *New folder* in the tree at the bottom left it is possible to create any tree structure desired.

By selecting a line and calling the context menu it is possible to change the *properties* of the linked label.



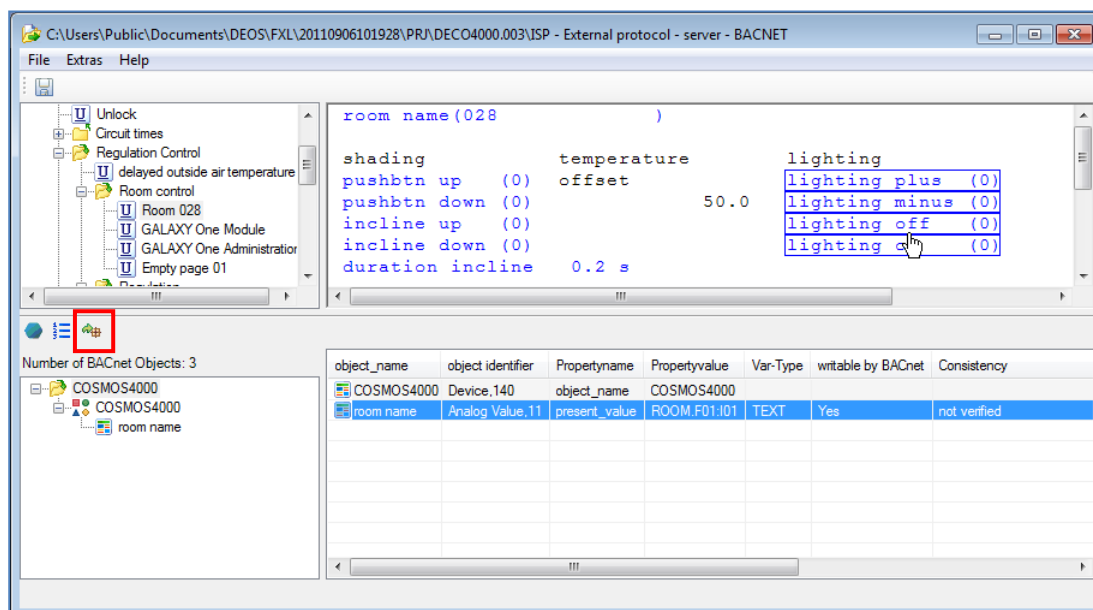
A dialog with the properties of the single label will open to change them.



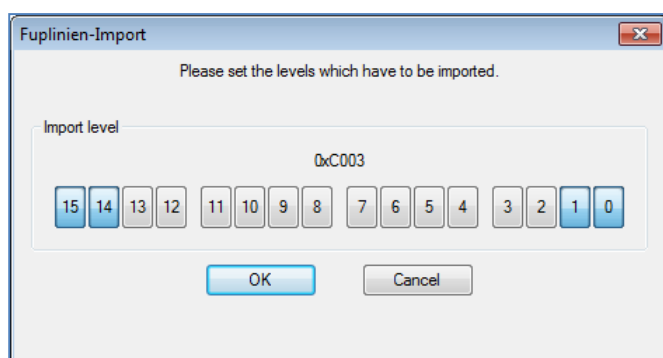
Here the properties of the linked label can be changed. Changes have to be confirmed by *OK* to get applied.

Import BACnet Objects from FUP

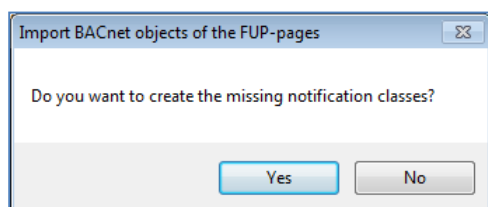
The import of the BACnet objects parameterized in FUP XL can be done by the button .



The import layer has to be set to import the elements. This layer is set in the FUP-Editor for every element. The elements can be selected by this import layer. The import level can be used to group BACnet objects (e.g. as set points, measured values, IOs, etc.)



Confirm the import layer by **OK**. The FUP pages are now scanned for pre-parameterized BACnet objects. The object instance numbers will be successively applied. If objects supporting *Intrinsic Reporting* are found then the query will open whether the according *Notification Classes* should be created automatically.



If this is confirmed by **Yes** then the required *Notification Classes* will be created.

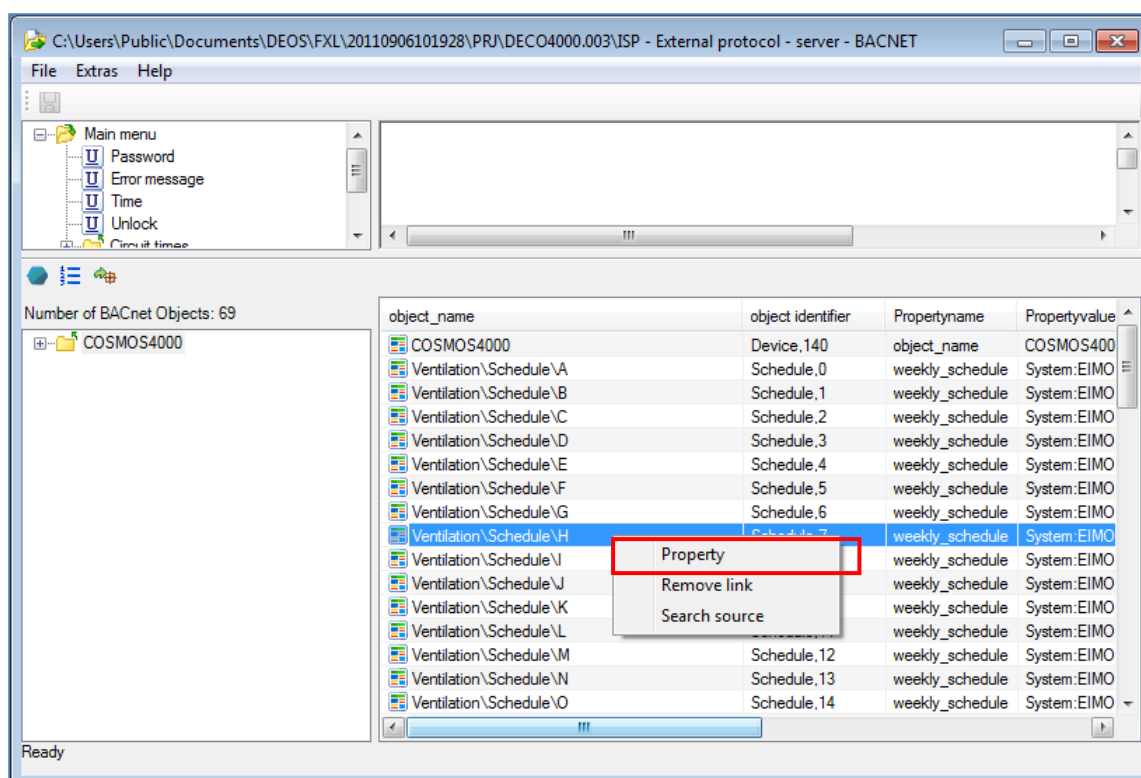
Object names of BACnet objects have to be unique. FUP XL checks this for every BACnet supporting project. If object names are not unique then the user will be informed and the according objects will be marked red. Now further settings can be done if required. Please see the following chapter [Advanced Parameterization](#).

Advanced Parameterization

Label specific parameters can be changed in the listview. By selecting a line and pressing the right mouse button the context menu will open. This context menu provides 3 menu points.

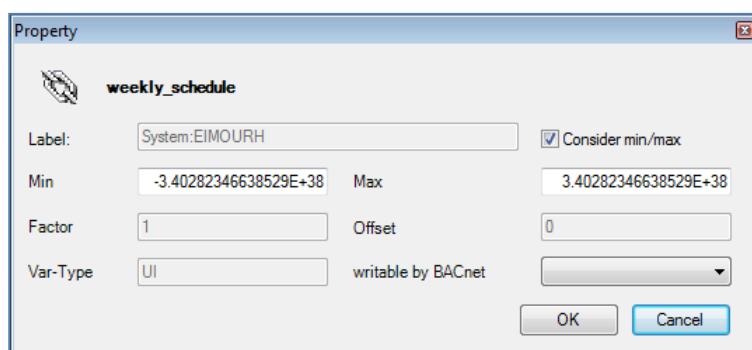
Property	Opens a properties dialog to parameterize the label link.
Remove link	Removes the label link
Search source	Searches for the according label in the HTML pages

For advanced parameterization the context menu point *Property* has to be clicked on.



Hint The properties dialog can be opened by a double click, too.

The following dialog will open.



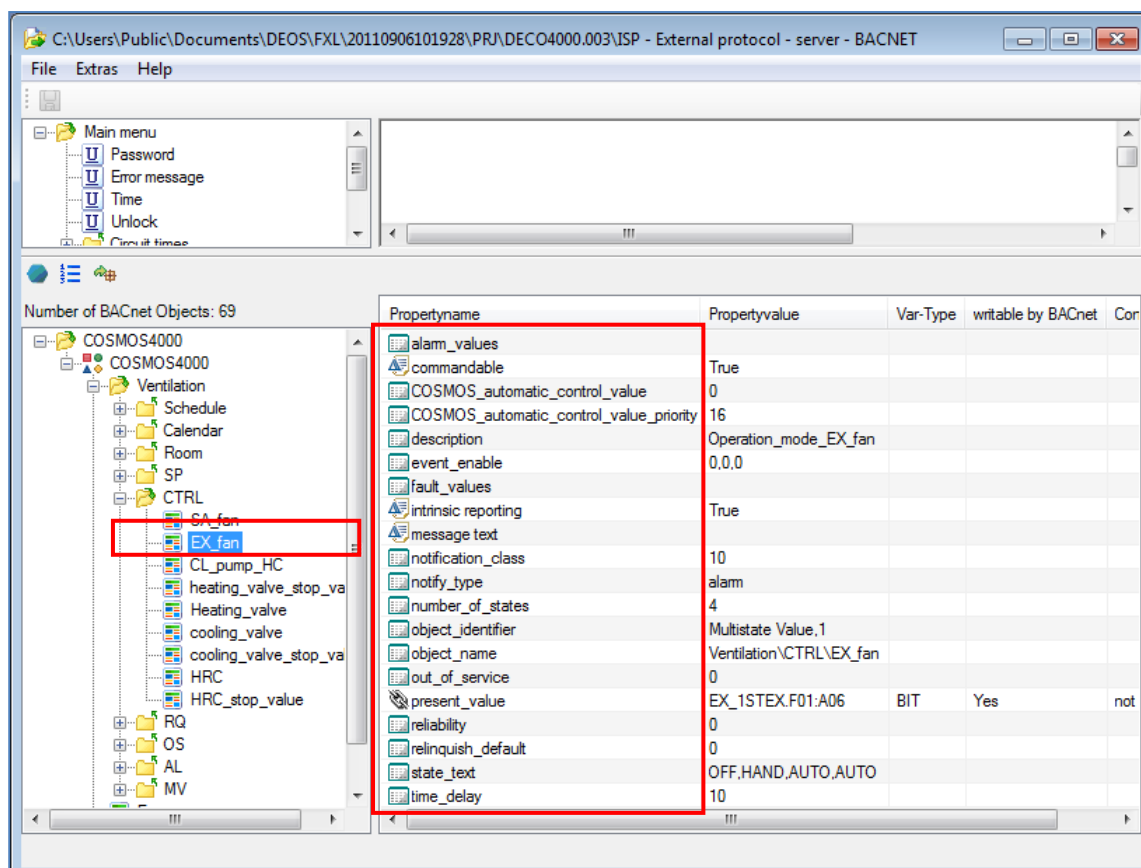
Only the properties *Min*, *Max*, *Consider min/max* and *writable by BACnet* can be changed. The other properties are only for information purposes.

The BACnet stack performs a range check if a property should be changed by BACnet. The value has to be within *Min* and *Max*. If this is not the case then the BACnet stack generates a NAK (negative acknowledge). The writing will be rejected. If the parameter *Consider min/max* is deselected then no range check will be performed.




The writing will always be rejected if the property *writable by BACnet* is set to *No*.

Notice The *Present Value* of the input object is writable if *Out Of Service* is set to TRUE. If this functionality should be used then the *Present Value* of the input object has to be set to writable by setting *writable by BACnet* to *Yes*. If *Out Of Service* is set to FALSE then an input is generally not writable at the OPEN.

If a single BACnet object is selected in the lower tree on the left side then all according properties will be listed.



The properties will be displayed by different symbols which have the following functionality:

-  Property with static information which is only managed by the BACnet stack.
-  Property which is linked by a label in the FUP
-  Property which is OPEN exclusive. It is **not** a property which is visible by BACnet. It is used for advanced parameterization of the object.

It is possible to link nearly all properties to a label but this is mostly not reasonable. It is required to check that the BACnet standard is not threatened by links.

Advanced Properties of an Object

In a BACnet object are properties which have to exist and there are properties which are optional (see BACnet standard).

In a COSMOS BACnet object some properties can be switched on or off.

These are:

- intrinsic reporting
- message text
- commandable (output objects)
- commandable (value objects)
- read only (notification class)

Intrinsic Reporting

The properties for *Intrinsic Reporting* can be switched on or off. In the following image the *Intrinsic Reporting* is switched off (False).

Propertyname	Propertyvalue	Var-Type
commandable	True	
COSMOS_automatic_control_value	0	
COSMOS_automatic_control_value_priority	16	
cov_increment	0.1	
description	mixed_air_flaps_ventilation_system	
intrinsic reporting	False	
object_identifier	Analog Value,8	
object_name	Ventilation\SP\mixed_air_dampers	
out_of_service	0	
present_value	IOAI8AQ4.F03:E16	FL
reliability	1	
relinquish_default	0	
units	PERCENT	

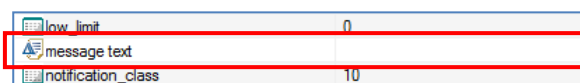
All properties required for *Intrinsic Reporting* are **not** listed and therefore do **not** have to be parameterized. In the following image the *Intrinsic Reporting* is switched on (True).

Propertyname	Propertyvalue	Var-Type	writable by B
commandable	True		
COSMOS_automatic_control_value	0		
COSMOS_automatic_control_value_priority	16		
cov_increment	0.1		
deadband	1		
description	mixed_air_flaps_ventilation_system		
event_enable	F,F,F		
high_limit	100		
intrinsic reporting	True		
limit_enable	F,F		
low_limit	0		
message text			
notification_class	10		
notify_type	alarm		
object_identifier	Analog Value,8		
object_name	Ventilation\SP\mixed_air_dampers		
out_of_service	0		
present_value	IOAI8AQ4.F03:E16	FL	No
reliability	1		
relinquish_default	0		

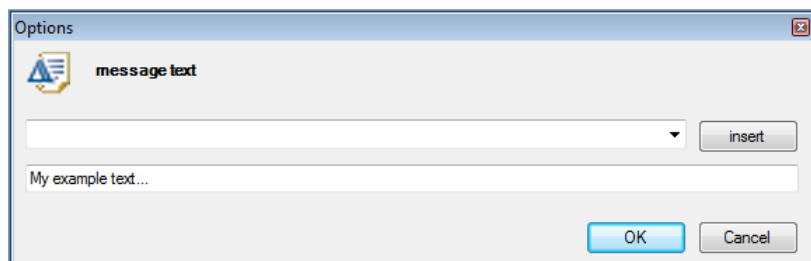
All properties required for *Intrinsic Reporting* are listed and have to be parameterized. Now a message text can be parameterized (see chapter [Message Text](#)).

Message Text

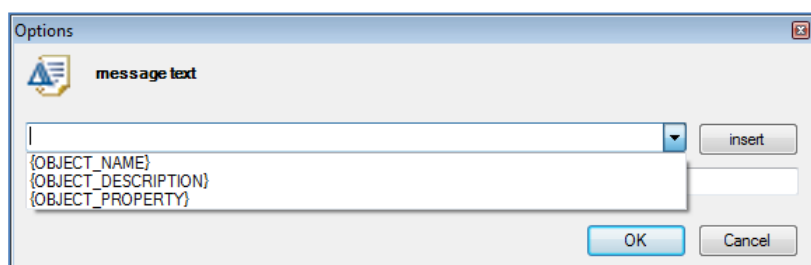
If the object supports *Intrinsic Reporting* then an individual message text can be parameterized.



Open the dialog window to change the properties setting by the context menu.



It is possible to define an assembled message text with place holders.



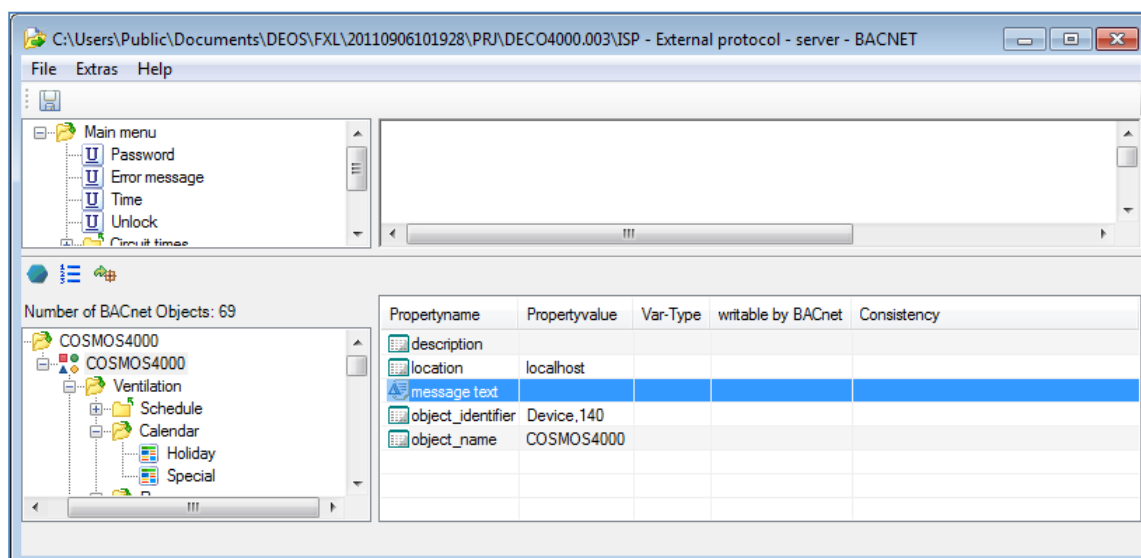
{OBJECT_NAME} Place holder for the content of *Object Name*

{OBJECT_DESCRIPTION} Place holder for the content of *Description*

{OBJECT_PROPERTY} Place holder for the content of a Property

The values will be inserted at runtime if a message is sent. Thereby individual message text can be generated.

The property *message text* can be used at the device object, too:



The message text of the device object is for all objects where no individual text is defined. You can set here whether the {OBJECT_NAME} or {OBJECT_DESCRIPTION} of the according object should be used as message text.

Notice If no message text is defined then the object name will be sent automatically.

Commandable at Output Objects

Output objects have the *Priority Array* as property and therefore support *commandable*. This functionality is described in the BACnet standard.

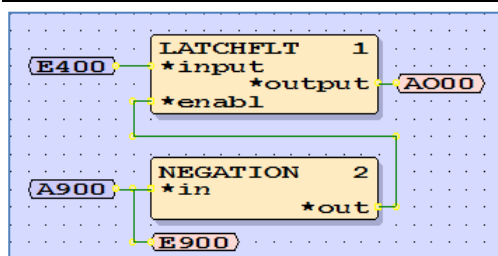
If an output object should be writeable by BACnet then this has to be programmed in the FUP BACnet server configuration. There are 2 COSMOS properties available.

- COSMOS_automatic_control_value
- COSMOS_automatic_control_value_priority

intrinsic reporting	False
COSMOS_automatic_control_value	IOAA4.F0
COSMOS_automatic_control_value_priority	16
cov_increment	0,1

The calculated process value has to be linked to the property *COSMOS_automatic_control_value*. By *COSMOS_automatic_control_value_priority* the priority of *COSMOS_automatic_control_value* is set which is the index in the *Priority Array*. A special programming is required in FUP.

Example



- The label *E400* is linked to *COSMOS_automatic_control_value*.
- The label *AO00* is linked to *Present Value*.
- The label *A900* is linked to *Commandable*.
- *COSMOS_automatic_control_value_priority* is set to any desired priority
- The module LATCHFLT sends the value at **input* to the **output* but only if the input **enable* is set to 1 (true). If the input **enable* is 0 (false) then the last value of **output* is sent to **output* even if **input* changes.

Description

- ➔ If the value of *A900* is 1 (true) then the value of *AO00* is the *Present Value* from BACnet. This might be the value of *E400* if it has the highest priority (defined by *COSMOS_automatic_control_value_priority*).
- ➔ If the value of *A900* is 0 (false) then the value of *AO00* is the value of *E400*. All values from BACnet will be ignored.

Notice This is only required if an output object should be overwritten by BACnet.

Commandable at Value Objekte

Value objects can be *commandable* but do not have to. If *commandable* is not required then it should not be parameterized. To have a label writable by BACnet it is sufficient to link a label with the *Present Value* and set *writable by BACnet* to *Yes*.

If it is required in a project to have a value object *commandable* then it can be parameterized. Therefore the property *commandable* has to be set to *True*.

Propertyname	Propertyvalue	Var-Type	writable by BACnet
commandable	True		
COSMOS_automatic_control_value			
COSMOS_automatic_control_value_priority			
cov_increment	0.1		
description			
intrinsic reporting	False		
object_identifier	Analog Value,0		
object_name	E400		
out_of_service	0		
present_value	TEST.F:E400	FL	Yes
reliability	1		
relinquish_default	0		
units	NO_UNITS		

The COSMOS properties are available then:

- COSMOS_automatic_control_value
- COSMOS_automatic_control_value_priority

The parameterization is the same as for [output objects](#).

Read Only at Notification Class

The *Notification Class* has the property *recipient_list*. Recipients will be inserted in this list. Normally a BMS will insert itself into this list at runtime. If this is not possible then it has to be done manually. By setting the label *read only* to *True* it is impossible to change the *recipient_list* by BACnet. It is a static list then. The recipients have to be inserted manually. Undesired deleting of this list is then not possible.

Propertyname	Propertyvalue	Var-Type	writable by BACnet
ack_required	F,F,F		
description			
object_identifier	Notification Class,30		
object_name	notification_class30		
priority	255,255,255		
read only	False		
recipient_list			

By opening the property settings (via context menu or double click) the following dialog opens:

The dialog titled 'Property' shows the 'recipient_list' property. It contains a table with one header 'Recipient' and one empty row. Below the table are buttons for 'edit', 'add', and 'delete'. At the bottom are 'OK' and 'Cancel' buttons.

In this dialog it is possible to change the entries in the *recipient_list*. By a click on *add* the following dialog opens:

The data which should be entered here are BACnet client dependent. Ask the for the according BMS responsible person for the according data.

Notice The address of the recipient can be entered as *Device ID* or *MAC address*.

Attention The MAC address refers to the BACnet MAC address which should not be mistaken for the MAC address of the network card.

The construction of the MAC address is dependent of the used *Data Link Layer*. For BACnet/IP it is the IP address including port in hexadecimal representation.


Example IP 192.168.170.123 Port: 47808 (default port BACnet/IP)

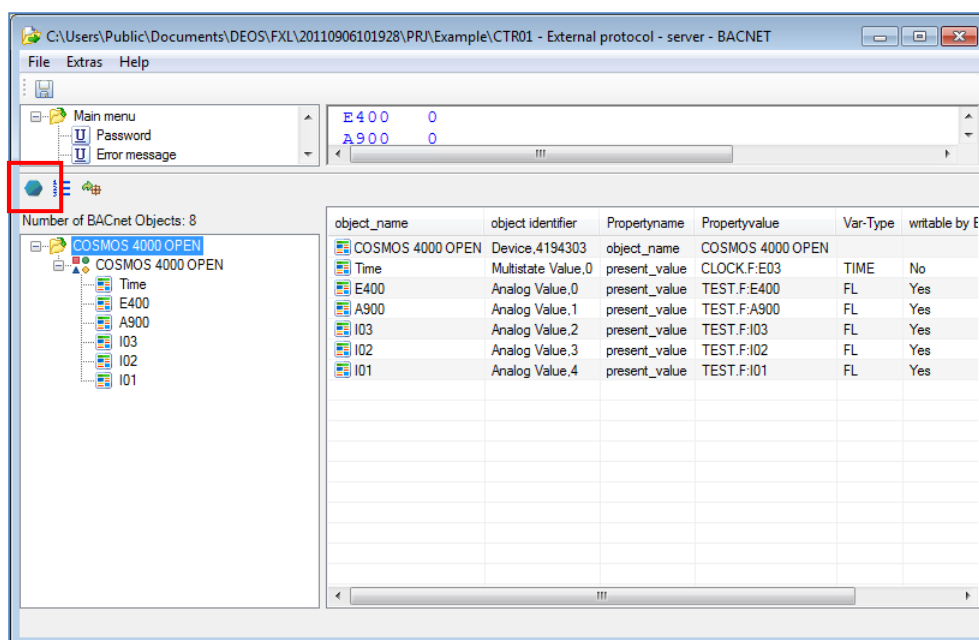
As BACnet MAC: C0A8AA7BBAC0

Special BACnet Objects

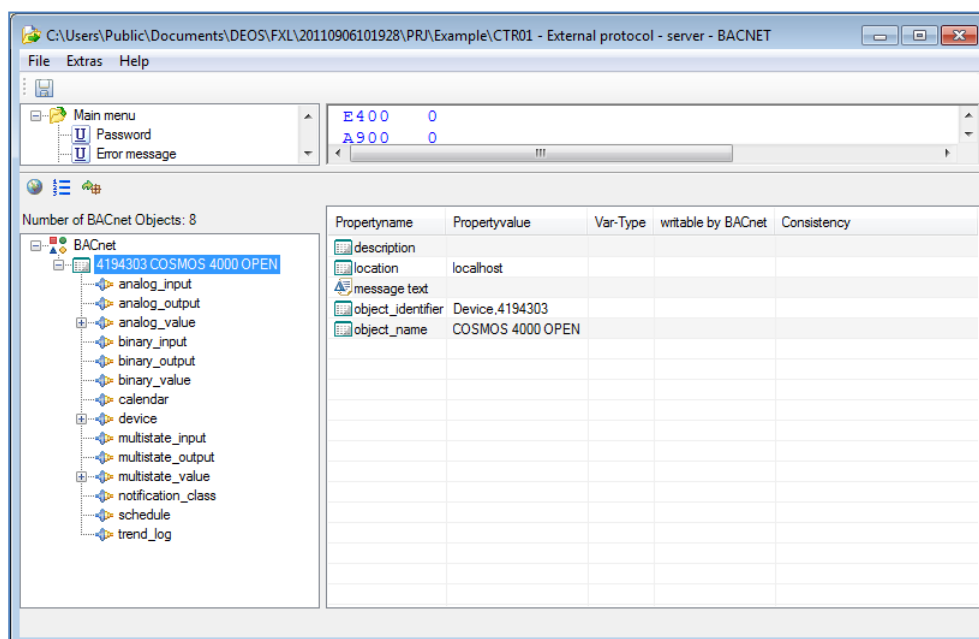
The following BACnet objects do not have a mandatory link to a label and have to be created therefore separately:

- Notification Class
- Schedule
- Calendar
- Trendlog

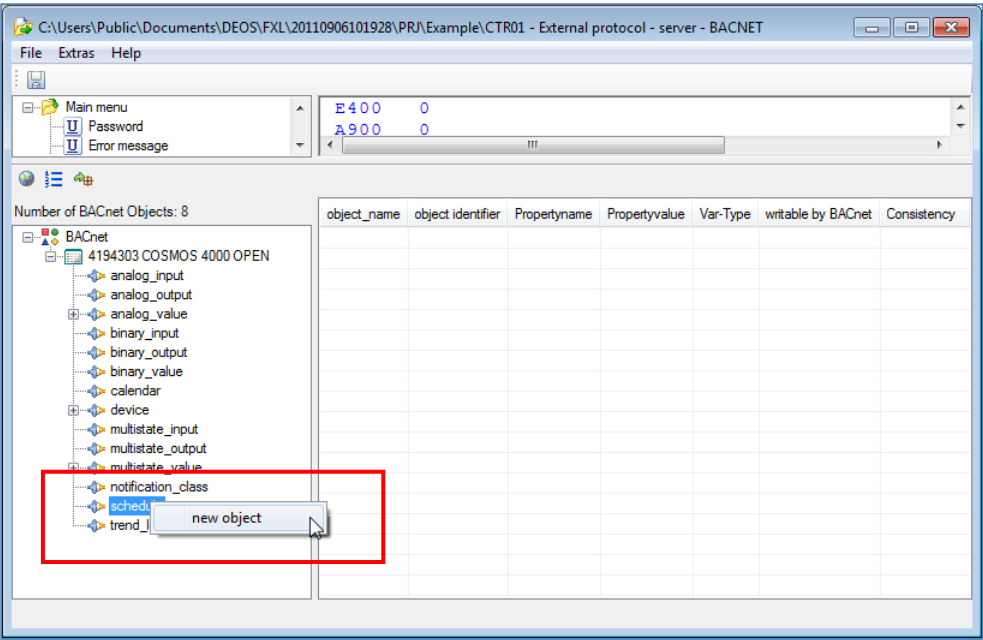
To create these objects it is required to switch to the BACnet view. Click in the symbol .



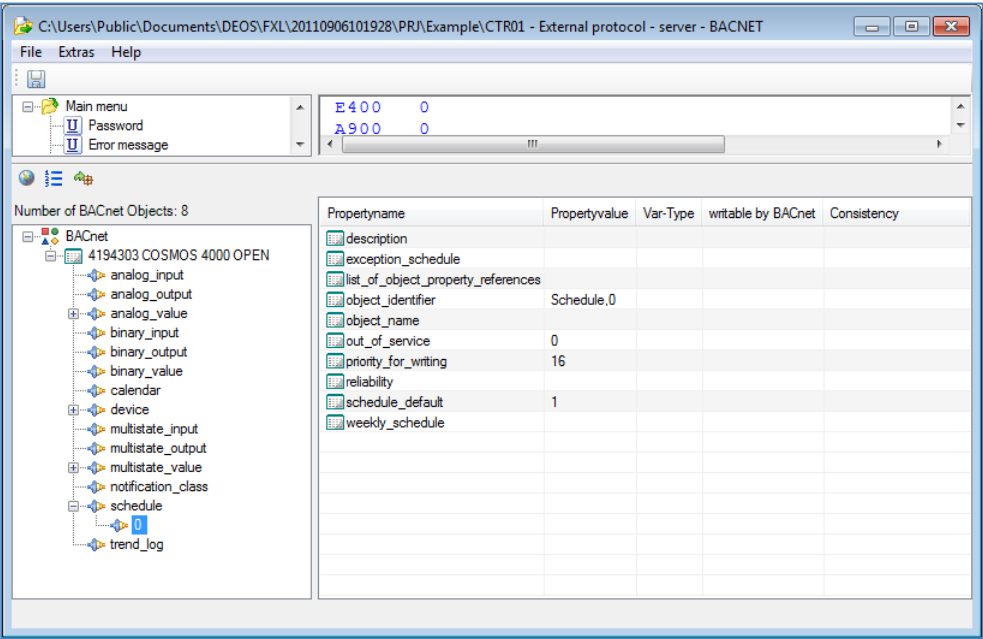
The view changes:



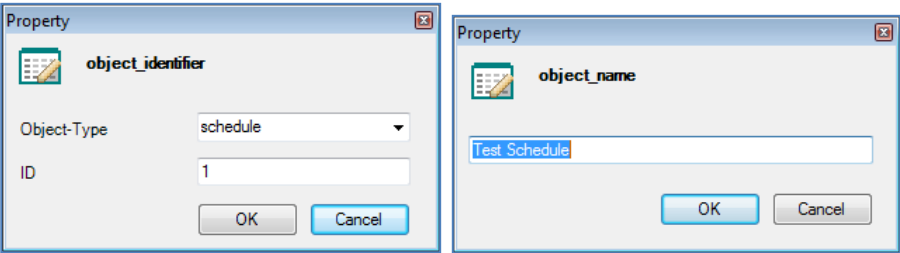
Select the object type which you want to add. Click the right mouse button to open the context menu.



Create a new object by *new object*.

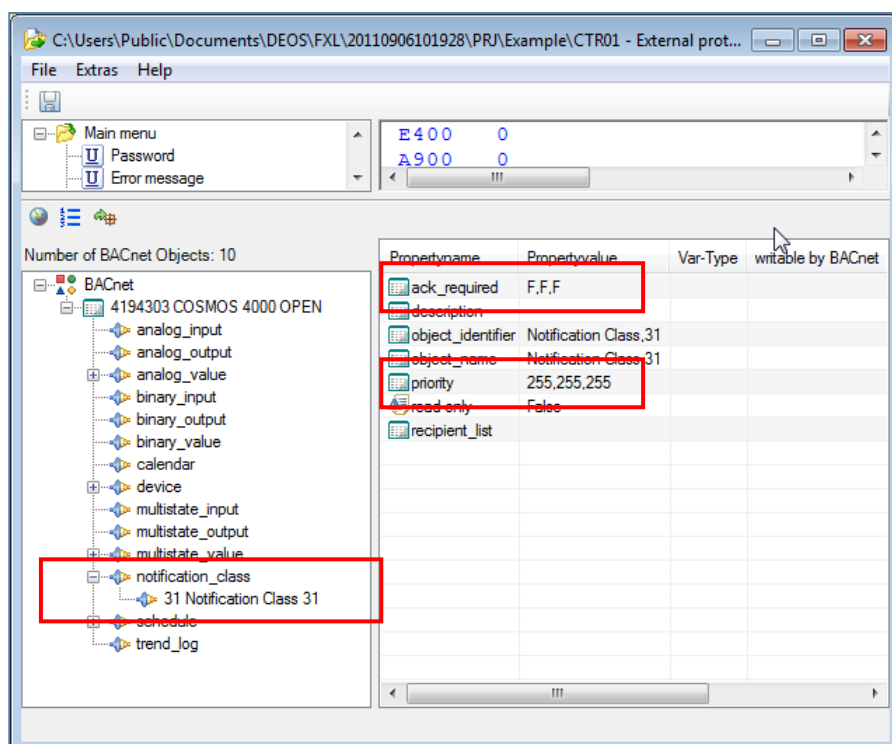


Change the properties *object_identifier* and *object_name*.



Notification Class

The properties *description* and *object_name* have to be configured correctly. The instance number can be changed if needed by the property *object_identifier*.



The parameters *ack_required* and *priority* have to be recognized separately.

ack_required manual acknowledgement of the messages in the object

priority priority with which the message should be send

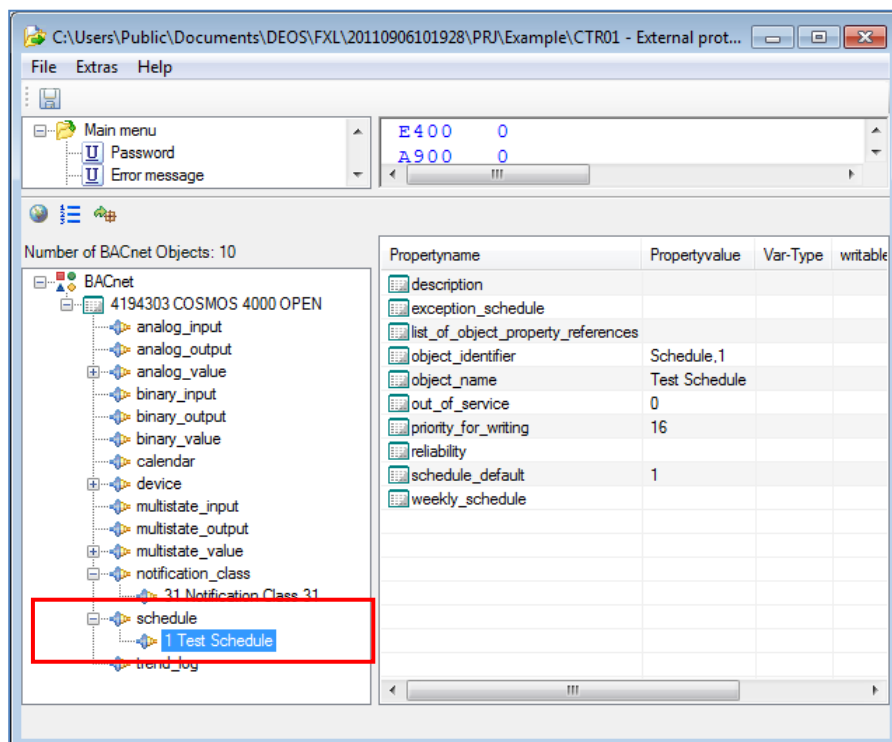
recipient_list list of the recipients of the message

Notice

A lot of BACnet BMSs use the priority as a filter for sorting. Wrong numbers in the priority property can therefore lead to false sorting into wrong lists on a foreign BMS. It might happen that the messages are not displayed on the foreign BMS. Ask the project developer of the foreign BMS for the correct numbers.

Schedule

A free schedule has normally no link to a label. The schedule just runs in the BACnet stack. It does not have the limitations which the weekly clocks have. The properties *description* and *object_name* have to be configured correctly. The instance number can be changed if needed by the property *object_identifier*.



list_of_object_property_references

The properties, on which the *Present Value* of the *Schedule* should be mapped, are selected here. The schedule writes the result on the selected properties of the objects. Normally the *Present Value* of an analog, binary or multistate object would be used here.

out_of_service

A pre-parameterization of *out_of_service* is not required. It can be linked to a label. However in practice this is never done.

priority_for_writing

The writing to the properties in *list_of_object_property_references* will be done with this set priority (equal to writing in output or value objects).

reliability

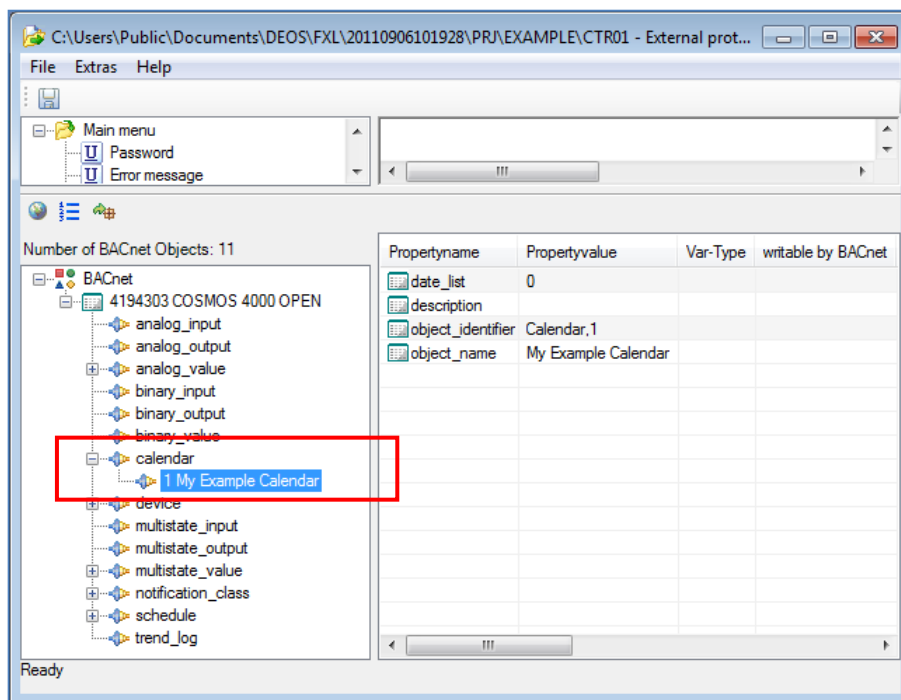
A pre-parameterization of *reliability* is not required. It can be linked to a label. However in practice this is never done.

weekly_schedule

The property *weekly_schedule* cannot be pre-parameterized currently. It can only be parameterized at runtime by the tool *BACnet Viewer* or by the BMS.

Calendar

A free Calendar has normally no link to a label. The calendar just runs in the BACnet stack. It does not have the limitations which the holidays or special dates have. The properties *description* and *object_name* have to be configured correctly. The instance number can be changed if needed by the property *object_identifier*.

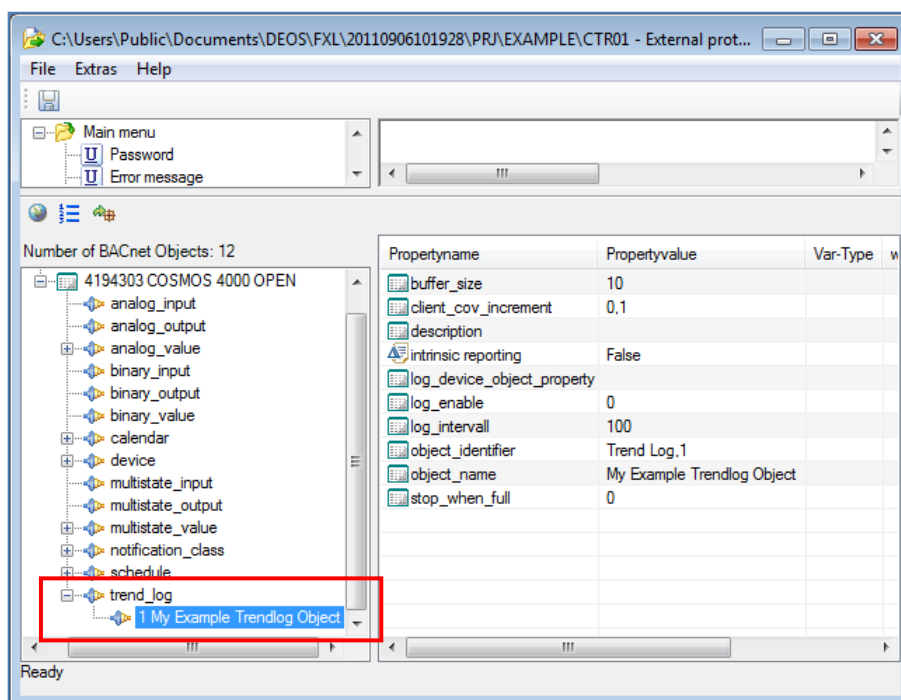


date_list

The property *date_list* cannot be pre-parameterized currently. It can only be parameterized at runtime by the tool *BACnet Viewer* or by the BMS.

Trendlog

A Trendlog object has normally no link to a label. The calendar just runs in the BACnet stack. It can log the property of another object. The properties *description* and *object_name* have to be configured correctly. The instance number can be changed if needed by the property *object_identifier*.



log_device_object_property Configuration of the property of the object which should be logged.

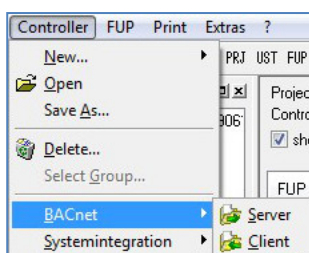
log_intervall Logging interval in 1/100 sec

stop_when_full Stop logging if the buffer is full or use a ring buffer.

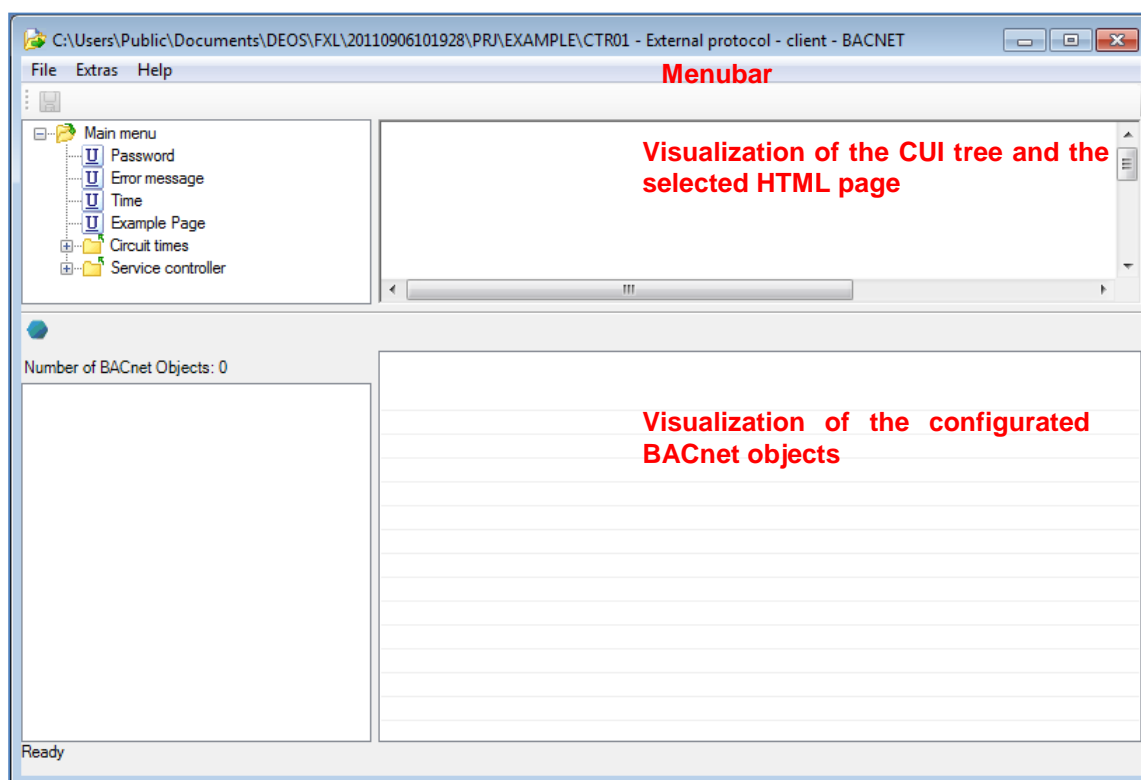
Notice If the Trendlog object should send on all entries a message to the BMS then *intrinsic reporting* has to be set to *True* and the according properties correctly set.

BACnet Client Configuration


The BACnet client in the OPEN processes BACnet objects from other participants. It can only process primitive data types (BOOL, ENUMERATED, REAL, UNSIGNED) from foreign BACnet devices. Thereby selected properties of foreign BACnet objects are linked with labels. Call the parameterization of the BACnet client by the menu point *Controller – BACnet – Client* or by the context menu *BACnet – Client*.



The following window opens:



The view of the BACnet server configuration is basically divided into 2 areas. In the upper area the CUI tree (left) and the selected HTML page (right) are shown. In the lower area the configured BACnet objects (left) and their properties (right) are visualized.

By the button  the BACnet views are switched. In the default view the BACnet objects are shown in the user defined order. If the view is switched then the BACnet objects are sorted into directories representing their type (*object_type*). All *properties* of the object with their corresponding values will be shown here.

The BACnet stack on the OPEN addresses the foreign BACnet objects by their **Device ID**, **Object Identifier** and **Property**.

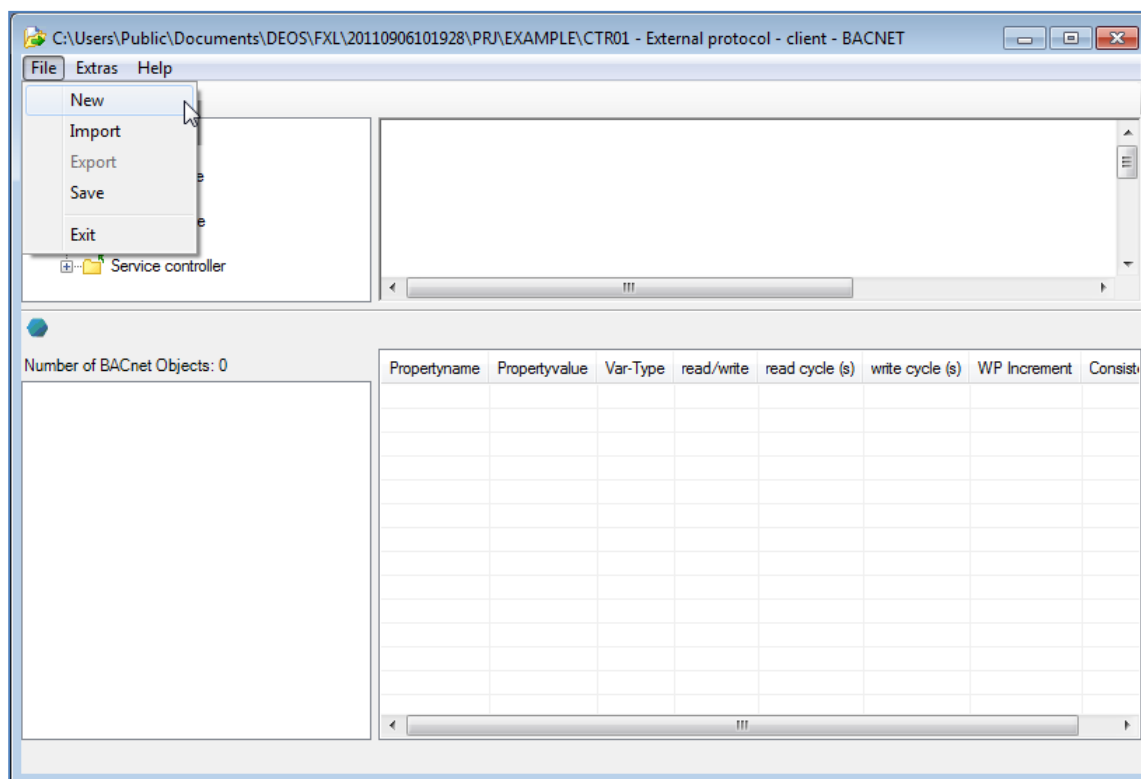
All 3 information are required to link to a label. Generally there are 2 approaches to create a link.

- Create *Device ID*, *Object Identifier* manually
- EDE Import

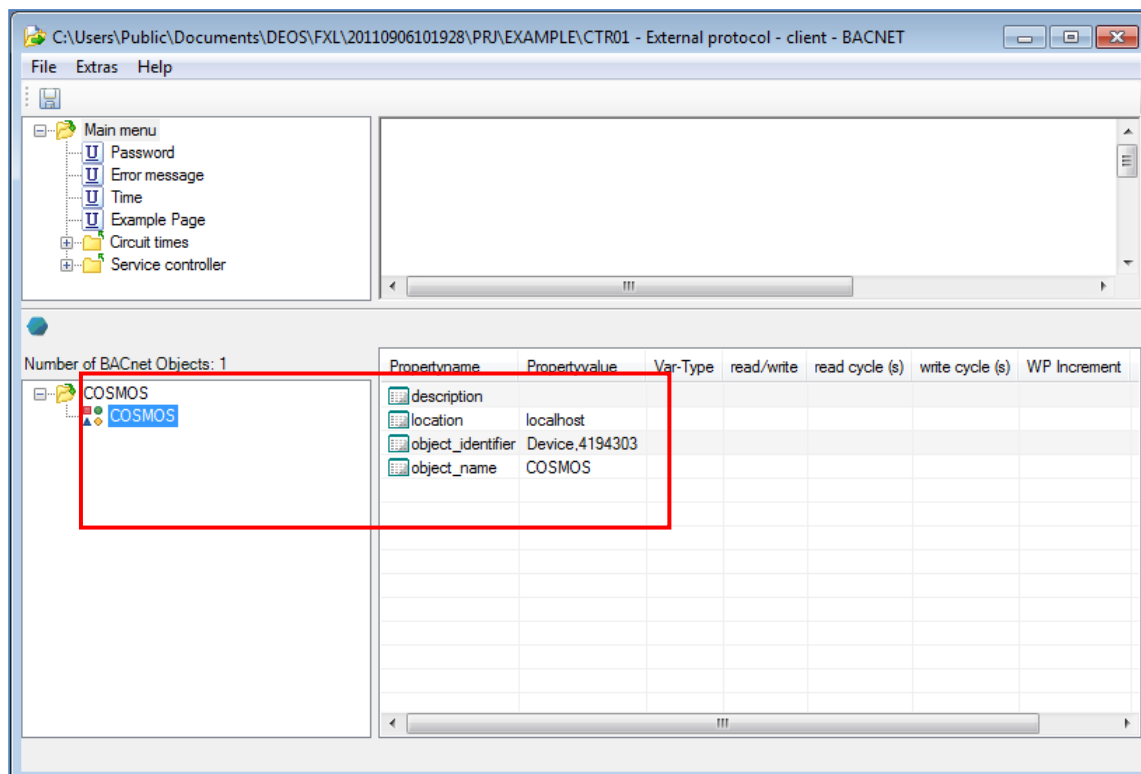
Create BACnet Devices and Objects manually

If **no** EDE file is available then the devices and objects can be manually created, too.

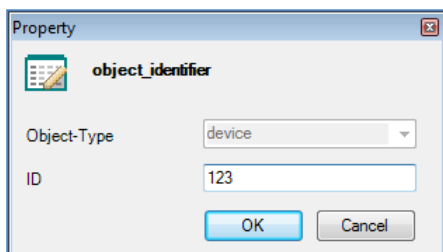
Click on the menu point *File - New*.



A new BACnet object will be created.

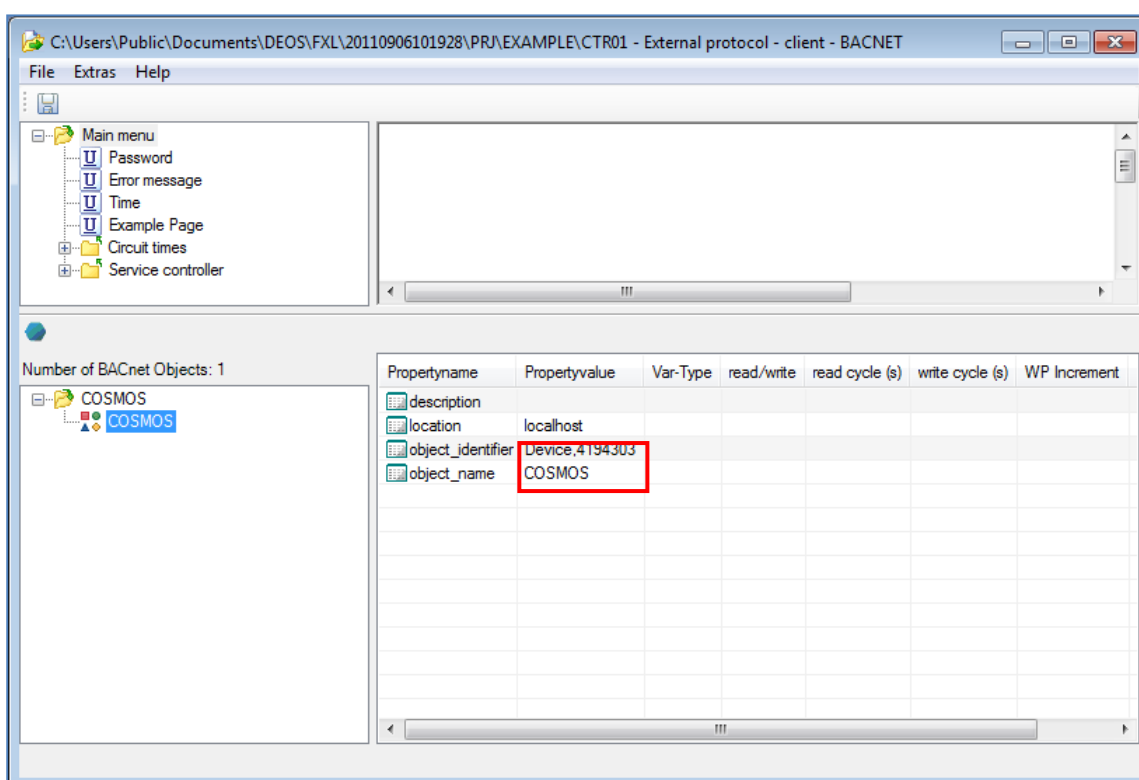


Change the *object_identifier* of the device object to the correct instance number by a double click on *Device,41943030*.

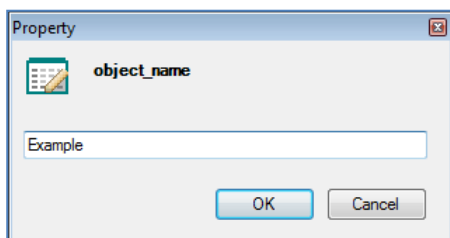


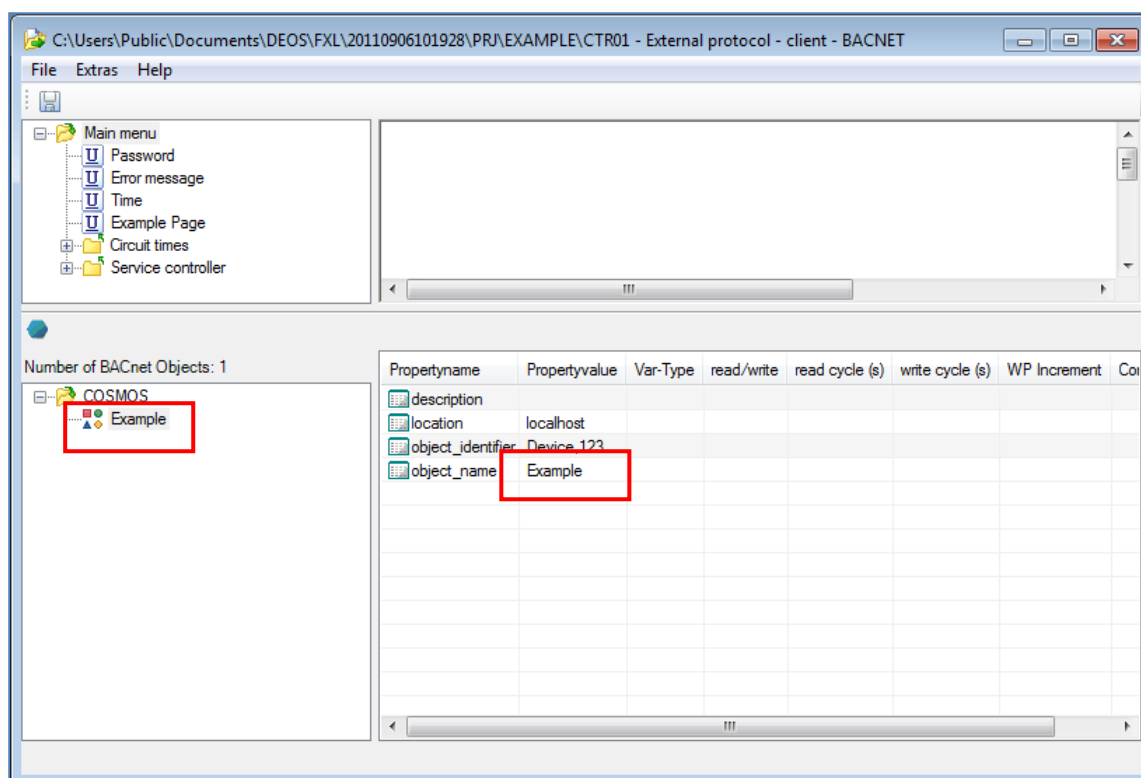
Confirm the new ID by *OK*. The *Device ID* has been changed.

Please insert another *object_name* for a better overview in the tree. This is possible by a double click on *COSMOS*.

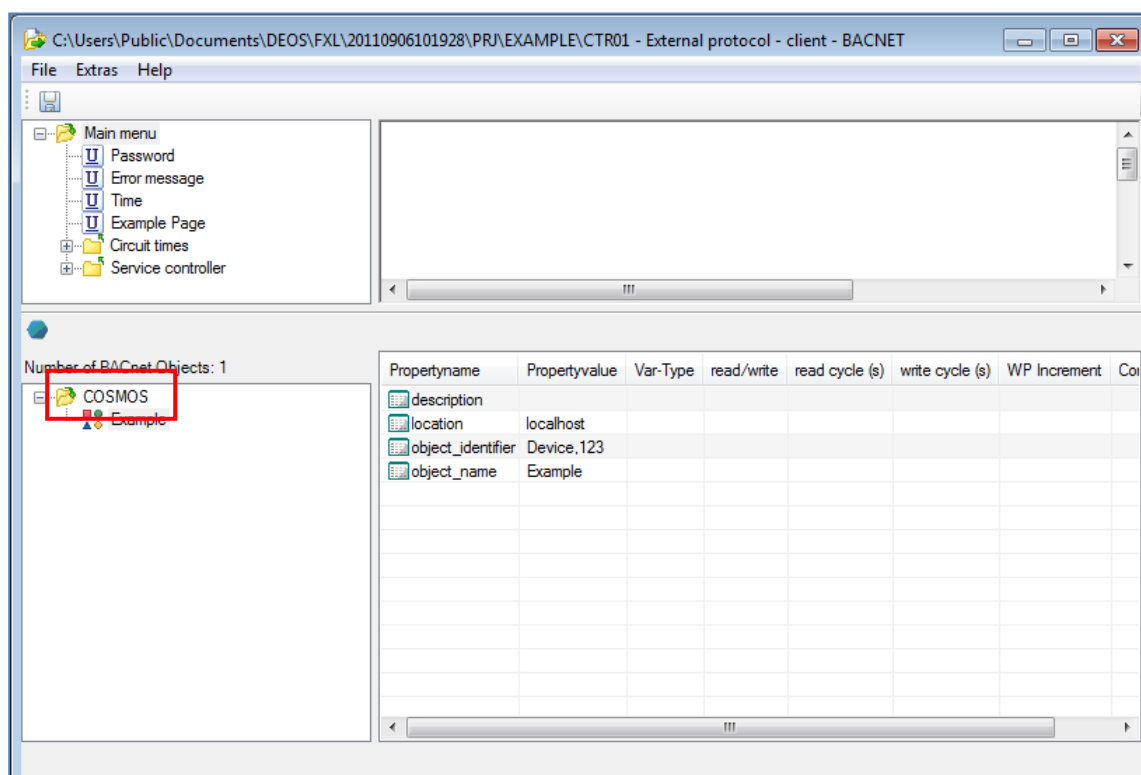


Change the *object_name* and confirm with *OK*.

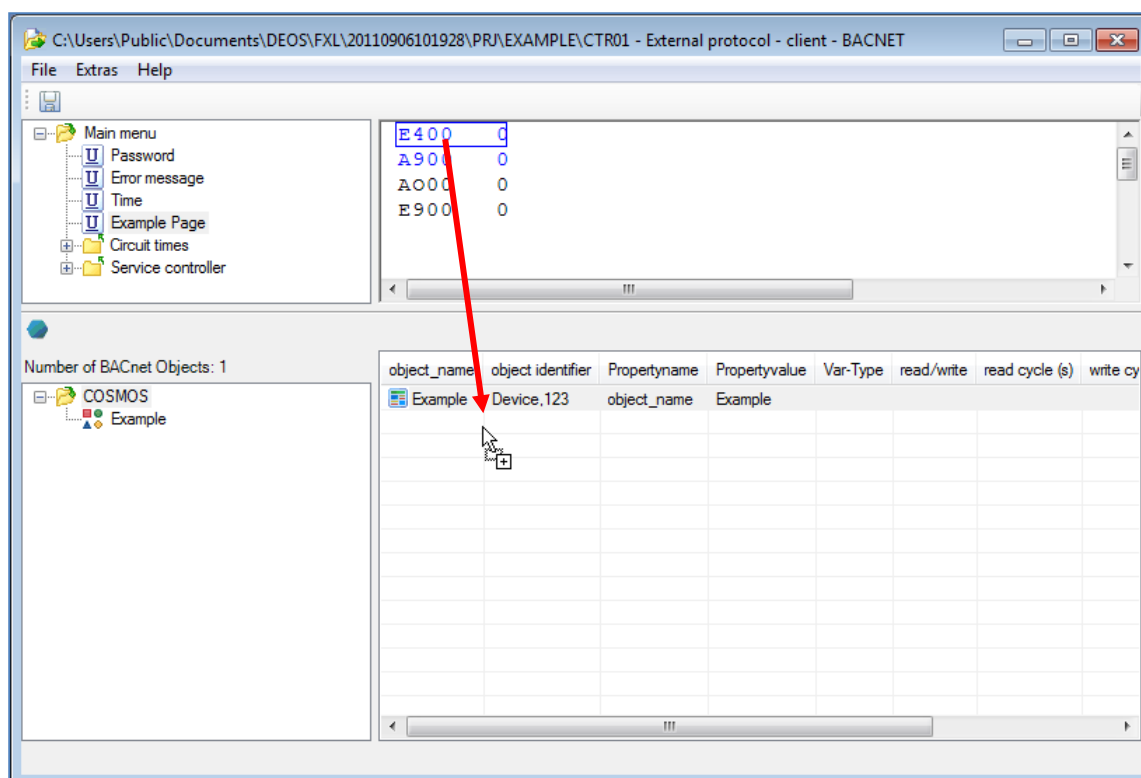




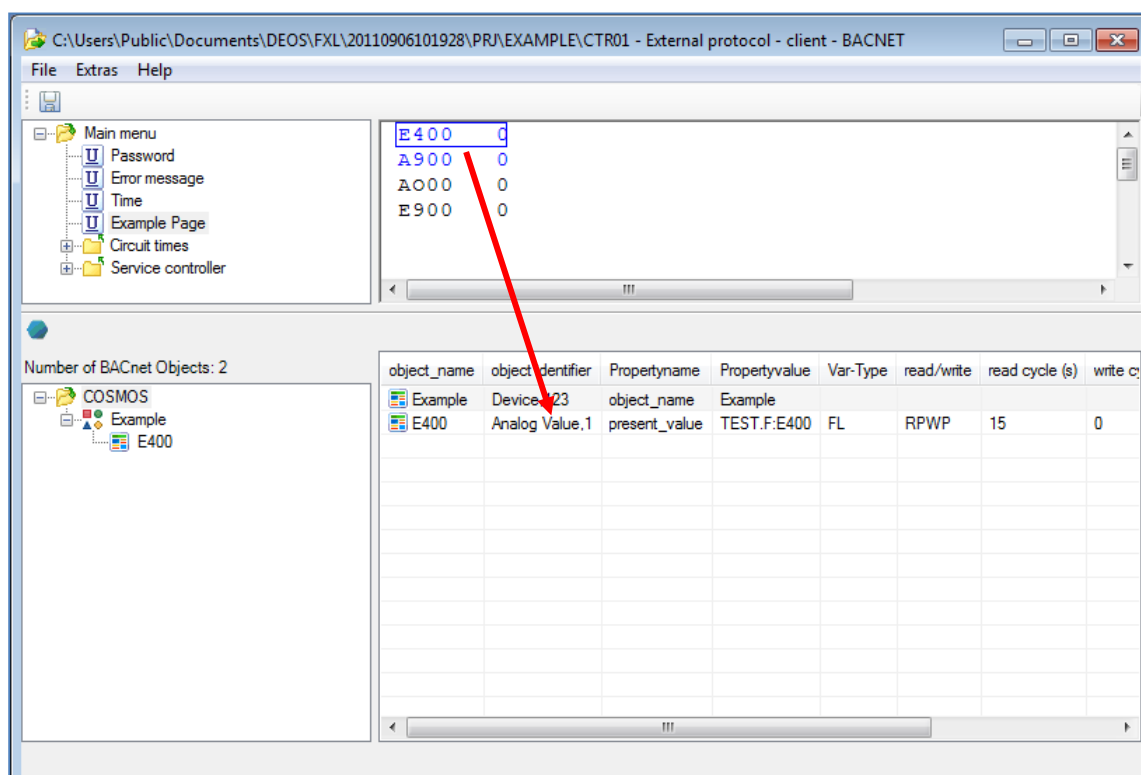
The new object name will be applied in the tree. No select the directory *COSMOS* in the tree in the bottom left.



Select the HTML page from which the label should be linked and put it into the table by darg&drop.




The link will be inserted.



Notice You can put a static text and a label without pre-text simultaneously to the table to use the static text as object_name for the label.

By a double click on *Propertyvalue* the dialog to configure the communication parameter opens.

Property

 **present_value**

Label: ☒ Consider min/max


Min: Max:

Factor: Offset:

Var-Type: read/write:

read cycle (s): write cycle (s):

WP Increment: Priority for Writing:


The object type and instance number can only be changed within the BACnet view. Therefore the view has to be switched. Click on the button  to do so.

C:\Users\Public\Documents\DEOS\FXL\20110906101928\PRJ\EXAMPLE\CTR01 - External protocol - client - BACNET

File Extras Help

Main menu
 Password
 Error message
 Time
 Example Page
 Circuit times
 Service controller

E 400 0
 A 900 0
 A 000 0
 E 900 0

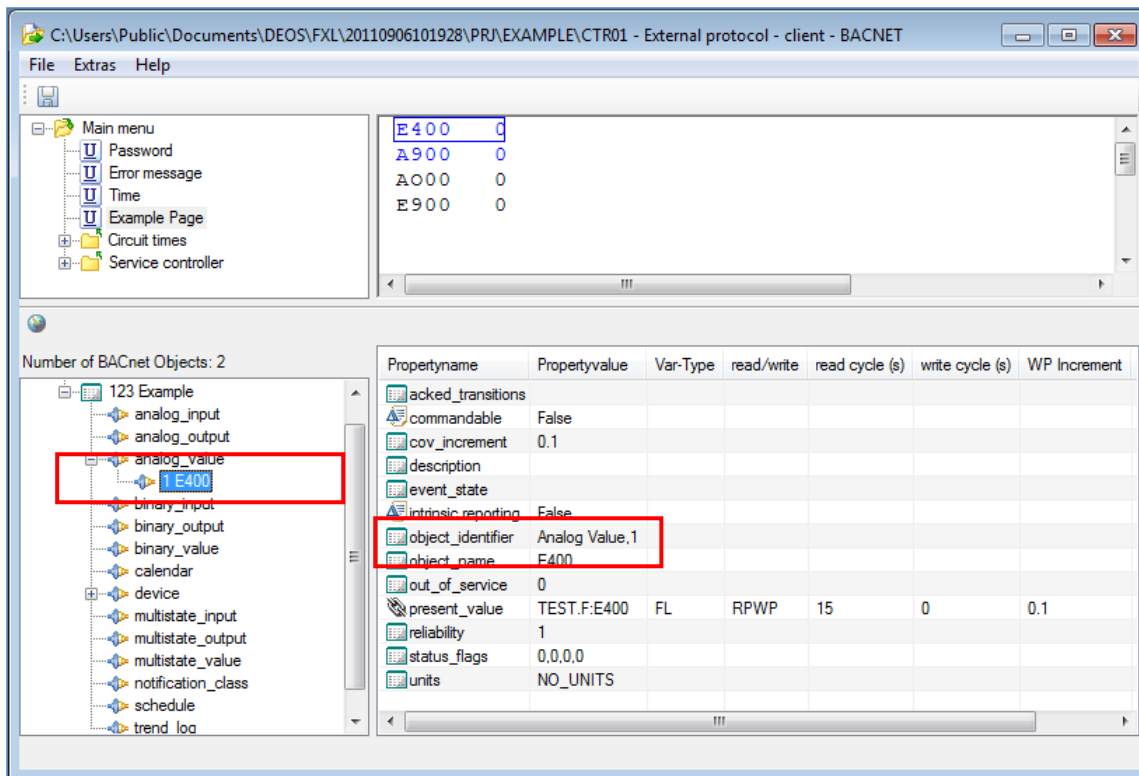


Number of BACnet Objects: 2

COSMOS
 Example
 E400

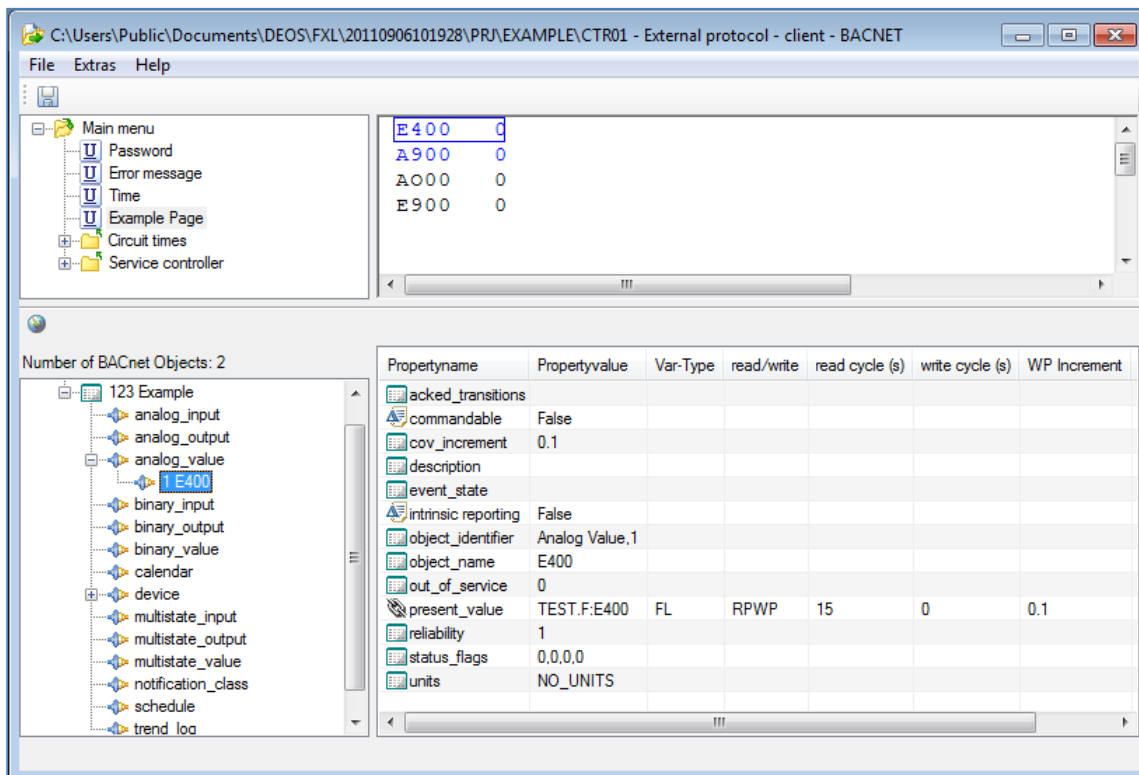
object_name	object identifier	Propertyname	Propertyvalue	Var-Type	read/write	read cycle (s)	write cycle (s)
Example	Device.123	object_name	Example				
E400	Analog Value.1	present_value	TEST.F:E400	FL	RPWP	15	0


Open the tree and select the object in the tree.



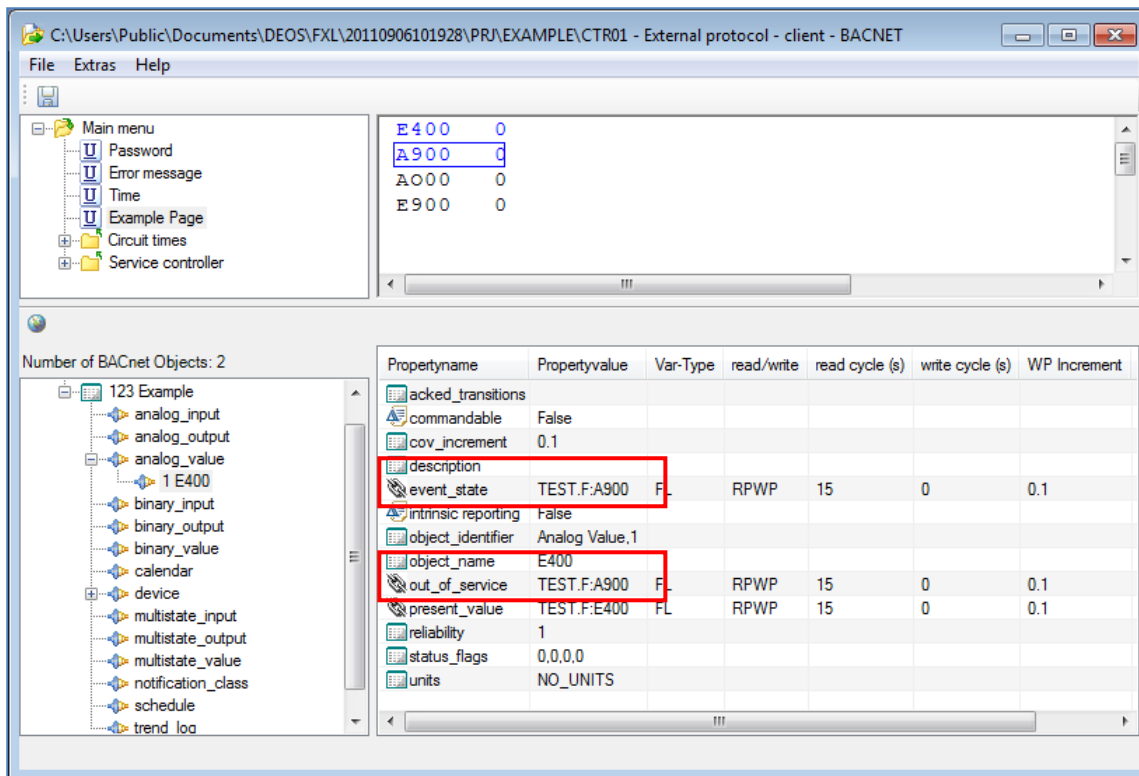
The object type can be changed here.

If another property than the *Present Value* should be linked then this is only possible in the BACnet view.



Just drag a label down. Everywhere where the mouse cursor shows the symbol  a link is possible.

Notice Only properties with a primitive data type can be linked.

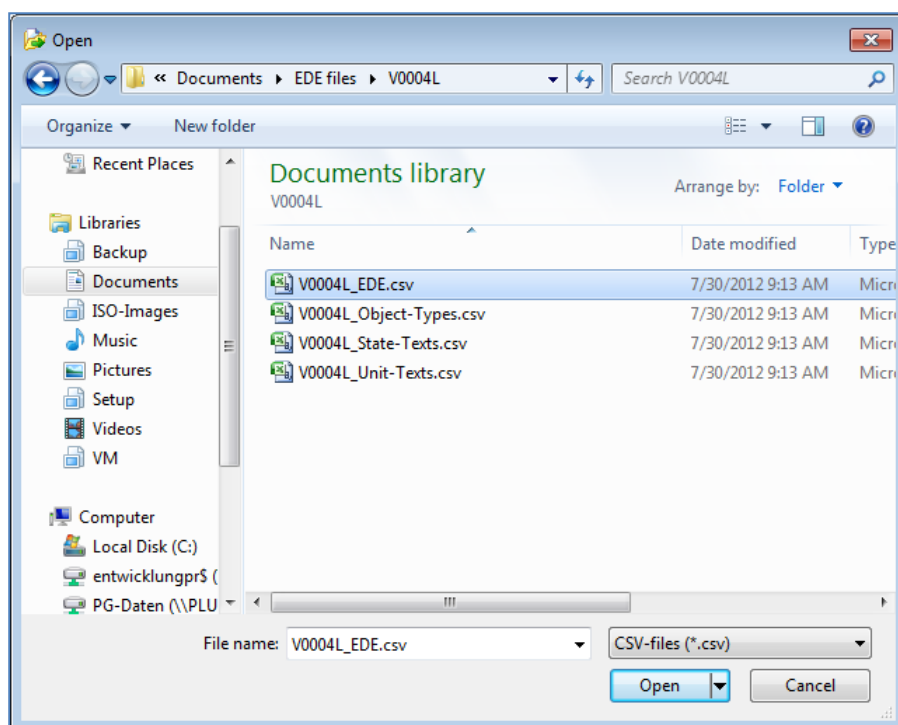
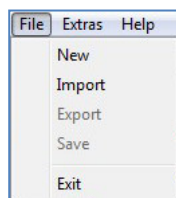


This approach can be repeated for further links.

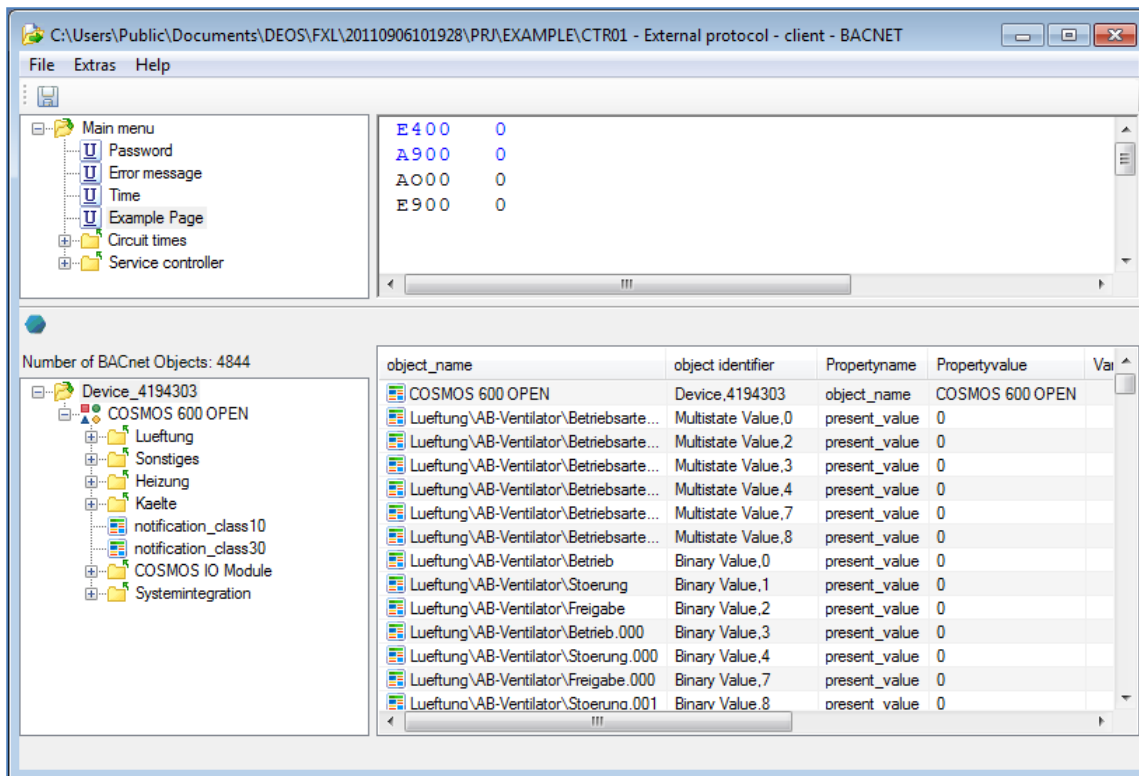
EDE Import

It is possible to apply a data point from another BACnet device in the control process by importing the EDE file of a foreign BACnet device. Thereby the creation of the device and its objects is omitted.

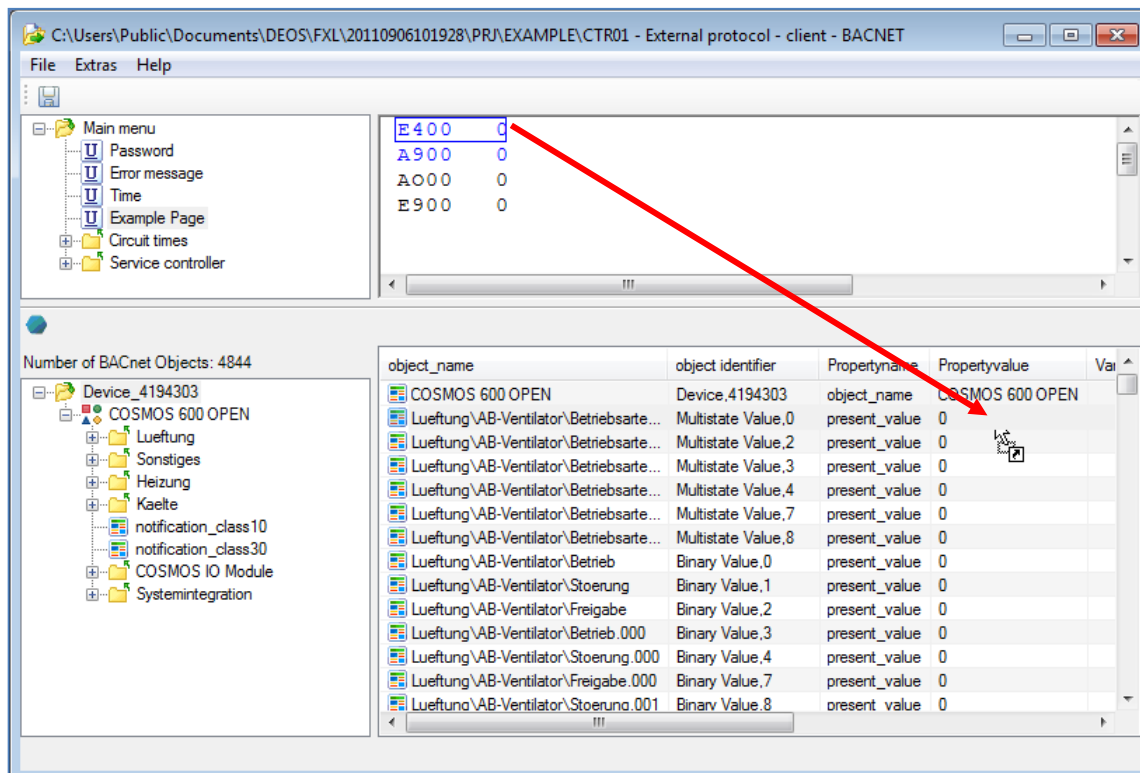
Call the menu point *File – Import* and select the according EDE file in the opening dialog.



After the import the opened EDE file with its objects is displayed in the bottom left window.



To link the label (HTML element) which should display the value of the BACnet object it is required to open the according HTML page in the upper window area and call the according BACnet object. Afterwards drag the HTML element on the cell *Propertyvalue* of the according BACnet object.



Perform this link now for every BACnet object and label.

Configure the communication settings for every link.

The 'Property' dialog box for 'present_value' contains the following fields and options:

- Label:** TEST.F:E400
- Consider min/max:** ☒
- Min:** -200000
- Max:** 200000
- Factor:** 1
- Offset:** 0
- Var-Type:** FL
- read/write:** RPWP
- read cycle (s):** 15
- write cycle (s):** 0
- WP Increment:** 0.1
- Priority for Writing:** 8-Manual Operator

Buttons: OK, Cancel

Communication Direction

The communication can be parameterized as reading, writing or bidirectional.

object_name	object identifier	Propertyname	Propertyvalue	Var-Type	read/write	read cycle (s)	write cycle (s)	WP Increment	Consistency
COSMOS 600 OPEN	Device.4194303	object_name	COSMOS 600 OPEN						
Lueftung\AB-Ventilator\Betriebsarte...	Multistate Value,0	present_value	TEST.F:E400	FL	RPWP	15	0	0.1	not verified
Lueftung\AB-Ventilator\Betriebsarte...	Multistate Value,2	present_value	TEST.F:A900	FL	RPWP	15	0	0.1	not verified

Description of the columns:

- object_name** It is equivalent to object_name (please recognize the object name generation)
- object_identifier** Object Type and Instance Number
- Propertyname** Property, which is linked to the label
- Propertyvalue** FUP page name: Label name which is linked
- Var-Type** Type of variables in COMSOS
- read/write** Display of the set communication direction
- read cycle (s)** Display of the set read cycle in seconds
- write cycle (s)** Display of the set write cycle in seconds
- WP Increment** Display of the set *Write Property Increments*. The value has to change for at least the set value to trigger the write command.
- Consistency** The result of the consistency check will be shown here.

The communication settings can only be done if the label is linked. To do so the properties dialog can be opened by a double click on the label or by the context menu (menu entry *Property*).

object_name	object identifier	Propertyname	Propertyvalue	Var-Type	read/write	read cycle (s)	write cycle (s)	WP Increment	Consistency
COSMOS 600 OPEN	Device.4194303	object_name	COSMOS 600 OPEN						
Lueftung\AB-Ventilator\Betriebsarte...	Multistate Value,0	present_value	TEST.F:E400			15	0	0.1	not verified
Lueftung\AB-Ventilator\Betriebsarte...	Multistate Value,2	present_value	TEST.F:A900			15	0	0.1	not verified
Lueftung\AB-Ventilator\Betriebsarte...	Multistate Value,3	present_value	TEST.F:E400			15	0	0.1	not verified
Lueftung\AB-Ventilator\Betriebsarte...	Multistate Value,4	present_value	TEST.F:A900			15	0	0.1	not verified
Lueftung\AB-Ventilator\Betriebsarte...	Multistate Value,7	present_value	0						

Dialog of the communication settings.

Label	Display of the linked label (only as information)										
Min	minimum range limit of the linked label										
Max	maximum range limit of the linked label										
Consider min/max	<p>If <i>Consider min/max</i> is active then it will be checked at runtime whether the value from the foreign object is in the limits. If it is not then it will not be applied.</p> <p>If <i>Consider min/max</i> is active then no check will be performed.</p>										
Faktor	Factor which is assigned to the label or HTML view (only as information, cannot be changed).										
Offset	Offset which is assigned to the label or HTML view (only as information, cannot be changed).										
Var-Type	Display of the variable type of the label (cannot be changed).										
read/write	<p>Parameterization of the communication direction. The following modes are available:</p> <table> <tr> <td>RP</td><td>Read Property</td></tr> <tr> <td>WP</td><td>Write Property</td></tr> <tr> <td>RPWP</td><td>Read Property and Write Property (Bidirectional)</td></tr> <tr> <td>COVRP</td><td>COV registration and Read Property</td></tr> <tr> <td>COVRPWP</td><td>COV registration and Read Property and Write Property</td></tr> </table> <p>(Details see table <i>read/write</i>)</p>	RP	Read Property	WP	Write Property	RPWP	Read Property and Write Property (Bidirectional)	COVRP	COV registration and Read Property	COVRPWP	COV registration and Read Property and Write Property
RP	Read Property										
WP	Write Property										
RPWP	Read Property and Write Property (Bidirectional)										
COVRP	COV registration and Read Property										
COVRPWP	COV registration and Read Property and Write Property										
read cycle (s)	<p>Active at: RP, RPWP, COVRP und COVRPWP</p> <p>The property will be read every n seconds (read cycle)</p>										
write cycle (s)	<p>Only active at: WP</p> <p>Every n seconds it will be written (write cycle).</p> <p>0 is for not to write cyclic. Therefore it will only be written on value change.</p>										

WP Increment	Active at WP, RPWP, COVRPWP Configuration of the minimum change of the value to trigger the writing process. If the value changes for at least this value then the value will be written independently of the write cycle.
Priority for Writing	If <i>commandable</i> objects should be written then a priority is required. All write command will be performed with the priority set here. This is required for example for output objects.

Table read/write:

RP	The value will be read from the foreign device and displayed in the label (the OPEN performs a <i>Read Property</i>).
WP	The value will be written to the foreign device (the OPEN performs a <i>Write Property</i>). The property will never be read.
RPWP	The value will be linked bidirectional. This means it will be read and written. It will only be a <i>Write Property</i> performed if the value of the OPEN has changed.
COVRP	Extension of the RP. An additional COV registration at the foreign object will be done. Therefore the OPEN will be informed automatically and does not have to poll the value. Important The remote station has to support COV.
COVRPWP	Extension of the RPWP. An additional COV registration at the foreign object will be done. Therefore the OPEN will be informed automatically and does not have to poll the value. Important The remote station has to support COV.

Continuative Documentations

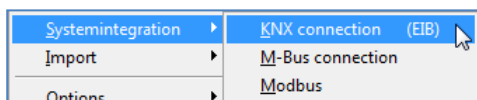
- 1- DS-BACnet-EN-HDB.doc
- 2- DS-CWB_BACnet_OPENview-EN-HDB.doc

9. Systemintegration

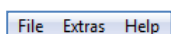
Further protocols can be integrated into the system. The system integration by the menu *Controller* → *Systemintegration*

KNX Connection (EIB)

After you selected the according controller you call the submenu *controller* – *System integration* – *KNX connection (EIB)* to start the KNX (EIB)-connection.



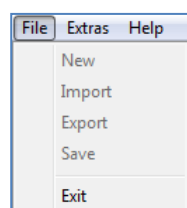
Menu Bar



The menu bar is used for opening the menus and provides the access to the program functions.

File

Menu structure of the menu *File*:



New

Currently this option has no function (for later upgrades).

Import

Currently this option has no function (for later upgrades).

Export

Currently this option has no function (for later upgrades).

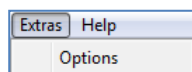
Save

The data point list is saved in the current controller program. The name of the controller program is displayed in the title of the window.

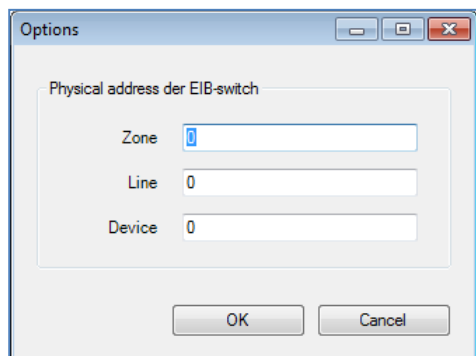
Exit

Exit the program

Extras

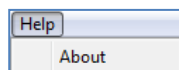


Options



Area	1-15	KNX-specific physical address: Get from ETS (provided by KNX-Integrator)
Line	1-15	KNX-specific physical address: Get from ETS (provided by KNX-Integrator)
Participant	1-64	KNX-specific physical address: Get from ETS (provided by KNX-Integrator)

Help

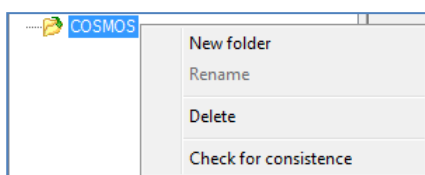


About...

The menu *About...* shows information about the configuration program.



Context menu



New folder

This is used for creating further submenus and for structuring the KNX (EIB) data points.

Rename

This is used to rename the menus and create a clear structure.

Delete

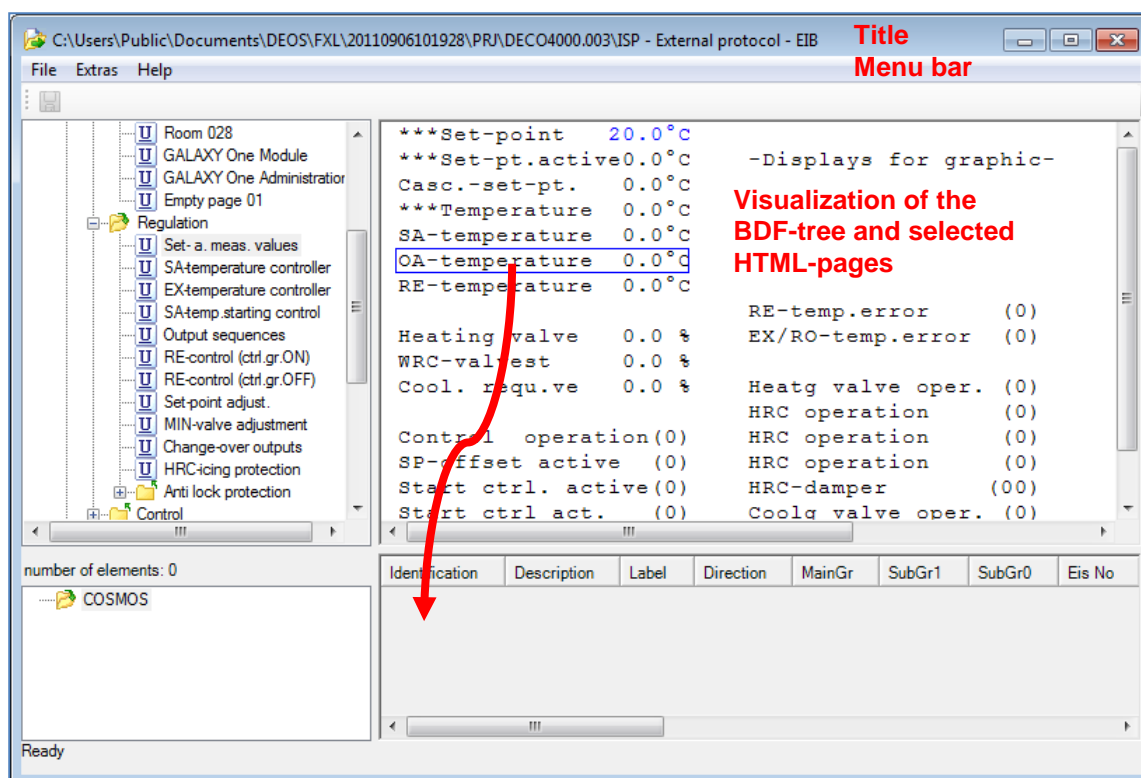
Select with your right mouse button the data point which should be deleted in the lower tree then you can remove it by the menu *Delete*.

Check consistency

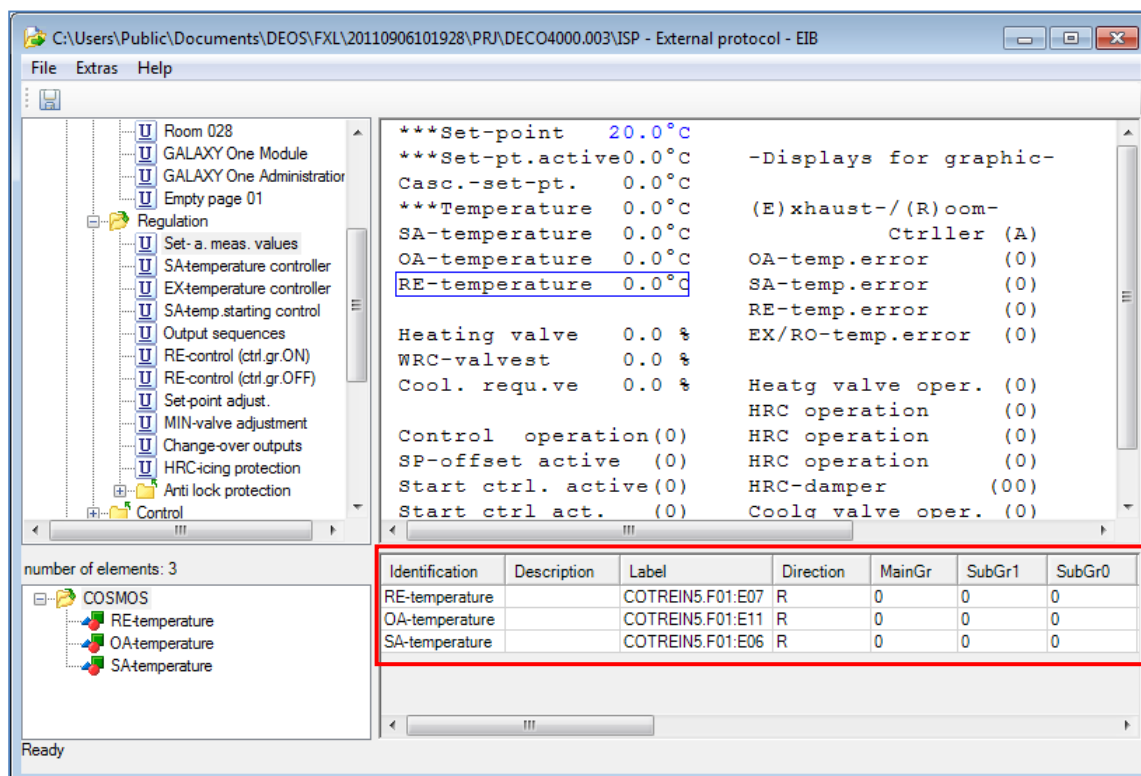
This is used to check the consistency of single data points or the whole project.

How to parameterize a data point

To parameterize a data point as KNX (EIB) data point you have to select the HTML-page in the tree on which the data point is displayed. The according HTML-page will be displayed in the upper right area of the window. All viewable data points can be dragged into the lower area of the window and therefore configured as KNX (EIB) data point. If a single data point with a static text is dragged down then this static text is used as data point identifier. If only one data point or a multiple selection of data points is dragged down then the pretext of the element is used as data point identifier.



After the allocation of the KNX (EIB) data points further settings according the following table has to be made.



Column	Value	Explanation
Identifier		The identifier entered here is used for the visualization in the tree on the left.
Description		This field can be used for additional information.
Label		This COSMOS data point is use for the KNX (EIB) connection.
Direction	R	The value will be read by KNX (EIB).
	W	The value will be send by a OPEN EMS to the KNX (EIB).
	RW	Combination of R and W. Both functionalities are executed in unchanged form.

The KNX (EIB) specific group address consists of a Main Group (MainGr) a Sub-Group (SubGr1) and a further Sub-Group (SubGr0):

The value is provided by the KNX (EIB) integrator. The group address has to be set in three staged form.

Column	Value	Explanation
MainGr	0-15	Main Group
SubGr1	0-7	Sub-Group
SubGr0	0-255	Sub-Group

The data format in KNX (EIB) –telegrams will be set by EIS No. and EIS Code (EIS = EIB Interworking Standard).

Column	Value	Explanation
EIS No		Description of the KNX (EIB) data point. This value configures in which way the frame data must be interpreted. Normally this value is provided by the KNX (EIB) integrator. Function range e.g. 1 = switch ON/OFF; 5 = value (see table <i>KNX (EIB) data types</i>).
EIS Code		Description of the KNX (EIB) data type. This value configures in which way the frame data must be interpreted. Normally this value is provided by the KNX (EIB) integrator. Detailed information about the data format e.g. 5001 = temperature (see table <i>KNX (EIB) data types</i>).
Priority		Priority of the telegram (high value = low priority, low value = high priority) Value range: 0-3 This value can be set normally to the default value 0.
Line		This value limits the number of backbone-line coupler which the telegram is allowed to pass.
Start Write	0(def.)	-
	1	When starting the controller the current value from the OPEN EMS is written to the KNX (EIB). Mode: W or RW required
Cycle		The value will be send cyclic. The cycle is set in seconds. This

configuration is only valid for directions W and RW. A value of 0 deactivates the cyclic write.

Value change		The set value is a threshold for the automatic sending of the data point. Of the parameterized data point changes by the set value then a telegram is send to the KNX (EIB) bus. A value of 0 deactivates the change dependent sending.
Trigger-Bit-Write		Here is set a Bit-Label of the FUP. If this BIT-variable has the value 1 then the current value of <Label> is send. The KNX (EIB) driver sets the value of the trigger bit after successful sending back to 0. Therefore the value has to be backwards writeable.
Start Read	0(def.)	-
	1	When starting the controller then a new value is requested from KNX (EIB). It is required that at least one device with this group address the "Read-Flag" (KNX (EIB) integrator) has to be set so that the KNX (EIB) device can answer the question frame.
Polling		The value is gathered cyclic. Only available at R/RW. It is required that at least one device with this group address the "Read-Flag" (KNX (EIB) integrator) has to be set so that the KNX (EIB) device can answer the question frame. The cycle is set in seconds.
Event		Not implemented.
Trigger-Bit-Read		Here is set a Bit-Label of the FUP. If this BIT-variable has the value 1 then a frame to read out the current value is send. The KNX (EIB) driver sets the value of the trigger bit after successful sending back to 0. Therefore the value has to be backwards writeable. It is required that at least one device with this group address the "Read-Flag" (KNX (EIB) integrator) has to be set so that the KNX (EIB) device can answer the question frame.
State		Here is set a Bit-Label of the FUP. If this BIT-variable has the value 1 then the KNX (EIB) data point which is parameterized in this line is processed. If this value is set to 0 then it is not processed.
Consistency	Not checked	No consistency check has been performed.
	OK	The set labels exist in the FUP project and are on a HTML-page.
	Not OK	The above mentioned consistency specification is not fulfilled.

KNX (EIB) data types – table

EIS-No	EIS-Code	Function	Value range	Unit
1	10	Switch ON/OFF		
2	20	Dim		
3	30	Time		
4	40	Date		
5	5001 5002 5003 5004 5005 5006	Temperature Temperature difference Temperature gradient Illumination Wind speed Air pressure	-273..+670760 +-670760 +-670760 0..670760 0..670760 0..670760	°C K K/h Lux M/s Pa
6	6001 6002 6003	Brightness Air humidity Wind direction	0..100 0..100 0..360	% % °
7	70 71	Actuator UP / DOWN Actuator fast/slow		
8	80	Priority control		
9	9000 9001 9002 9003 9004 9005 9006 9007 9008 9009 9010 9011 9012 9013 9014 ...	Acceleration Acceleration, angular Activation energy Activity (radioactive) Amount of substance Amplitude Angle, radiant Angle, degree Angular momentum Angular velocity Area Capacitance Charge density (surface) Charge density (volume) Compressibility ...		m s-2 rad s-2 J mol-1 s-1 mol — rad °(degrees) J s rad s-1 m2 F C m-2 C m-3 m2 N-1 ...
10	10000 10001	Counter, 16-bit unsigned integer Counter, 16-bit signed integer		
11	11000 11001	Counter, 32-bit unsigned integer Counter, 32-bit signed integer		
12	12000	Access		
13	13000	Character ASCII		
14	14000 14001	Counter, 8-bit unsigned char Counter, 8-bit signed char		
15	15000	Character string ASCII		

KNX (EIB) group addresses in 2- and 3-staged exposition

The KNX (EIB) group addresses can be exposed in 2- and 3-staged form. Both types can be converted to each other:

H – Main Group/ Main Group
M – Sub-Group / Sub-Group 1
U – Sub-Group / Sub-Group 0 (3-staged exposition)
V – Sub-Group / Sub-Group (2- staged exposition)

3 – staged → 2 – staged

$$H|M|U \Rightarrow H|V$$

$$H = H$$

$$V = (M \cdot 256) + U$$

2 – staged → 3 – staged

$$H|V \Rightarrow H|M|U$$

$$H = H$$

$$M \text{ remainder } X = \frac{V}{256}$$

$$U = V - (M \cdot 256)$$

M-Bus Connection

General

M-Bus

The M-Bus ("Meter-Bus") is an European standard for remote reading of heatmeters and it is also usable for all other types of consumption meters as well as for various sensors and actuators. With its standardization as a galvanic interface for remote readout of heat meters this bus wins a great importance for the energy industry as relevant users.

The remote reading of heat meters can take place in different ways, beginning with the classical method - manual reading by the personnel of the providers - up to the remotely controlled collection of all the meter values for a complete housing unit. The latter is a logical continuation/extension of the technical development of consumption meters and is realizable with the help of the M-Bus.

Here some substantial characteristics of this interface are mentioned regarding their new possibilities:

- The data (e.g. heat consumption) are read out electronically
- At one single cable, which connects to a building controller all consumption meters of a housing unit can be attached
- All meters are individually addressable
- Apart from the availability of the data at the controller also a remote reading is possible

A set of advantages arise, both for the supply enterprises, and for their customers:

- The reading is fast and avoids reading errors
- The data being present in machine-readable form makes the further processing easier.
- A remote readout saves personnel expenditure, avoids unnecessary penetration into the private sphere of the inhabitants and permits to mount meters in places which are difficult to access.
- Short reading intervals are possible, which reduces the problems with tenant change or tariff amendments
- Due to the short reading intervals statistical data can be obtained, which can be used as a base for network optimization

The standardization of the M-Bus results in further technical possibilities. In particular devices of different manufacturers can be operated on the same bus; the users are free therefore in the choice of the manufacturer. On the other hand, a stimulation of the market can be expected, also regarding other M-Bus based meters, so that with the very variable configuration options even difficult problems can be solved. In the development of the M-Bus also economic and technical aspects of the interface have been considered, that are relevant for everyday use. These are essentially:

- Large number of connectable devices
- Possibility for network expansion
- Fail-safe characteristics / robustness
- Minimum cost
- Minimum power consumption in the meters
- Acceptable transmission speed

None of the many already existing bus systems was able to fulfill all these constraints. Now with the M-Bus as a new standardized interface for the reading of consumption meters, an optimal compromise between price and performance can be offered.

Technical Information On M-Bus

Basic technical background information about M-Bus:

Every M-Bus meter has an address for identification. The address of an M-Bus meter has to be unique on the bus. The address can be set by external software or by a configurable address at the counter. Eventually it is required to declare the needed addresses of the M-Bus meter when ordering them.

At an M-Bus only one read out device (Master) is allowed. If, because of the number of M-Bus meter, more than one OPEN EMS is used then for every OPEN EMS a separate M-Bus has to be available. You can get further installation guidelines from the M-Bus specification.




















An M-Bus meter can provide further values in addition to the counter value. A frame containing these values will be send. In a frame is dependent on the manufacturer a variable number of data sets. The OPEN EMS can display up to eight data sets per M-Bus meter. The order of the data sets is set at the FUP programming. The display value of the M-Bus display can be adjusted by the display factor (from 0.0001 to 99999). The read out of the M-Bus meter can be done one-time or cyclic.

Important It has to be checked **before** initiation in which intervals the M-Bus meter can be read out. If the counter is read out too often the power supply will be engaged too much and the M-Bus meter might get destroyed or incapable of functioning. Please consider that an M-Bus meter gets charged if another M-Bus meter on the same bus is read out.

Hardware connection M-Bus

Optional there are different functional packets for the M-Bus connection to OPEN EMS controller available to meet unique requirements.

The functional packets which are sorted by number of connectable M-Bus meter consist of one software module and an M-Bus level converter. The available variants are shown in the following table:

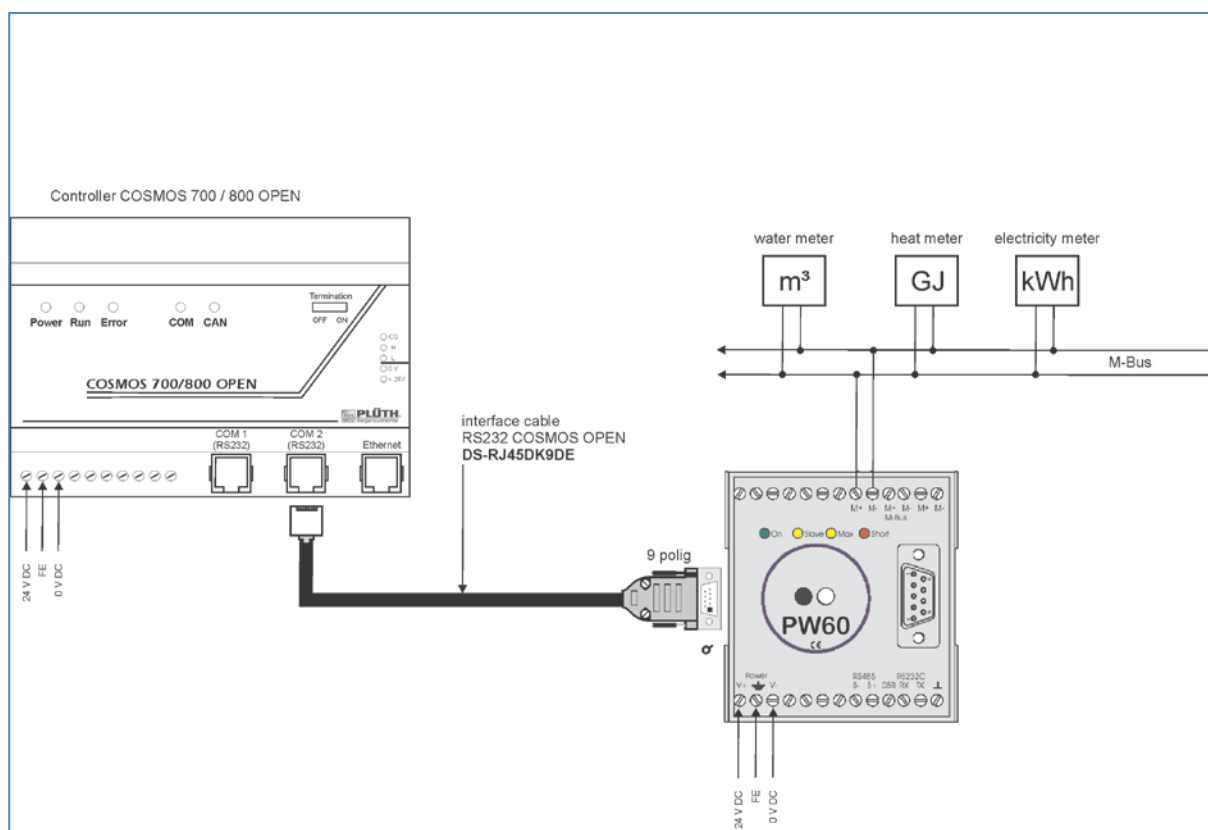
		COSMOS 4000 OPEN	COSMOS 800 OPEN	COSMOS 3000 OPEN	COSMOS 700 OPEN
 3 meters	up to 3 M-Bus meters				
 20 meters	up to 20 M-Bus meters				
 60 meters	up to 60 M-Bus meters				
 250 meters	up to 250 M-Bus meters		-		-
					
			-		

optional available

not available

For enabling the software module the desired M-Bus connection has to be declared at ordering of the OPEN EMS controller. You can only connect one M-Bus level converter per OPEN EMS controller.

Example terminal connection diagram COSMOS 700 / 800 OPEN PR-M-BusO60:



M-Bus connection in FUP XL

(Implemented in FUP XL Version 1.036)

The M-Bus configuration is deposited in the controller in the file *mbus.ps*. Beginning with FUP XL Version 4.20hV94-1.036 the configuration file "*mbus.ps1*" can be created by the macros "*!M_PROT!Mbus\m_bus.f02*" and the menu "*Controller – System integration – M-Bus connection*" automatically. Thereby the manual editing of the file "*mbus.ps1*" is dropped.

m_bus.f02 – Macro

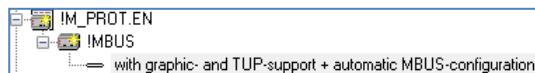
The macro “!M_PROT!MBus\m_bus.f02” contains graphic pages for parameterization and visualization of up to eight data sets of an M-Bus meter. The design accords to the design of the HVAC macro library “DS-MACLIB”.

The user interface for FBG5/LSD-C and TUP is included in the macro “!M_PROT!MBus\m_bus.f02”. Use for any connected M-Bus controller the macro “M_BUS.F02”

How to parameterize

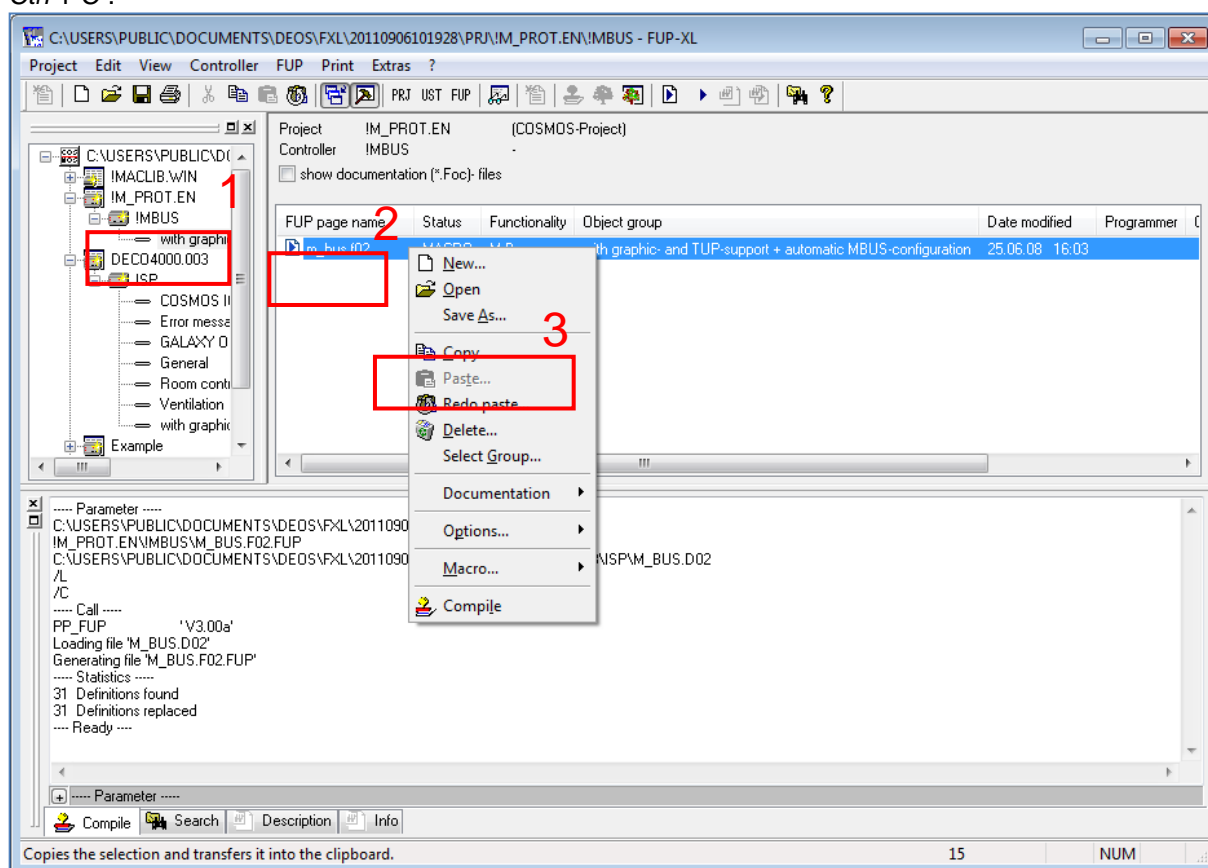
The M-Bus connection is done by using the macro *m_bus.f02*. This macro is deposited in the macro library *!M_PROT - !MBUS*.

Notice Every M-Bus-meter needs an own macro.



FUP page name	Status	Functionality	Object group	Date modified	Programme
m_bus.f02	MACRO	M-Bus	with graphic- and TUP-support + automatic MBUS-configuration	25.06.08 16:03	

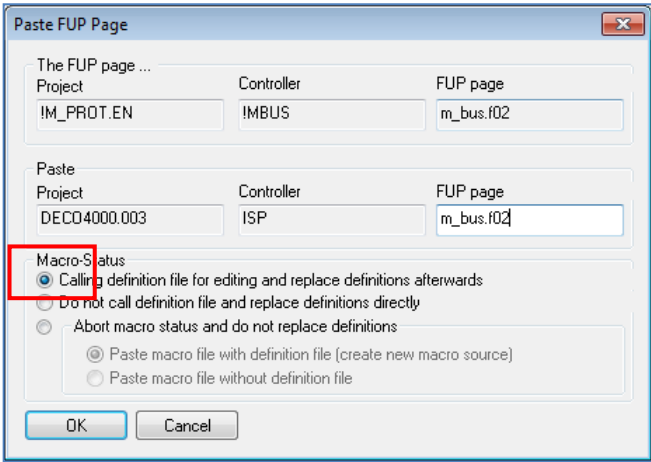
Copy the macro "*m_bus.f02*" by the context menu "*Copy*" or by the submenu "*FUP – Copy*" or by the shortcut "*Ctrl + C*".



Afterwards insert the macro by the context menu "*Paste*" or by the submenu "*FUP – Paste*" or by the shortcut "*Ctrl + V*" into the controller of the project in which the M-Bus connection should be used.

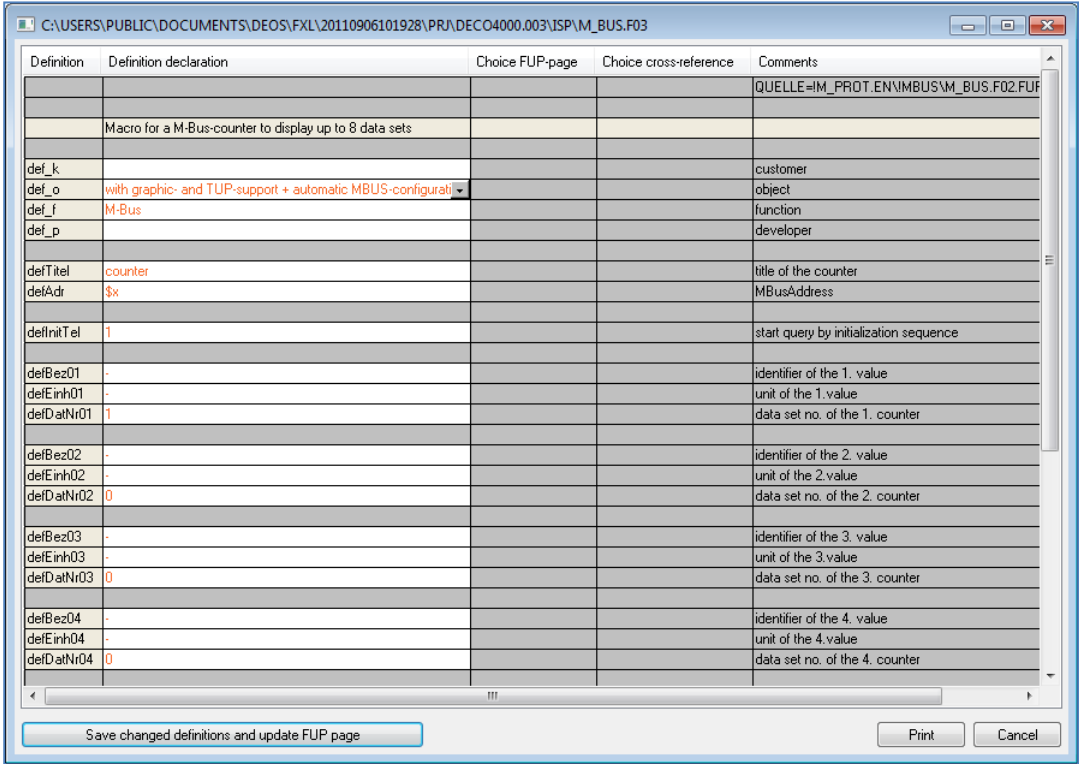
Insert in the dialog window the FUP page name in the field "*FUP page*". The name should be no longer than 8 characters. The identifier behind the "*.*" sets the M-Bus address. Because the default value which is assigned to the M-Bus address is "*\$X*" you can change the "*02*" in the extension to the next free M-Bus address. The address can also be changed in the macro editor directly and you do not need to change the extension of the inserted FUP page.

Let the macro state "*Call the definition file for editing and replace the definitions afterwards.*" set.



Confirm the settings by pressing **OK**.

The following macro definition file (**macro editor**) is called. Here you configure the object, the identifier of the M-Bus meter and the M-Bus specific data.



The titles of the columns are explained in the following table.

Definition	Definition declaration	Choice FUP-page	Choice cross-reference	Comments	Notice
Column	Explanation				
Definition	Definition name in the FUP page				
Definition declaration	Definition declaration to Definition				
Choice-FUP page	Selection of the according FUP page				
Choice cross-reference	Selection of the assigned cross-reference				
Comments	Example texts				
Notice	Additional notices to the definition declarations				

The definition identifier is explained in the following table.

def...	Explanation
def_k	Customer name (e.g. Yourcity)
def_o	Object name (e.g. automatic M-Bus configuration)
def_f	Explanation of function (e.g. M-Bus meter)
def_p	Developer (e.g. Yourname)
defTitel	Title of the M-Bus meter (e.g Yourhouse 01)
defAdr	M-Bus address declaration (is defined by the extension of the FUP page)
defInitTel	Request if you want to start with the initialization sequence (0 = No, 1 = Yes)
defBez01	Identifier of the 1. counter value (e.g. Water)
defEinh01	Unit of the 1. counter value (e.g cbm)
defDatNr01	Data set number of the 1. counter value (e.g. 4)

Insert the data into the according fields in “*Definition declaration*”.

Example

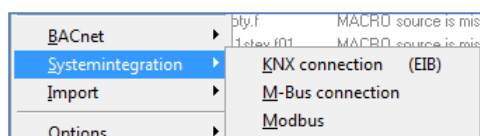
Definition	Definition declaration
	Macro for a M-Bus-counter to display up to 8 data sets
def_k	Example-Town
def_o	with graphic- and TUP-support + automatic MBUS-configuration
def_f	M-Bus Counter
def_p	John Doe
defTitel	counter
defAdr	\$x
defInitTel	1
defBez01	Water
defEinh01	cbm
defDatNr01	4
defBez02	Electricity
defEinh02	kWh
defDatNr02	1
defBez03	Gas
defEinh03	cbm
defDatNr03	7

Save the definition file by the button “*Save changed definitions and update FUP page*”.

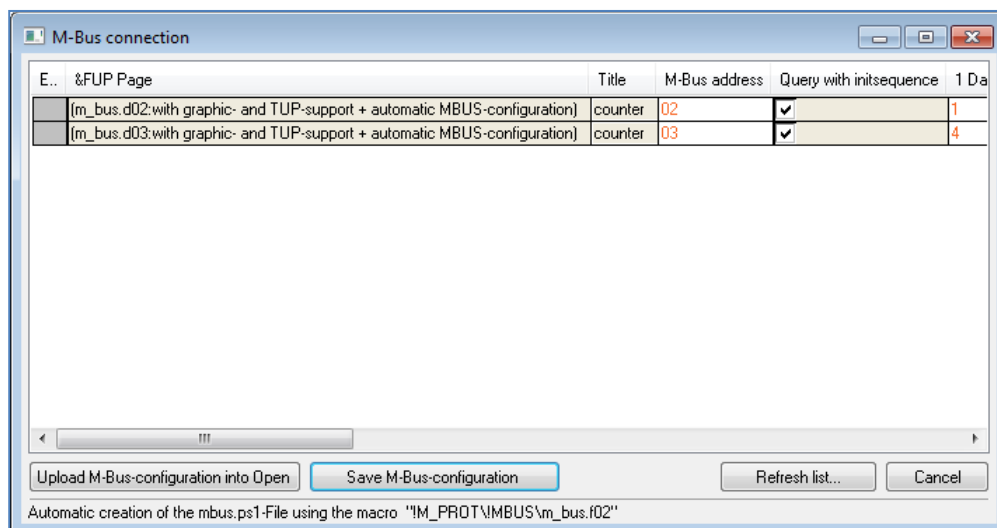
The parameterization has to be done for every M-Bus meter in the system.

Afterwards the project has to be compiled by the context menu “*Compile*” or by the submenu “*Controller - Compile*”.

After successful compilation you have to create or update the configuration file “mbus.ps1” by “*Controller – System integration – M-Bus connection*”.



Afterwards the following dialog window opens. An overview about the set definitions is displayed here. Changes of these definitions will be deposited automatically in the definition files.



&FUP Page	Title	M-Bus address	Query with initsequence	1 Dataset nr.	Identifier 1	Unit 1
-----------	-------	---------------	-------------------------	---------------	--------------	--------

Column	Explanation
Error	Shows an error message
FUP page	Name of the FUP page of the M-Bus connection, e.g. <i>m_bus.f02</i>
Title	Title of the M-Bus meter
M-Bus address	M-Bus address of the counter
Query with init sequence	Start query with init sequence (checked = Yes)
1 data set no.	Data set number of the 1. counter
Identifier 1	Identifier of the 1. counter, e.g. <i>electric meter apartment 01</i>
Unit 1	Unit of the 1. counter, e.g. <i>kWh</i>

Notice Changes of the M-Bus specific settings can be uploaded directly into the OPEN EMS.

Upload MBus configuration into the OPEN

If only M-Bus specific settings like

- M-Bus address
- Query with init sequence
- 1 data set no.
- 2 data set no.
- ...
- 8 data set no.

are changed after the last upload into the OPEN EMS then the changed and saved M-Bus configuration file "*mbus.ps1*" can be uploaded directly by the button "*Upload M-Bus configuration into Open*"

Notice Because the title, the data set identifier and the unit are static texts elements changes will be applied by the upload of an error free compiled OPEN.

Save MBus configuration

If M-Bus meter are deleted, new M-Bus meter added or M-Bus specific settings changed then after an error free compilation of the controller the changed M-Bus configuration is saved by the button "*Save M-Bus configuration*" in the configuration file "*mbus.ps1*".

Update list

Unused data set displays are displayed in the list in grey. If data sets are added by declaring the data set number in a counter then you can update the list and the new data sets are no more displayed grey.

Abort

This button closes the window without saving the configuration.

Annex

Notice When creating the "*mbus.ps1*" the manually created entries will last. Thereby you can have in the "*mbus.ps1*" entries from the macro "*!M_PROT\MBUS\m_bus.f01*" and from the macro "*!M_PROT\MBUS\m_bus.f02*". The automatically created lines in the file "*mbus.ps1*" are marked.

Important It is **not** possible to change an existent macro with the source declaration "*!M_PROT\MBUS\m_bus.f01*" to "*!M_PROT\MBUS\m_bus.f02*" by changing the source declarations. The definition files of the macros are different and the manually inserted entries in the "*mbus.ps1*" will last!

Modbus

General

To communicate with devices of various manufacturers the universal Modbus-protocol is implemented. The variants Modbus-Master and Modbus-Slave are available by TCP/IP and serial connection (RTU) as option on the controllers COSMOS 4000 OPEN, COSMOS 3000 OPEN, COSMOS 800 OPEN und COSMOS 700 OPEN beginning with firmware version 1.036.

Modbus Data Types

A MODBUS data point will be clearly identified by the properties of Modbus Slave address, MODBUS-memory type and MODBUS- variable address:

	MODBUS slave-address			MODBUS memory type	MODBUS variable address
Internal short description	M_SLAVE			M_memory_type	M_VAR_ADDR
Range of values	1..247	Memory area for binary values	Only readable	Discrete_Input	0..65535
			Read- and writeable	Coil	
		Memory area for integers etc.	Only readable	Input_Register	0..65535
			Read- and writeable	HoldingRegister	

Thereby the memory area for binary states and the memory area for integers etc. are strictly differentiated. Both memory areas have a maximal address space of 0...65535. For each memory area the memory types for “only readable” and “read- and writeable” are differentiated.

Modbus function codes for Master/Slave

For access of the memory areas the following Modbus specific function codes are supported:

Function code	Description	Master	Slave
0x01	Read: Coils	Supported	Supported
0x02	Read: Discrete Inputs	Supported	Supported
0x03	Read: Holding Registers	Supported	Supported
0x04	Read: Input Registers	Supported	Supported
0x05	Write: Single Coil	Supported	Supported
0x06	Write: Single Register	Not used	Supported
0x0F	Write: Multiple Coils	Not used	Supported
0x10	Write: Multiple Registers	Supported	Supported

Modbus data point-number at OPEN EMS

Optional there are different functional packets for the Modbus-connection to OPEN EMS controller available to meet unique requirements.

As *Modbus-Master* the options for the controllers OPEN EMS to have **50** data points, **250** data points, **500** data points and **1000** data points are available.

For activation of the software-modules the desired Modbus-connection has to be declared at order of the OPEN EMS controller.

Modbus Master – Write Single Register

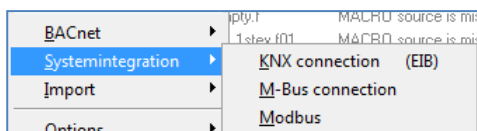
Devices of some manufactures can only write on registers separately. Therefore the transfer mode can be set to write only one register at a time. Without this option multiple register are merged in one telegram. This will increase the transfer speed and processing.

The function code *Write Single Register* is supported if the option *write single register* is set in the properties dialog of the Modbus Master in OPENweb/OPENview.

Notice If the option is set then all write commands for all connected Modbus slaves will be done by it. A mixed operation is not possible.

System integration - Modbus

The parameterization of the *Modbus-Master* in the FUP XL is called by the submenu *Controller – System integration – Modbus*.

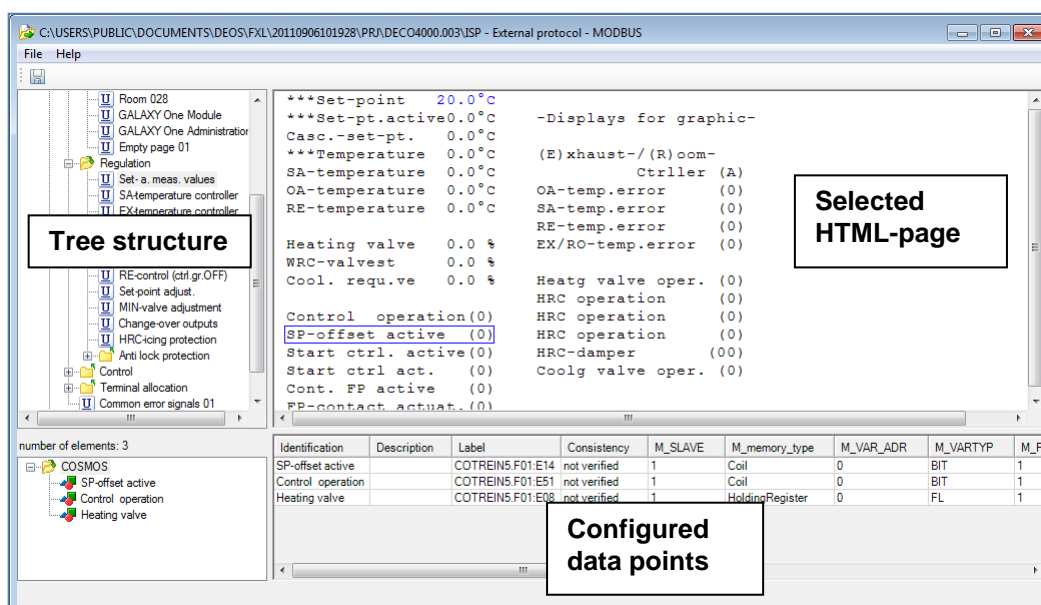


Afterwards the program *external protocol – MODBUS* opens.

External protocol - Modbus

The program is basically divided into two areas. In the upper area the BDFTree and the selected HTML page is displayed.

The configured data points for the Modbus Master are displayed in the area below.



On this page the elements can be dragged down by Drag&Drop which should be parameterized for the configuration of the Modbus Masters of the COSMOS 700 OPEN, COSMOS 800 OPEN, COSMOS 3000 OPEN or COSMOS 4000 OPEN.

In the lower part of the window the configurations of the Modbus data points will be parameterized.

Explanation of the column names of the configured data points:

Column identifier	Value	Explanation
Identifier		Modbus data point name; Name in the tree (no technical meaning)
Description		Additional description (only used for development; no technical meaning)
Label		Unique variable identifier in the controller program; describes the FUP-variable
Consistency		Check if the COSMOS data point is existent in the controller program (see chapter " <i>Consistency check</i> ")
M_SLAVE		Modbus Slave-address
	0	Used for broadcast
	1 .. 247	Unique slave-addresses
	248 .. 255	Reserved addresses
M_memory_type		Modbus memory type
	Coil	Bit-memory (read + write)
	Discrete_Input	Digital inputs (only read)
	Input_Register	Input register (only read)
	HoldingRegister	Memory register (read + write)
M_VAR_ADR	0..65535	Address in the memory of the Modbus Slave for binary memory area
	0..65535	Address in the memory of the Modbus Slave for number etc. memory area
M_VARTYP	UI, SI, ULI, SLI, FL, BIT, ULI_TYPE2, SLI_TYPE2, FL_TYPE2	Modbus variable type
M_FACTOR		Factor
M_OFFSET		Offset
Read/Write	R	The value will be read by Modbus
	W	The value will be send by a OPEN EMS to the Modbus
	RW	Combination of <i>R</i> and <i>W</i> . Both functionalities are executed in unchanged form.

Write-Cycle	Seconds	At the "Write-Cycle" the interval is set by which the value is written into the Modbus device (in seconds).
Write-Delta		If the value of a data point changes by at least the value of "Write-Delta" then the value of the data point will be written to the Modbus device if the column Read/Write is set to "W" or "RW".
Debug		To check a Modbus link at runtime you can set an additional label at every data point on which information about the state are written. The data point has to be of the type UI. The information is coded as following:
	0	Communication is OK
	1	Data point configured for reading but the reading was not successful
	2	Data point configured for writing but the writing was not successful
	3	Data point is configured for Read/Write but both actions failed


Menu structure

File Help

File

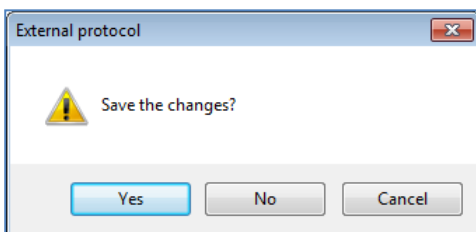
File Help
Save
Exit

Save

You can save the configuration by the submenu *Save* or by the symbol .

Exit

You can exit the program by the submenu *Exit*. If there were changes to the configuration and were not saved then the user gets the possibility to save before exiting or abort to exit the program.



Help

Help
About

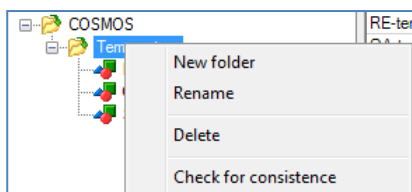
About...

This submenu shows information about the program.



Context menu of the tree

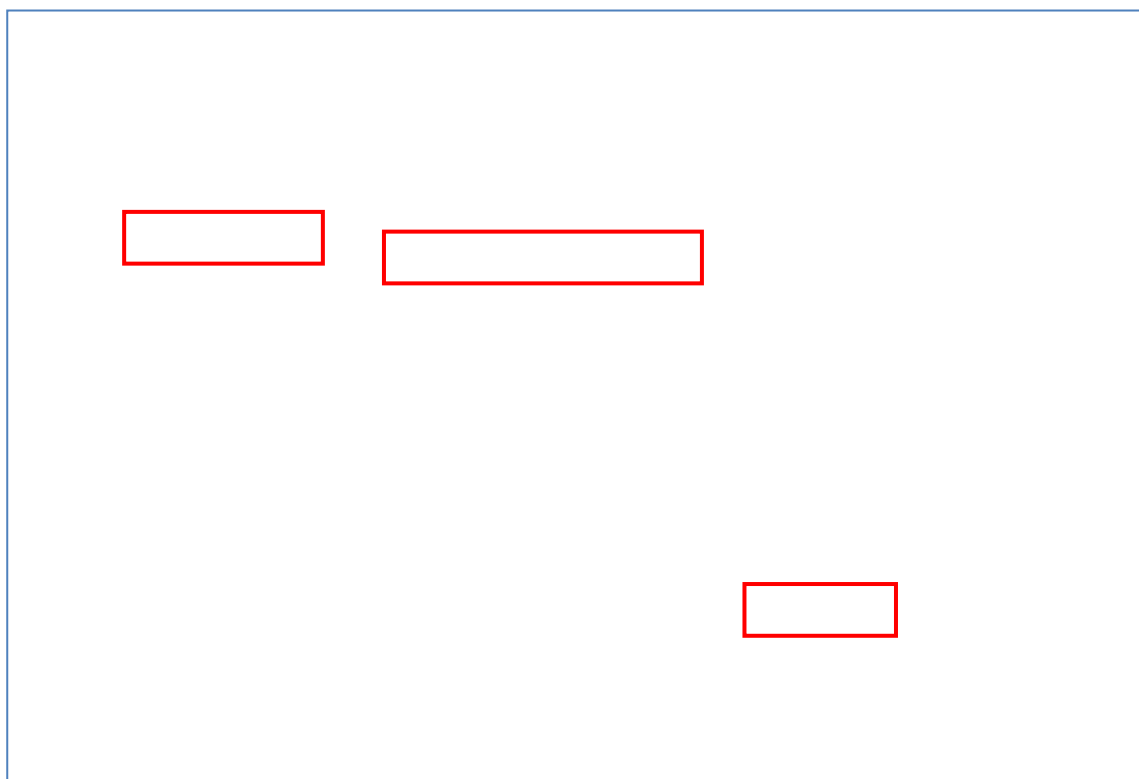
By the context menu of the tree you can create new folders in the tree (*New folder*), rename folders (*Rename*), delete data points from the configuration (*Delete*) and check the consistency (*Check consistency*).



Context menu of the table

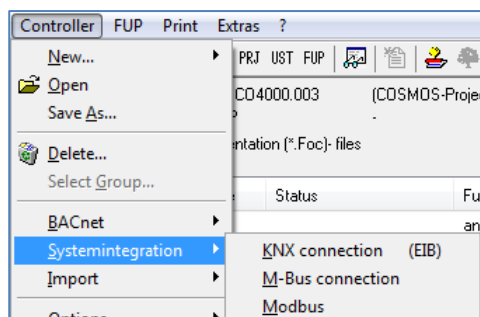
You can get to the submenu “*Search source*” by the context menu of the table. By this submenu you can search for a data point in the menu structure of the tree. If it is existent then it will be displayed in the upper part of the window.

Notice This submenu is only active if a cell with a label is selected.



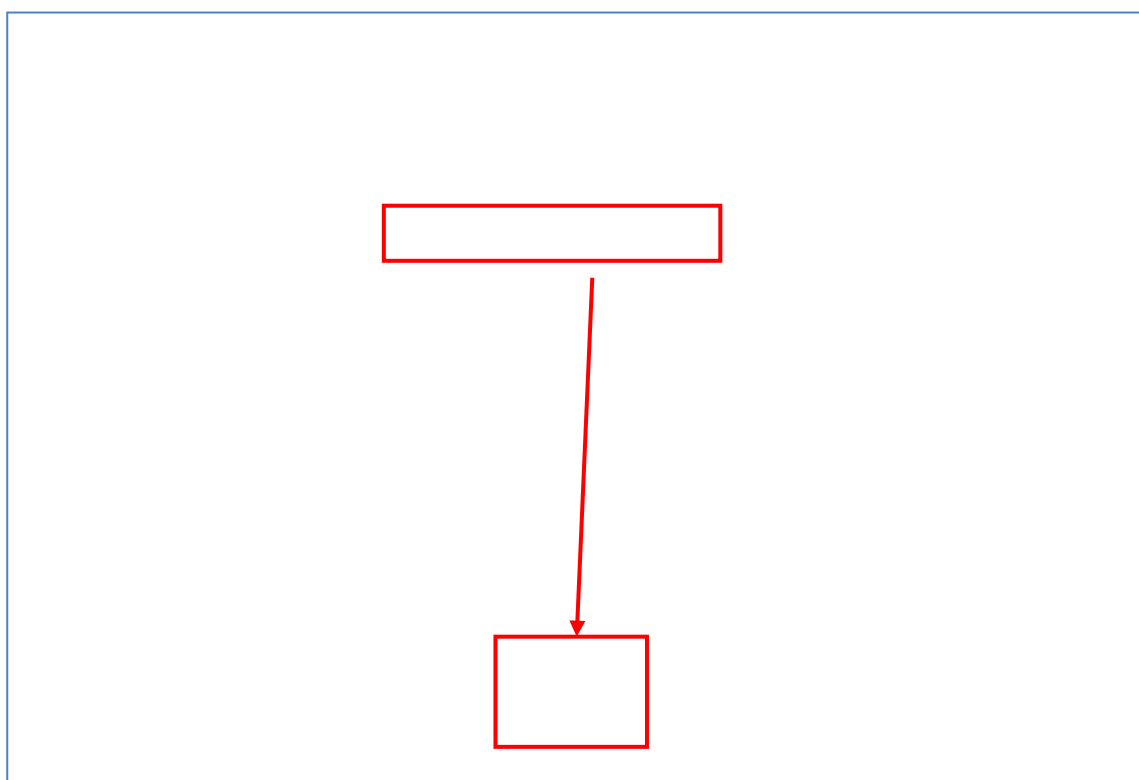
Data point parameterization in the FUP XL

The parameterization of the *Modbus-Master* in the FUP XL is called by the submenu *Controller – System integration – Modbus*.



The program “*External protocol – Modbus*” starts afterwards.

For parameterization of a data point for the Modbus-Master, the HTML-page in the tree has to be selected on which the data point is visualized. The according HTML-page is displayed in the upper part of the window in the right area. All viewable COSMOS data points can be dragged to the lower part of the window via Drag&Drop to parameterize it for Modbus-Master as long as they are of the type *BIT*, *UI*, *SI*, *ULI*, *SLI* or *FL*.



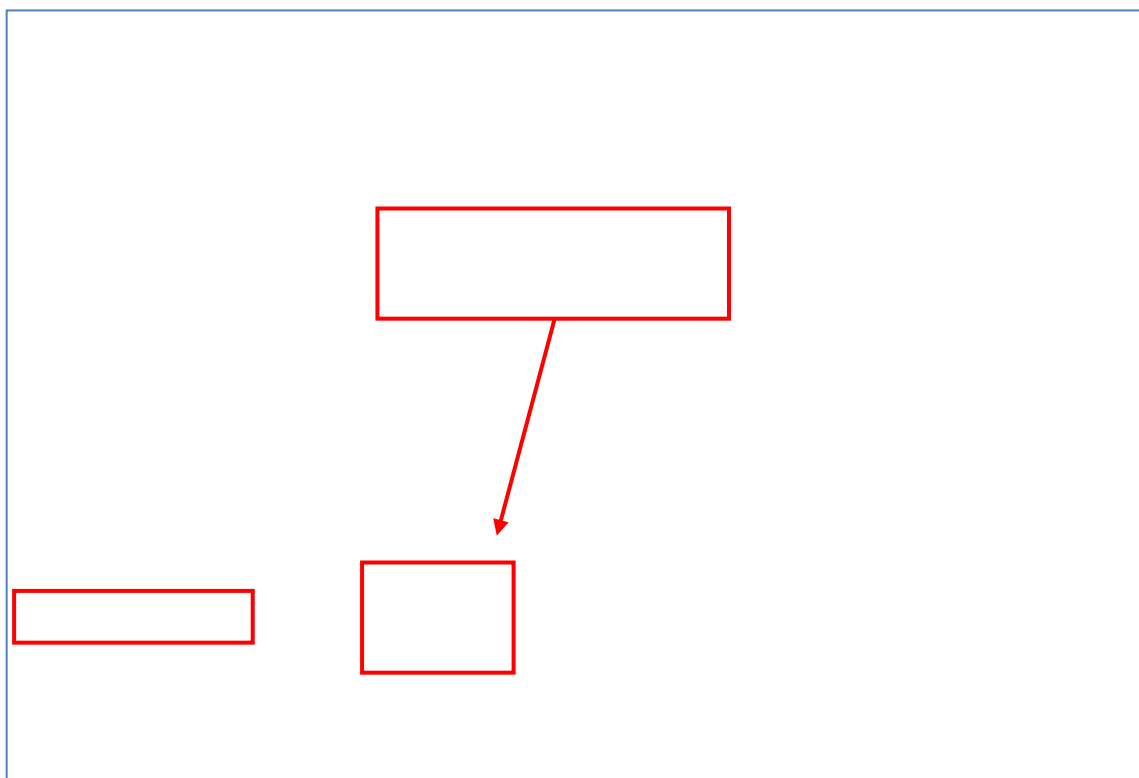
Notice If a data point and a static text are dragged down at the same time then the text is used as identifier. If only one data point or a multiple selection of data points is dragged down then the pretext of the element is used as identifier.

Create a new Modbus data point

From the HTML-pages the COSMOS data points can be linked to a Modbus data point by Drag&Drop. A new line for the Modbus data point is created afterwards. In this line the configuration of the Modbus-Master will be parameterized.

The data points which are added by Drag&Drop will always be inserted below the mark in the tree. If the marked node in the tree is a folder then the data point will be inserted into the folder if it is opened.

If only one COSMOS data point or a multiple selection of COSMOS data points is dragged down then the pretext of the element is used as identifier.



Notice A COSMOS data point of type *FEST* can also be used to give a new identifier or description to a parameterized Modbus data point. For this the COSMOS data point must be dragged to the according cell in the lower part of the window.

Change allocation of the COSMOS data point at the Modbus data point

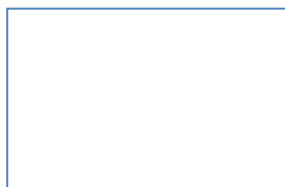
To change the label of an already parameterized Modbus data point you have to drag the COSMOS data point which should be linked onto the cell in the column label of the according Modbus data point.

Parameterization of the Modbus data points

M_SLAVE

In the column *M_SLAVE* the Modbus Slave address is set. Thereby a 0 is for a Broadcast. The addresses from 1 to 247 are unique slave addresses and the addresses from 248 to 255 are reserved.

M_memory_type



The memory type of Modbus is set in the column "*M_memory_type*". To change the memory type you have to double click onto the memory type you want to change to get the drop-down menu. Here you have four options: *coil output*, *discrete input*, *input register*, *holding register*.

Option	Description
Coil	Bit-memory (read + write)
Discrete_Input	Digital inputs (only read)
Input_Register	Input register (only read)
HoldingRegister	Memory register (read + write)

M_VAR_ADDR

The address in the memory of the Modbus Slave is set by the column *M_VAR_ADDR*.

M_VARTYP

M_VARTYP	M_FACTOR	M_OFFSET	Read/Write	Write→
FL	1	0	W	0
UI		0	R	
SI		0	W	
ULI			RW	
SLI				
FL				
BIT				
ULI TYPE2				

The according variable type is set according to the following table at *M_VARTYP*.

Variable type	Memory type	Range
BIT	Coil / Discrete_Input	0 / 1
UI	Input_Register / HoldingRegister	0..65835
SI	Input_Register / HoldingRegister	-32768..32767
ULI	Input_Register / HoldingRegister	0..4294967295
SLI	Input_Register / HoldingRegister	-2147483648 .. 2147483647
FL	Input_Register / HoldingRegister	-3,4 * 10 ⁺³⁸ .. 3,4 * 10 ⁺³⁸
ULI_TYPE2	Input_Register / HoldingRegister	0..4294967295
SLI_TYPE2	Input_Register / HoldingRegister	-2147483648 .. 2147483647
FL_TYPE2	Input_Register / HoldingRegister	-3,4 * 10 ⁺³⁸ .. 3,4 * 10 ⁺³⁸

The byte-order is reversed for *TYPE2 variable types*. These variable types have to be used if the corresponding variable types lead to error messages.

M_FACTOR and M_OFFSET

In some cases it is necessary for some Modbus devices to adapt the value for reading or writing. This can be done by the columns *M_FACTOR* and *M_OFFSET*. The formula is:

$$value = memory_value \cdot factor + offset$$

Example The value in the memory should be 20,5 °C. Because it is worked with a static decimal place the value in the memory is 205. Therefore we need as *factor* a 0,1 and as *offset* a 0.

Read/Write

M_VARTYP	M_FACTOR	M_OFFSET	Read/Write	Write→
FL	1	0	W	0
UI		0	R	
SI		0	W	
ULI			RW	
SLI				
FL				
BIT				
ULI TYPE2				

In the table *Read/Write* is set if the data point of a Modbus Gerät can be read (R), can be written (W) or can be read and written (RW). By a double click onto the field you get an according drop-down menu.

Write-Cycle

At the *Write-Cycle* the interval is set in which the value is written to the Modbus device.

Write-Delta

If the value changes by at least the value which is set at *Write-Delta* then it will be written to the Modbus device as long as in the column *Read/Write* a "W" is set.

Debug

To check a Modbus link at runtime you can set an additional label at every data point on which information about the state are written. The data point has to be of the type UI.

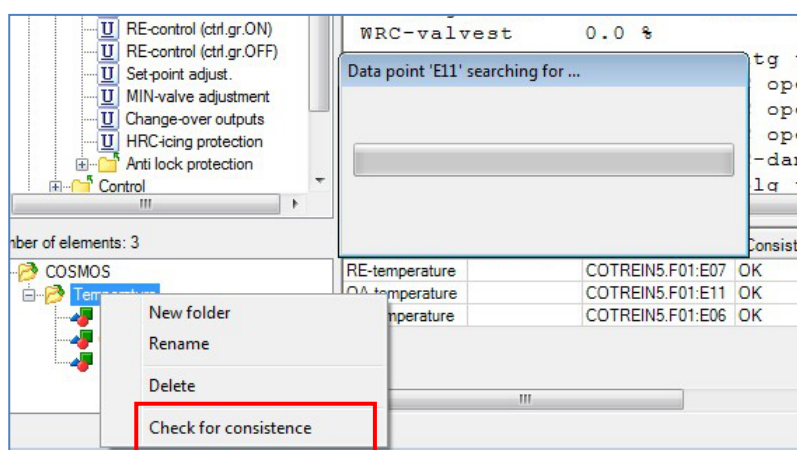
The information is coded as following:

Value	Explanation
0	Communication is OK
1	Data point configured for reading but the reading was not successful
2	Data point configured for writing but the writing was not successful
3	Data point is configured for Read/Write but both actions failed

Consistency check

If you select a folder in the tree then the check will be performed for all elements of the folder. If this folder contains again folders then the check will be also performed for the elements of those folders. If only one data point is selected then the check will only be done for this data point.

During the check the element will be searched in the tree. Thereby the first occurrence of the element will be found.



If the element is found then the element will be marked as consistent.

Consistency
OK
OK
OK

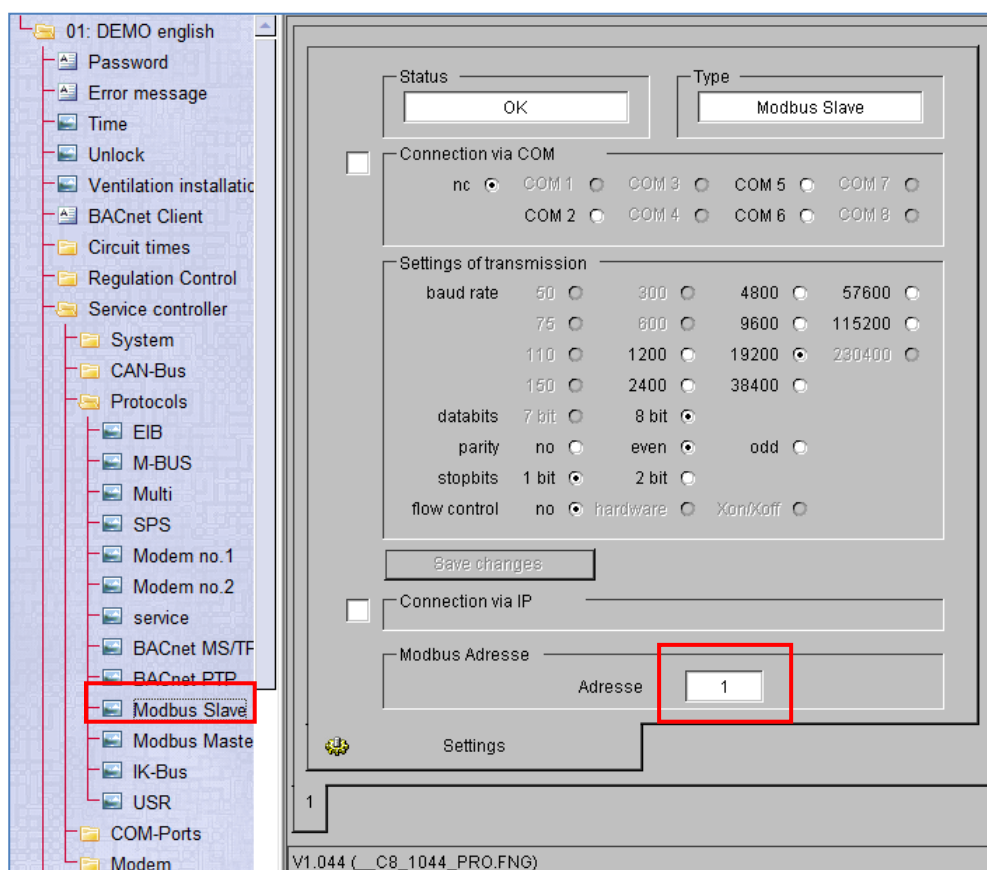
This information will not be saved. Therefore all Modbus data points will be marked as "not checked" when reopening the configuration program for Modbus Master.

Modbus-Slave

The option MODBUS slave is available on the controllers COSMOS 4000 OPEN, COSMOS 3000 OPEN, COSMOS 800 OPEN and COSMOS 700 OPEN. By the MODBUS slave all enterable and displayed values can be accessed.

Set Modbus Slave address

The Modbus Slave address of the controller OPEN EMS can be set at the protocol page *Modbus Slave* on the BMS at the submenu *Service controller – Protocols – Modbus Slave*.



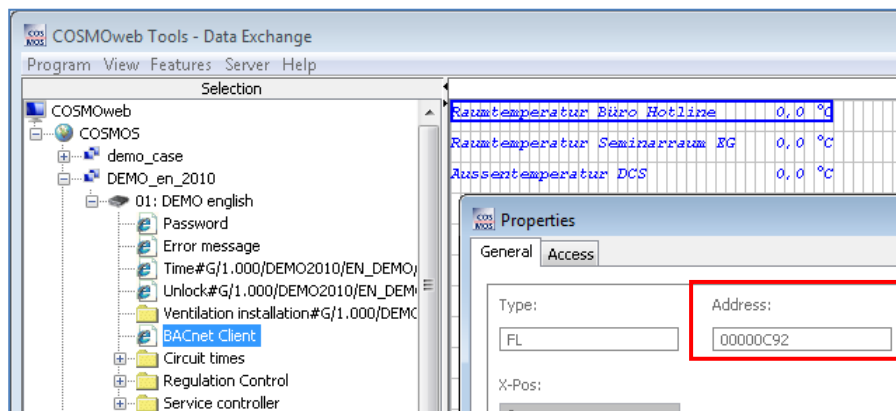
Determine Modbus data point addresses

Modbus data point addresses can be determined by the *OPENweb Tools* or by the FUP XL.

OPENweb-Tools

The Modbus addresses, the Modbus memory types and the variable types of the inputs and outputs can be determined by the property pages of the HTML-pages in the OPENweb-Tools (see *manual OPENweb Tools*).

Notice In the OPENweb property window the addresses are shown hexadecimal.

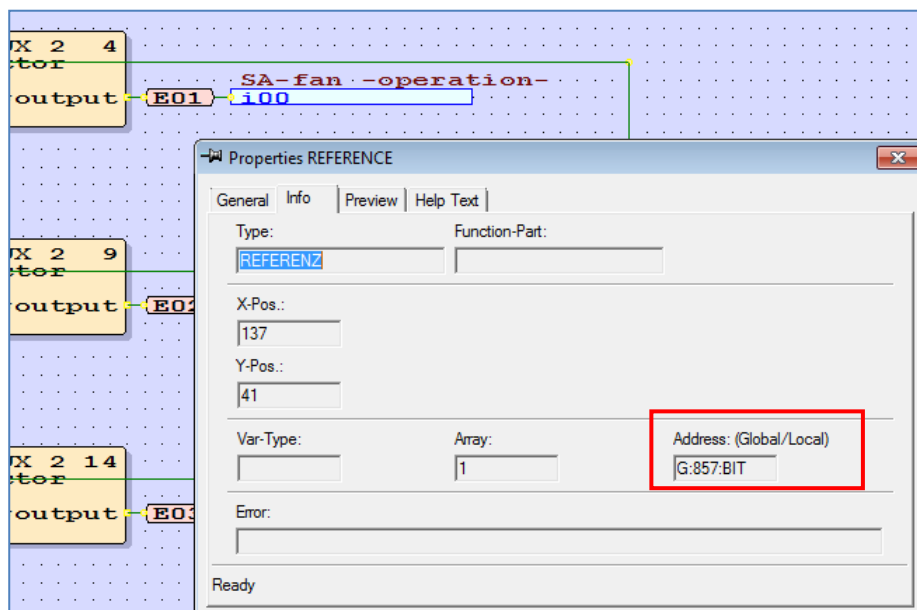


Thereby the following interrelationship in the OPENweb tools is valid:

Properties in OPENweb-Tools			MODBUS	
Type	Update	ASCII	Memory type	Variable type
BIT	DA	2 Characters	Discrete_Input	BIT
BIT	EDA	2 Characters	Coil	BIT
BIT (2 BITs)	DA	4 Characters	Discrete_Input	BIT MSB = Addr. + 1
BIT (2 BITs)	EDA	4Characters	Coil	BIT MSB = Addr. + 1
BIT (3 BITs)	DA	8 Characters	Discrete_Input	BIT MSB = Addr. + 2
BIT (3 BITs)	EDA	8 Characters	Coil	BIT MSB = Addr. + 2
BIT (4 BITs)	DA	16 Characters	Discrete_Input	BIT MSB = Addr. + 3
BIT (4 BITs)	EDA	16 Characters	Coil	BIT MSB = Addr. + 3
UI	DA		Input_Register	UI
UI	EDA		HoldingRegister	UI
ZUUHR	DA		Input_Register	UI e.g. 1 = P
ZUUHR	EDA		HoldingRegister	UI e.g. 7 = NOP
Date	DA		Input_Register	UI e.g. 101 = 01.01
Date	EDA		HoldingRegister	UI e.g. 3112 = 31.12
Time	DA		Input_Register	UI e.g. 10 = 00:10
Time	EDA		HoldingRegister	UI e.g. 1800 = 18:00
SI	DA		Input_Register	SI
SI	EDA		HoldingRegister	SI
ULI	DA		Input_Register	ULI
ULI	EDA		HoldingRegister	ULI
SLI	DA		Input_Register	SLI
SLI	EDA		HoldingRegister	SLI
FL	DA		Input_Register	FL
FL	EDA		HoldingRegister	FL

FUP XL

The Modbus addresses, the Modbus memory types and the variable types can also be determined in the FUP-Editor (after successfully compiling the project) in the property window of the inputs and outputs (see *manual FUP XL*).



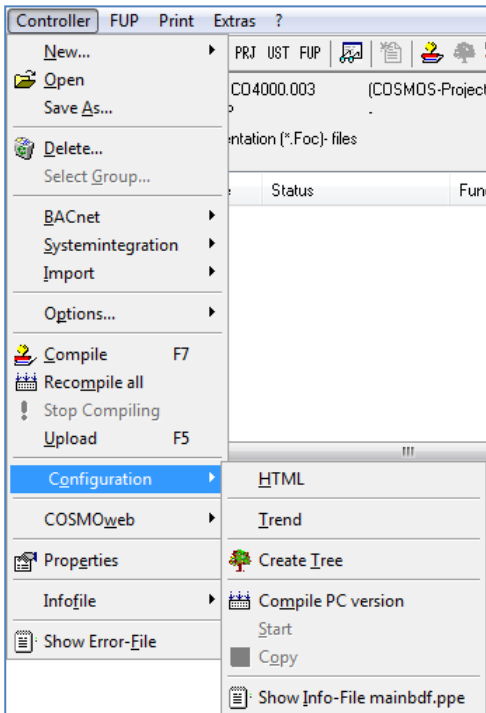
Notice In the FUP XL Editor property window the addresses are displayed decimal.

Thereby the following interrelationship in the property window of the FUP XL is valid (after correct compilation):

Properties in the FUP- Editor			MODBUS	
Type	Update	Address:(G/L)	Memory type	Variable type
BIT	Output (DA)	G:xxxx:BIT	Discrete_Input	BIT
BIT	Input (EDA)	G:xxxx:BIT	Coil	BIT
BIT	Output (EDA)	G:xxxx:BIT	Coil	BIT
BIT (2 BITS)	Output (DA)	G:xxxx:BIT[2]	Discrete_Input	BIT MSB = Addr. + 1
BIT (2 BITS)	Input (EDA)	G:xxxx:BIT[2]	Coil	BIT MSB = Addr. + 1
BIT (2 BITS)	Output (EDA)	G:xxxx:BIT[2]	Coil	BIT MSB = Addr. + 1
BIT (3 BITS)	Output (DA)	G:xxxx:BIT[3]	Discrete_Input	BIT MSB = Addr. + 2
BIT (3 BITS)	Input (EDA)	G:xxxx:BIT[3]	Coil	BIT MSB = Addr. + 2
BIT (3 BITS)	Output (EDA)	G:xxxx:BIT[3]	Coil	BIT MSB = Addr. + 2
BIT (4 BITS)	Output (DA)	G:xxxx:BIT[4]	Discrete_Input	BIT MSB = Addr. + 3
BIT (4 BITS)	Input (EDA)	G:xxxx:BIT[4]	Coil	BIT MSB = Addr. + 3
BIT (4 BITS)	Output (EDA)	G:xxxx:BIT[4]	Coil	BIT MSB = Addr. + 3
UI	Output (DA)	G:xxxx:UI	Input_Register	UI
UI	Input (EDA)	G:xxxx:UI	HoldingRegister	UI
UI	Output (EDA)	G:xxxx:UI	HoldingRegister	UI
ZUUHR	Output (DA)	G:xxxx:UI	Input_Register	UI e.g. 1 = P
ZUUHR	Input (EDA)	G:xxxx:UI	HoldingRegister	UI e.g. 7 = NOP
ZUUHR	Output (EDA)	G:xxxx:UI	HoldingRegister	UI e.g. 7 = NOP
Date	Output (DA)	G:xxxx:UI	Input_Register	UI e.g. 101 = 01.01
Date	Input (EDA)	G:xxxx:UI	HoldingRegister	UI e.g. 3112 = 31.12
Date	Output (EDA)	G:xxxx:UI	HoldingRegister	UI e.g. 3112 = 31.12
Time	Output (DA)	G:xxxx:UI	Input_Register	UI e.g. 10 = 00:10
Time	Input (EDA)	G:xxxx:UI	HoldingRegister	UI e.g. 1800 = 18:00
Time	Output (EDA)	G:xxxx:UI	HoldingRegister	UI e.g. 1800 = 18:00
SI	Output (DA)	G:xxxx:SI	Input_Register	SI
SI	Input (EDA)	G:xxxx:SI	HoldingRegister	SI
SI	Output (EDA)	G:xxxx:SI	HoldingRegister	SI
ULI	Output (DA)	G:xxxx:ULI	Input_Register	ULI
ULI	Input (EDA)	G:xxxx:ULI	HoldingRegister	ULI
ULI	Output (EDA)	G:xxxx:ULI	HoldingRegister	ULI
SLI	Output (DA)	G:xxxx:SLI	Input_Register	SLI
SLI	Input (EDA)	G:xxxx:SLI	HoldingRegister	SLI
SLI	Output (EDA)	G:xxxx:SLI	HoldingRegister	SLI
FL	Output (DA)	G:xxxx:FL	Input_Register	FL
FL	Input (EDA)	G:xxxx:FL	HoldingRegister	FL
FL	Output (EDA)	G:xxxx:FL	HoldingRegister	FL

10. Trend

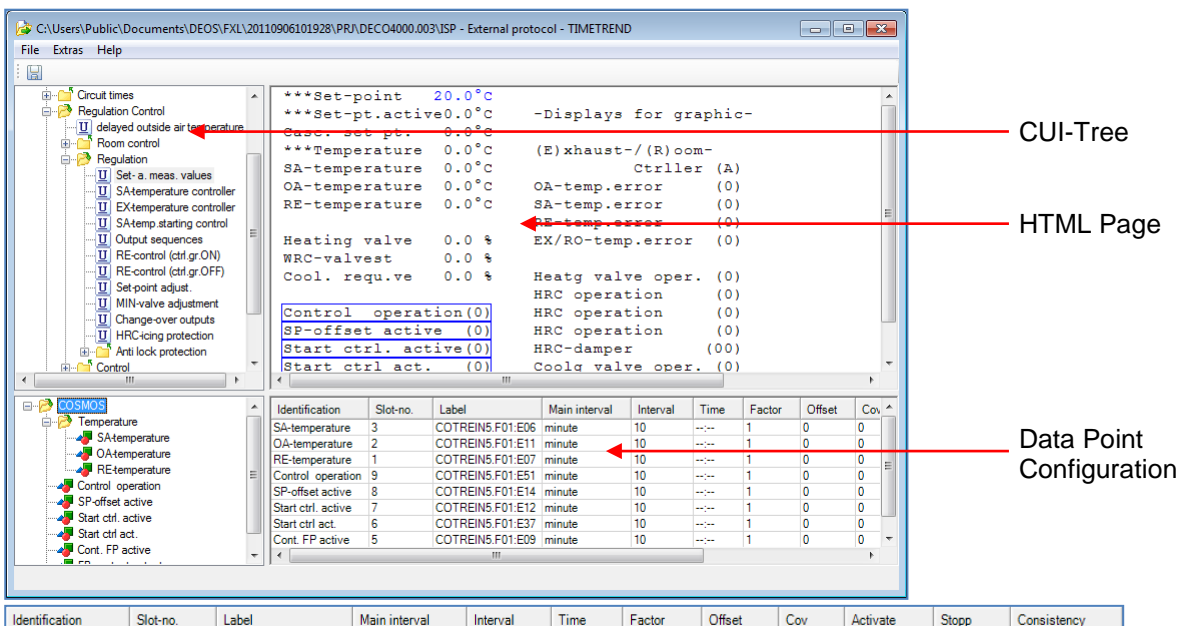
Since FUP XL version 1.044 Trend is implemented. The configuration of the Trend can be opened by the menu *Controller → Configuration → Trend*.



The system integration program *External protocol Timetrend* will be opened.

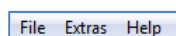
Trend - Layout

The program is separated into two areas. In the upper area the CUI-Tree and the selected HTML page will be visualized. You can drag and drop the elements on that HTML page into the lower part to perform the Trend recording on a COSMOS 500 OPEN, COSMOS 600 OPEN, COSMOS 700 OPEN, COSMOS 710 OPEN, COSMOS 800 OPEN, COSMOS 810 OPEN, COSMOS 3000 OPEN, COSMOS 3100 OPEN, COSMOS 4000 OPEN or COSMOS 4100 OPEN controller. In the lower area the data points will be visualized which are selected for the Trend recording.

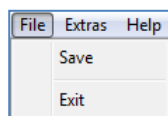


Identification	Trend data point name; Short text for a well-arranged visualization in the tree
Slot-no.	Record range of data points (1 ... 250); up to 250 data points can be parameterized; has to be unique
Label	Unique variable name in the controller program (e.g. COTREIN5.F01:E51)
Main interval	Here you can set the unit of the interval (second, minute, hour, day, COV)
Interval	Here you can set the value according to the main interval
Time	If the main interval is set to day then you can specify here the time when Trend should record the current value of the data point
Factor	You can set a factor for the data point here
Offset	You can set an offset for the data point here
COV	If the main interval is set to change of value (COV) then you can specify here how big the change has to be to get recorded
Activate	You can add a switch to enable or disable the recording of this data point by this column
Stop	By this option it is possible to deactivate the circular buffer for this data point to prevent the controller to overwrite old values when the buffer is full (in that case the Trend recording will stop)
Consistency	This column shows whether the data point can be found in the controller or not after a consistency check


Menu



File

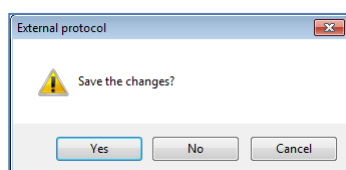


Save

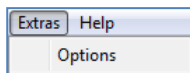
You can save the configuration by the menu *File* → *Save* or by the symbol .

Exit

You can exit the program by the menu *File* → *Exit*. In the case that changes of the configuration were not saved, the program will prompt the user to save or dismiss the configuration or cancel the exit process.

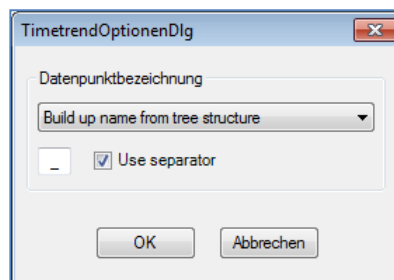
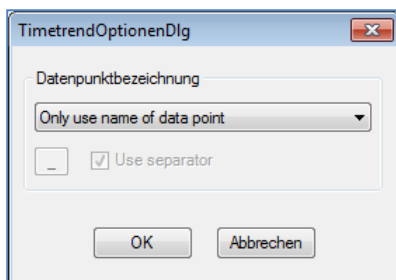
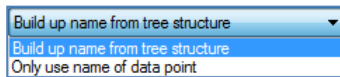


Extras



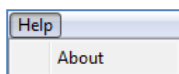
Options

The creation of the name of the data point can be configured here. The name can be created by the freely configurable tree structure or it can be created by the inserted identifier. You have to recognize that the created identifier has no more than 62 characters.



If the identifier is created by the tree structure then you can configure if you want to use a separator and which separator you want to use between the single parts of the path.

Help



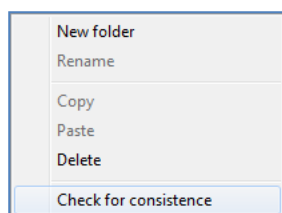
About

This menu point opens a dialog which shows information about the program.



Context Menu (Tree) – Trend Data Points

You can create new folders in the tree (*New folder*), rename folders (*Rename*), remove data points from the configuration (*Delete*) and start the consistency check (*Check for consistence*).



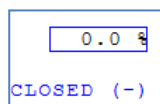
- New folder** Creates a new folder in the tree below the currently selected position.
- Rename** Renames a user created folder.
- Copy** Copies the selected data points or folders into the clipboard.
- Paste** Pastes the data points or folders from the clipboard below the currently selected position.
- Delete** Deletes the selected data points or folders.
- Check for consistence** Checks the consistency of a data point (see chapter [Consistency Check](#)).

Context Menu (Table) – Trend Data Points

By the context menu of the table the menu point *Search source* can be reached. By this menu point it is possible to search for a data point in the menu structure of the CUITree. It is required to select the according column *Label* to do so.

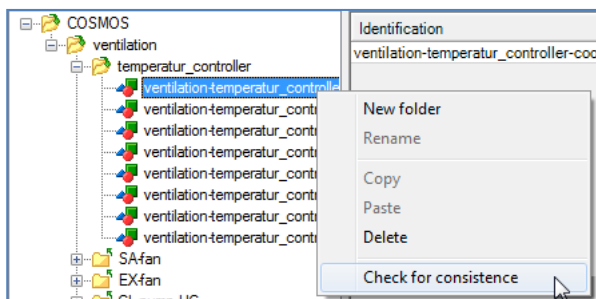
Identification	Slot-no.	Label	Main interval	In
ventilation-temperatur_controller-cooling value	31	COTREIN8.F01:E147	minute	1
ventilation-temperatur_controller-OA/EA-damper value	30	COTREIN8.F01:E128	minute	1
ventilation-temperatur_controller-HRC value	29	COTREIN8.F01:E61	minute	1
ventilation-temperatur_controller-heating value	28	COTREIN8.F01:E147	minute	1
ventilation-temperatur_controller-SA-temperature	27	COTREIN8.F01:E15	minute	1
ventilation-temperatur_controller-SA-temp.setpt.	26	COTREIN8.F01:E15	minute	1
ventilation-temperatur_controller-EX-temperature	25	COTREIN8.F01:E18	minute	1
ventilation-temperatur_controller-EX-temp.setpoint	24	COTREIN8.F01:E17	minute	1
ventilation-SA-fan-oper.mode	32	SASUOA_1.F01:A06	minute	1

If the data point is present then it will be shown in the upper part of the window.



Consistency Check

If you have selected a folder in the tree then the consistency check will be performed for all data points in all subdirectories. If you have only selected a data point then the consistency check will only check the data point. While checking the element it will be searched in the CUI-Tree. Thereby the first occurrence will be found.



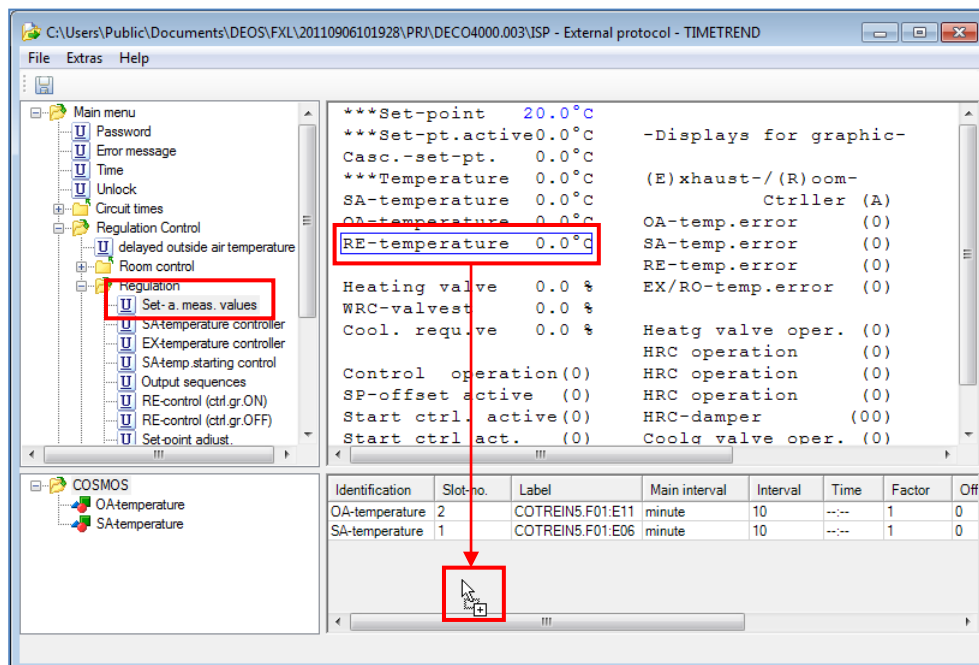
If the element was found then it will be marked as consistent.

Consistency
OK
OK
OK
OK

This information will not be saved. Thereby the consistency will be set to “*not verified*” after reopening the configuration.

How to parameterize a data point

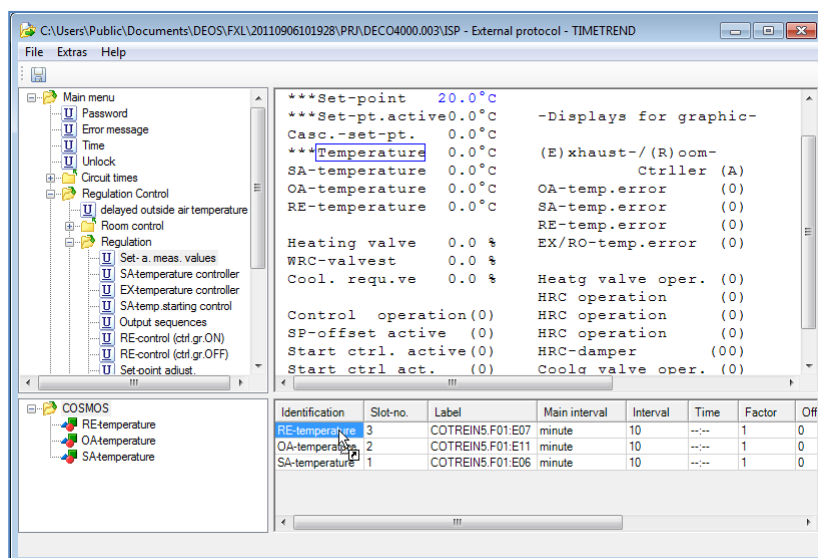
To parameterize a data point for the Trend recording you first have to select the HTML page in the tree on which the data point can be found. The according page will be visualized in the right part of the upper area of the window. All viewable data points can be dragged and dropped into the lower area of the window and thereby parameterized for the Trend recording if the type is not "STATIC" or "TEXT" and no system label.



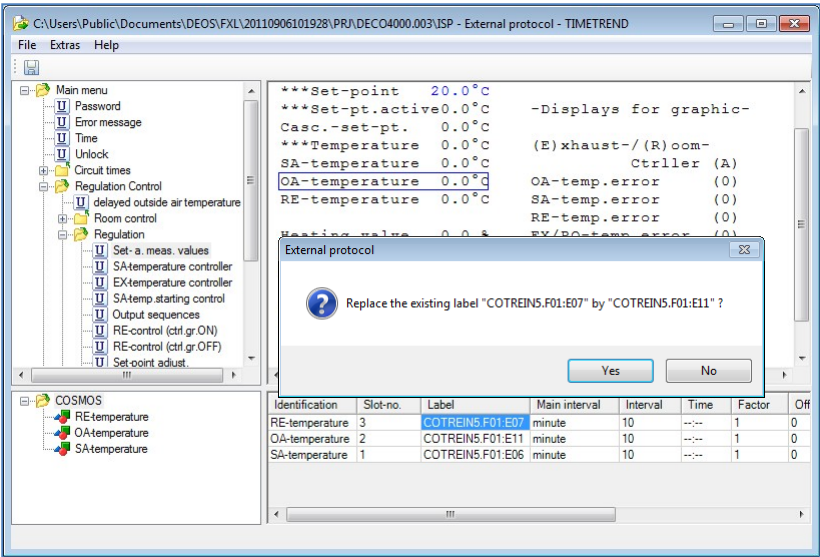
If a data point and a static text are dragged down then the static text will be used as identifier.

Identification	Slot-no.	Label	Main interv.
RE-temperature	3	COTREIN5.F01:E07	minute

If only a data point (or a multiple selection of data points) is dragged down then the pretext of each element will be used as identifier. The elements which are added by drag and drop will be inserted below the selected tree entry. If the selected tree entry is a directory and opened then the data point will be inserted into it. You can use a FUP element of the type *STATIC* to give a new identifier to a parameterized data point. It is only required to drag the element onto the cell "Identification" in the table in the lower area of the window.



You can change the label of a parameterized data point by dragging the FUP element onto the cell "Label" of the according data point.



To change the property of a data point you can call the properties by a right mouse click to change them. If it is desired to change a property of multiple data points then it is possible by holding the [CTRL]-button to select multiple data points. Afterwards the properties can be opened by a double click on one of the entries. If a property is changed now then it is changed in all selected elements.

Example Main interval → minute → hour

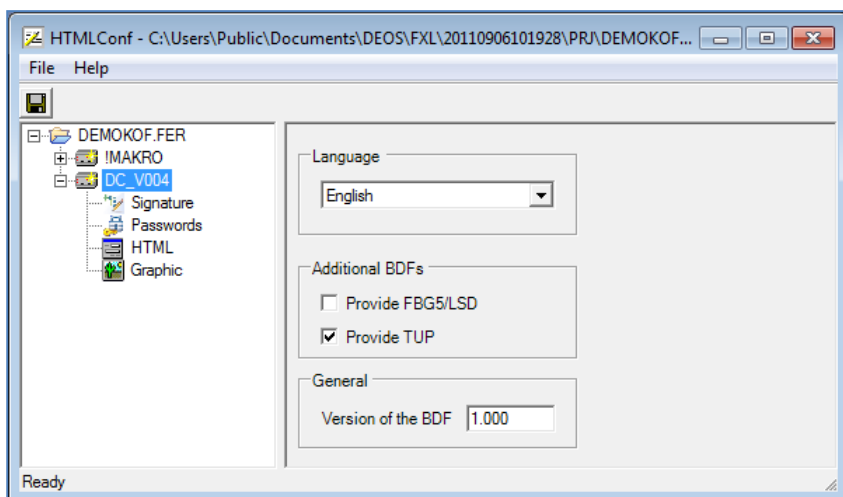
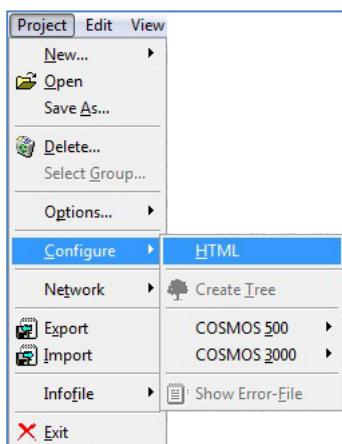
Beside the identifier and label it is possible to set at the data points the number (1...250) of the slot in which the data point should be saved.

Notice The slot number must be unique! If the slot number is not unique then an error message will be displayed.

Identification	Slot-no.	Label	Main interval	Interval
RE-temperature	3	COTREIN5.F01:E07	minute	10
OA-temperature	2	COTREIN5.F01:E11	minute	10
SA-temperature	1	COTREIN5.F01:E06	minute	10

11. HTMLConf

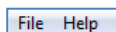
If it is desired to configure the language, the signature, the passwords, the HTML-page or the graphic page then click on the menu point *Project* → *Configure* → *HTML*.



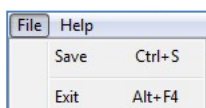
On the left side is a tree structure of the project, containing the controllers and their configurable parameter menus. On the right side is the configuration page of each parameter menu.

Menu

The menu provides the access to the program functions.



File



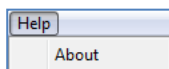
Save

Save the changed data by a click on .

Exit

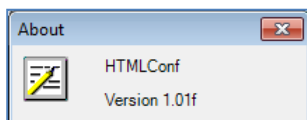
Leave program without saving the changes.

Help



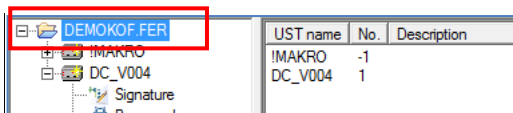
About

Here it is possible to look up information about HTMLConf.

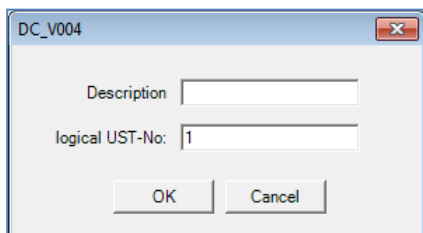


Configuration

If it is clicked on the project then the controller will be listed on the right side.

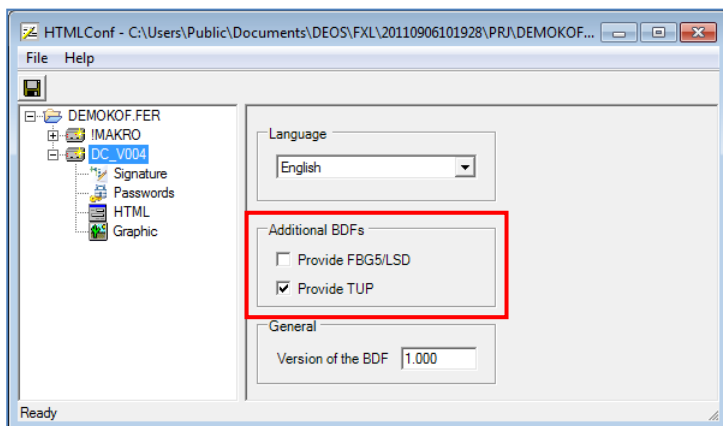


By a double click on one of the controller will open a window in which it is possible to enter a description and a logical UST-number (the controller number in the project). n.



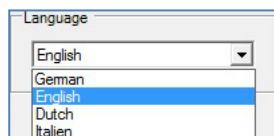
OPEN EMS / BASICline

The basic configurations of the COSMOS BASICline and OPEN EMS controller are different only in the point that OPEN EMS controllers can configure additional user interfaces.



Language

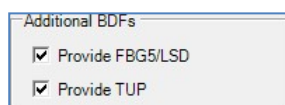
By the combo box is set which language the system pages of controller have.



Additional BDFs

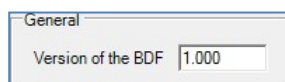
(Only available for **OPEN EMS** controller)

By help of the field *Additional BDFs* you can set up which control devices should be used additionally. Thereby the *FBG5* and the *TUP* can be selected. These settings affect the HTML-configuration of the FUP-Editor because additional user interfaces have to be configured.



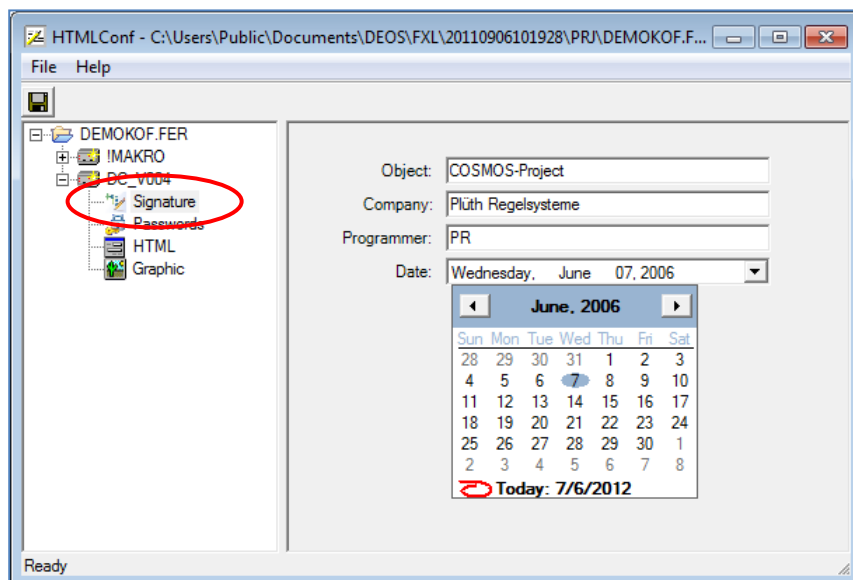
General

At *General* you can enter the version of the BDF.



Signature

You can enter project specific data here like the *object name*, the *company*, the *programmer* and the *Date* of the project.

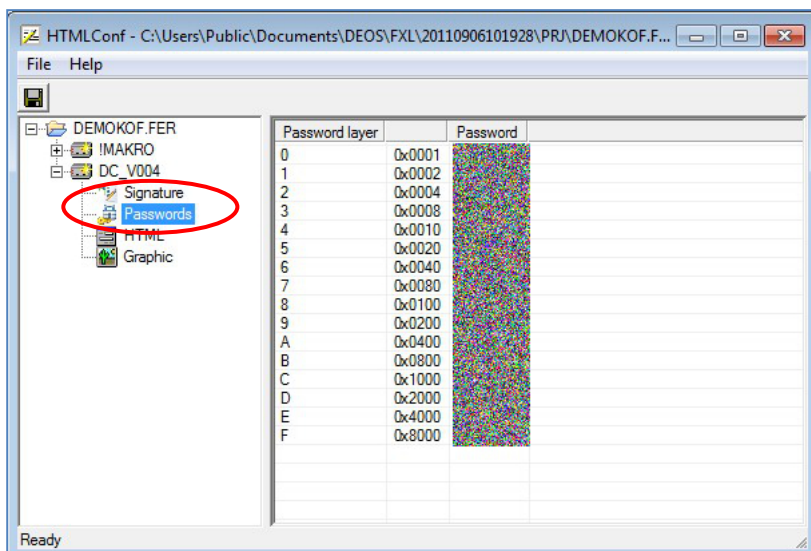


The date is configurable by a calendar which can be opened by the drop-down menu. The object name is used as help text at the selection of the project.

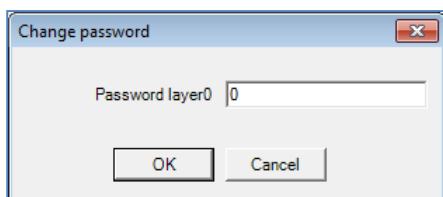
Controller Type	Default Object Name
COSMOS 500 BASICline	<i>COSMOS-project with a BASICline-controller.</i>
OPEN EMS	<i>COSMOS-project</i>

Passwords

The passwords of the password templates are configured here. You have 16 password templates for the OPEN EMS system. For the COSMOS 500 BASICline system you have only the first 4 and the last 4 templates.



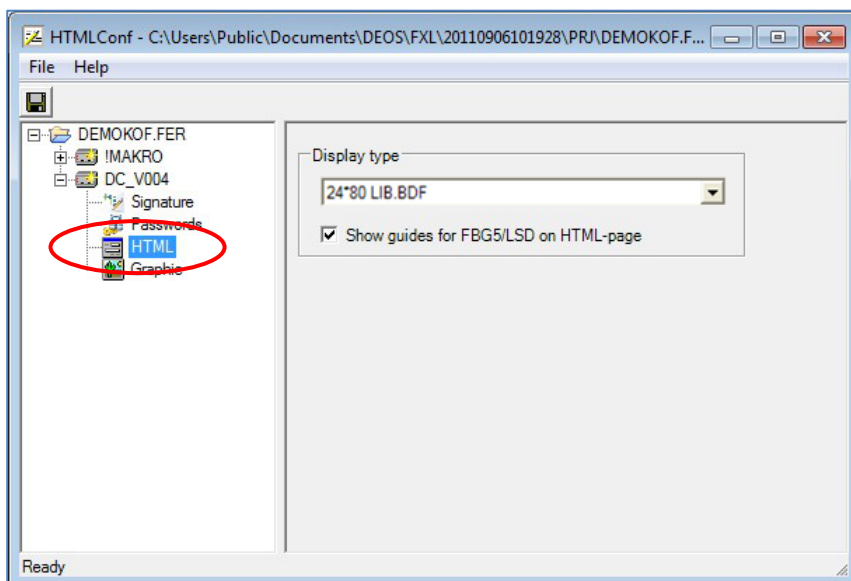
To change a password you have to perform a double click at the appropriate password layer. Thereupon the following pop-up window opens.



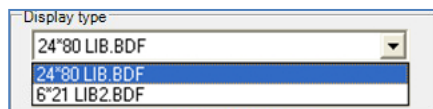
Enter the new password and confirm it by **OK**.

HTML

Use the menu item *Html* to set up the display type.



This has to be selected by the help of a combo box depending on the project type (*COSMOS 500 BASICline* or *OPEN EMS*).

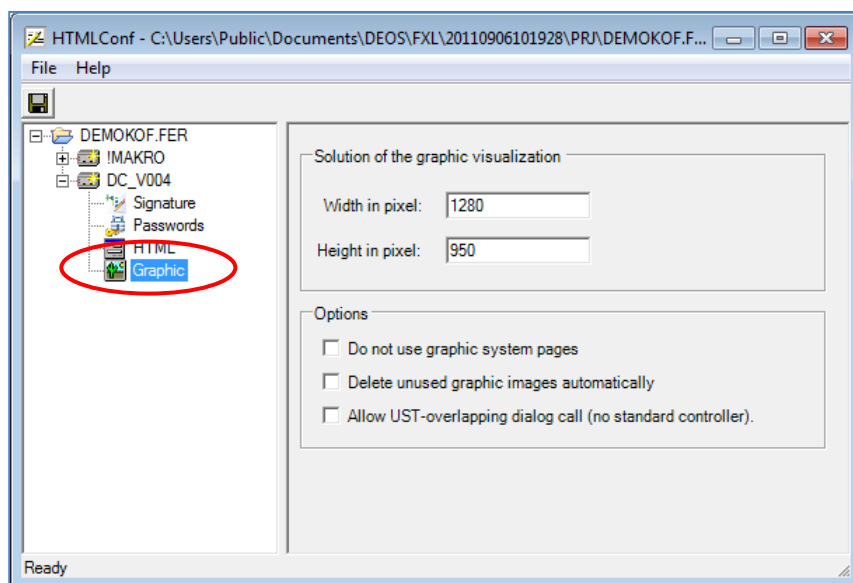


The default display type for a COSMOS 500 BASICline project is: *6*21 LIB2.BDF*

The default display type for a OPEN EMS project is: *24*80 LIB.BDF*

Graphic

The basic settings of the graphic-page can be set up at the menu *Graphic*.



Resolution of the graphical visualization

The size of the graphic-page will be set up by *Width in pixel* and *Height in pixel*

Notice The size of the graphic-page can be set up later individually at the Graphic-Editor by the menu *Extras – Title* on the tab *Expanded*

Options

Do not use graphic system pages

If this option is enabled then the graphical system pages will not be inserted into the tree.

Delete unused graphic images automatically

If this option is enable then the unused images will be deleted.

Allow UST-overlapping dialog calls

Dialog calls can refer to graphic-pages of other controllers.

12. Tree Structure

General

The program *CuiTree* is used to create the tree structure of the visualization of a OPEN EMS in the OPENweb / OPENview, the control devices FBG5 and LSD-C as well as the TUP.

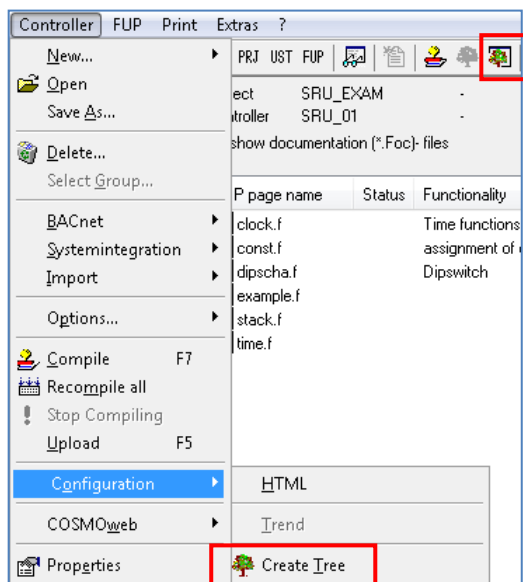
The screenshot displays the COSMOWeb interface within a Windows Internet Explorer browser. The address bar shows a URL for a specific device configuration. The interface is divided into two main sections:

- Left Panel (Tree Structure):** A hierarchical tree structure is shown, starting with '01: PR. Open'. It includes folders for 'Kennwort', 'Störmeldungen', 'Entriegelung', 'Uhrzeit', 'Schaltzeiten', 'Wochenuhren', 'Ferientermine', 'Sondertermine', 'Regelung und Steuerung', 'verz. AU-Temperatur', 'Kesselanlage', 'Schaltuhr', 'Strategie', 'Kessel 1', 'Kessel 2', 'Klemmenzuweisung', 'Störmeldungen', 'Service Regler', 'System', 'CAN-Bus', 'Protokolle', and 'EIB'. The 'Kessel 1' folder is highlighted with a red box.
- Right Panel (Control Parameters):** This panel displays various control parameters and a graph.
 - Folgerregler:** Includes 'Kessel-Temperatur Sollwert (errechnet)' at 20.0 °C, 'Kessel-Temperatur' at 59.7 °C, 'AU-Temperatur' at 0.2 °C, 'VL-Temperatur' at 59.7 °C, and 'RL-Temperatur' at 42.9 °C. It also shows 'Kessel-Anforderung' at 0.0 % and 'Externe Anforderung -EIN-' with a delay of 5.00 K/min.
 - Heizkurve:** A graph showing the heating curve (KT) versus outdoor temperature (AT). The curve starts at 21.0 °C at -20 °C AT and rises to 80.0 °C at 0 °C AT. The 'Fußpunkt' is set to 21.0 °C. Other parameters include 'Kessel-Temperatur MIN / MAX' at 20.0 °C, 'Nachtabsenkung' at -6.0 K, 'Auslegungstemperatur' at -12.0 °C, 'Steilheit' at 1.4, 'Krümmung' at 1.4, and 'Heizungsregelung -AUS- ab AU-Temperatur >' at 20.0 °C.
 - Kessel-Temperatur Regler:** Includes 'Regelung Betrieb' (checked), 'Proportionalband Xp' at 40.0 K, 'Nachstellzeit Tn' at 120.0 s, 'Vorhaltezeit Tv' at 0.0 s, 'Abtastzeit To' at 5.3 s, 'Soll-Ist Differenz' at 0.1 K, 'Integral' at 99.2 %, 'Y-Stellsignal Regler AUS' at 0.0 %, and 'Y-Stellsignal MIN / MAX' at 0.0 %.

CuiTree (Version 1.040+)

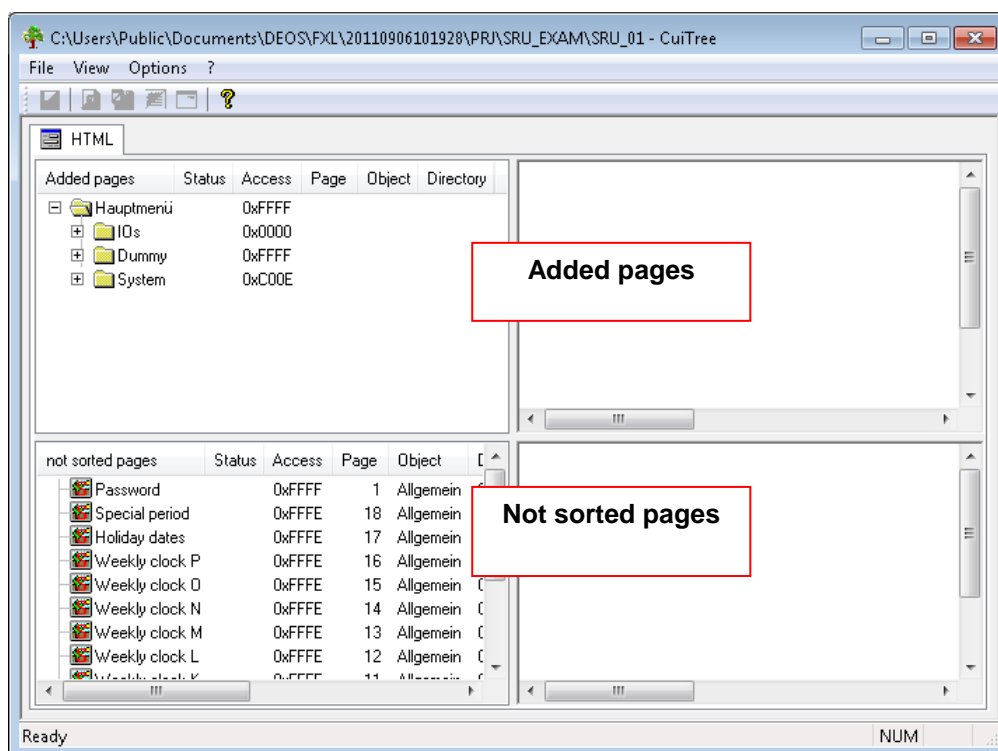
(Implemented in FUP XL version 1.040)

After selecting the desired controller the menu point *Controller – Configuration – Create Tree* has to be called to start the *CuiTree* (CUI = **C**OSMOS **U**ser **I**nterface) .



Screen Layout

The program is separated in two areas. The *added pages* and the *not sorted pages* will be shown.



Added Pages

The window *added pages* contains the pages of the controller program visualized in a tree structure.

Added pages	Status	Access	Page	Object	Directory
-------------	--------	--------	------	--------	-----------

Added pages	Name of the added page (Name set in the FUP-Editor [Title of the page])
Status	Shows the state of the page (see table <i>Status</i>)
Access	Access layer of the user (password layer)
Page	HTML page number of the FUP-Blatt
Object	Assignment of the according subgroup of the FUP-page in FUP XL
Directory	FUP-page name of the page in the controller program

Not Sorted Pages

The window *not sorted pages* contains pages which are not in the tree structure of the controller program. This might be pages which are required for the visualization or parameterization or they are graphic pages in different resolutions if only one resolution is required.

not sorted pages	Status	Access	Page	Object	Directory
------------------	--------	--------	------	--------	-----------

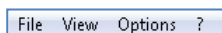
not sorted pages	Name of the not sorted page (Name set in the FUP-Editor [Title of the page])
Status	Shows the state of the page (see table <i>Status</i>)
Access	Access layer of the user (password layer)
Page	HTML page number of the FUP-Blatt
Object	Assignment of the according subgroup of the FUP-page in FUP XL
Directory	FUP-page name of the page in the controller program

Status – Visualization of page information

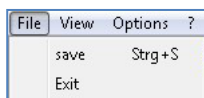
unassigned	the page is not assigned
error	the page contains an error
newly assigned	the newly assigned page was assigned automatically
has unassigned pages	the directory has unassigned pages
has newly assigned pages	the directory has newly assigned pages
contains pages with errors	the directory contains pages with errors

Menu Bar

The menu bar is used to gain access to the main functions of the program.



File



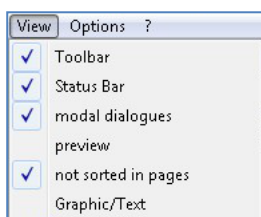
Save

The configured tree structure (for OPENweb / -view, FBG5 / LSD-C, TUP) will be saved in the controller program.

Exit

This menu point closes the program

View



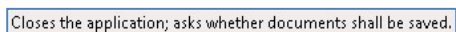
Toolbar

This menu point shows/hides the toolbar.



Status Bar

This menu point shows/hides the status bar.



Modal Dialogues

This menu point shows/hides the modal dialogues of the *not sorted pages*.

Preview

This menu point shows/hides the preview window.









Not sorted in pages

This menu point shows/hides the window of the *not sorted pages*.

Graphic/Text

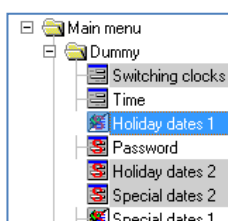
This menu point shows in the preview either the graphic or the text. It is required that both is set in the controller program.

Symbols

-  HTML page
-  HTML system page → can not be changed
-  Newly assigned HTML page
-  HTML page with alternative graphic page
-  HTML page with alternative graphic page – system page → can not be changed
-  Graphic page
-  Directory
-  Empty directory

Example

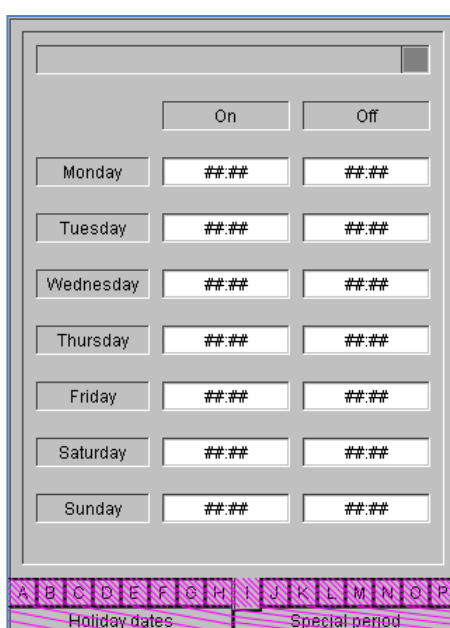
Page



Text

Holiday dates 1		
	from	to
Holiday period A	--.--	--.--
Holiday period B	--.--	--.--
Holiday period C	--.--	--.--
Holiday period D	--.--	--.--
Holiday period E	--.--	--.--
Holiday period F	--.--	--.--
Holiday period G	--.--	--.--
Holiday period H	--.--	--.--
Holiday period I	--.--	--.--
Holiday period J	--.--	--.--

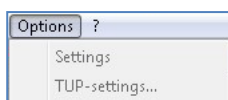
Graphic



	On	Off
Monday	###	###
Tuesday	###	###
Wednesday	###	###
Thursday	###	###
Friday	###	###
Saturday	###	###
Sunday	###	###

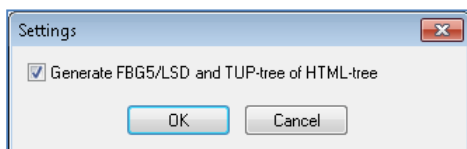
A B C D E F G H I J K L M N O P
 Holiday dates Special period

Options



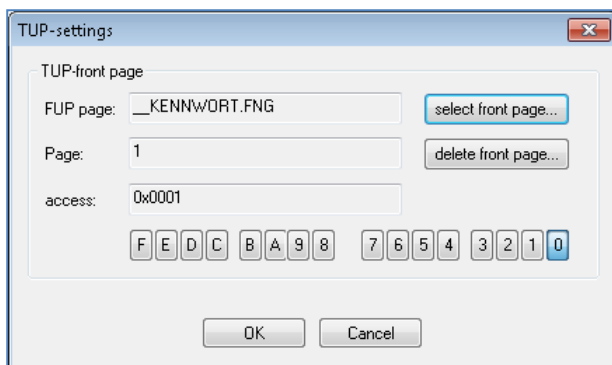
Settings

If the checkmark is set then the tree structure will be applied automatically for FBG5/LSD-C and TUP. If it is not set then the tree structures of FBG5/LSD-C and TUP can be created individually.



TUP-Settings

It is possible to configure an individual front page with individual access layer (password).



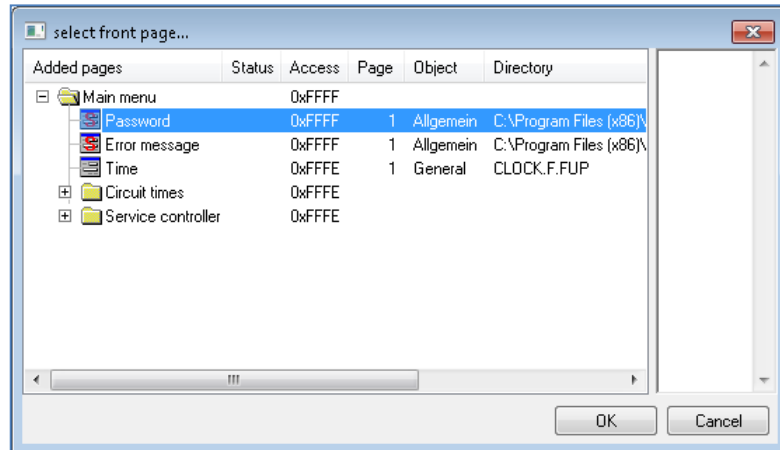
Notice

The TUP-settings are disabled if the tab *TUP* is not active.

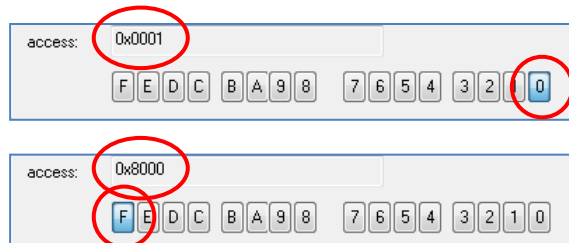
TUP-Front Page

Settings of the TUP front page:

- FUP page** Information about the currently as front page selected FUP page.
- Select front page** Selection of the individual front page for the TUP from the added pages of the TUP tree.

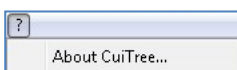


- Page** Information about the HTML page number of the FUP page
- Delete front page** Deletion of the currently selected front page.
- Access** Configuration of the access layer (password) of the front page. 16 access layers are available (hexadecimal 0 [0x0001] to F [0x8000]).



Depending on the selected access the front page will be shown.

?



About CuiTree...

The menu *About CuiTree...* shows information about the configuration program.



Toolbar

The toolbar is used to get fast access to program functions.



Save

This button saves the trees.



Show/Hide Preview

This button shows/hides the preview window.



Show/Hide Not Sorted Pages

This button shows/hides the *not sorted pages*.



Show alternative graphic/HTML page

This button shows the alternative graphic or text page.



Show/Hide modal dialogs

Graphic pages which should not be put into the tree structure can be hidden in the window *not sorted pages*. The graphic page has to be marked as *modal* in the graphic editor for this functionality.



Info

This button calls the about-dialog which shows information about the configuration program (see [About CuiTree...](#)).

Context Menu

The context menu is dependent of the selected pages in the tree. It differentiates between *directories* and *graphic/text pages* as well as *added pages* and *not sorted pages*.

Added pages

Directory

new submenu	Strg+M
rename submenu	F2
apply dynamic text...	Strg+T
search dynamic text...	Strg+L
change access mask...	Strg+E
insert page	Einfg
delete page	Entf
declare alternative graphic page...	Strg+Einfg
delete alternative graphic page	Strg+Entf
edit FUP page	Strg+B

Graphic/Text page

new submenu	Strg+M
rename submenu	F2
apply dynamic text...	Strg+T
search dynamic text...	Strg+L
change access mask...	Strg+E
insert page	Einfg
delete page	Entf
declare alternative graphic page...	Strg+Einfg
delete alternative graphic page	Strg+Entf
Fade page out at graphical visualization	Strg+G
edit FUP page	Strg+B

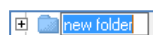
Not sorted pages

new submenu	Strg+M
rename submenu	F2
apply dynamic text...	Strg+T
search dynamic text...	Strg+L
change access mask...	Strg+E
insert page	Einfg
delete page	Entf
declare alternative graphic page...	Strg+Einfg
delete alternative graphic page	Strg+Entf
edit FUP page	Strg+B

Information about the menu points

New submenu

Creates a new directory below the selected page.



Rename submenu


Rename a submenu

Apply dynamic text...

A dynamic text can be applied to a directory. This means the name of the directory will be the content of a variable. If the content of the variable changes then the name of the directory will change as well when loading the tree.

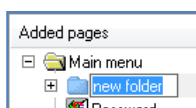
Search dynamic text...

By this menu point it is possible to find the source of a dynamic text.

Change access mask...	Changes the access layer for single pages or the tree.
Insert page	Adds the selected page to the <i>added pages</i> .
Delete page	Removes a page from <i>added pages</i> and puts it back to the <i>not sorted pages</i> . Empty directories will be deleted.
Declare alternative graphic page...	You can set an alternative graphic page for every HTML page.
Delete alternative graphic page	Removes an alternative graphic page from <i>added pages</i> and puts it back to the <i>not sorted pages</i> .
Fade page out at graphical visualization	Single HTML pages can be hidden in the graphical visualization in OPENweb. A hidden HTML page will only be shown in the text-based visualization of OPENweb/-view.
Edit FUP page	Opens the FUP-Editor to edit the FUP page. System FUP pages  cannot be edited.

New Submenu

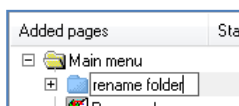
This menu point creates a new submenu.



Please enter a new name for the submenu and confirm it by pressing [Enter].

Rename Submenu

It is possible to change the name of a submenu by either pressing [F2] or by calling the menu point *rename submenu*.



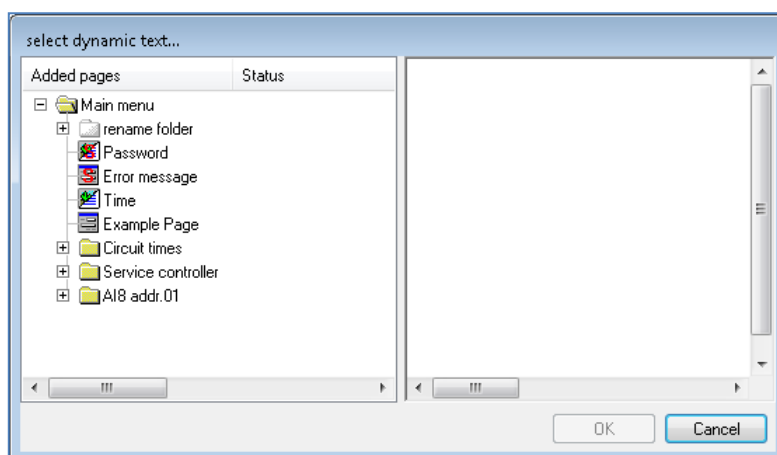
Please enter a new name for the submenu and confirm it by pressing [Enter].

Apply Dynamic Text...

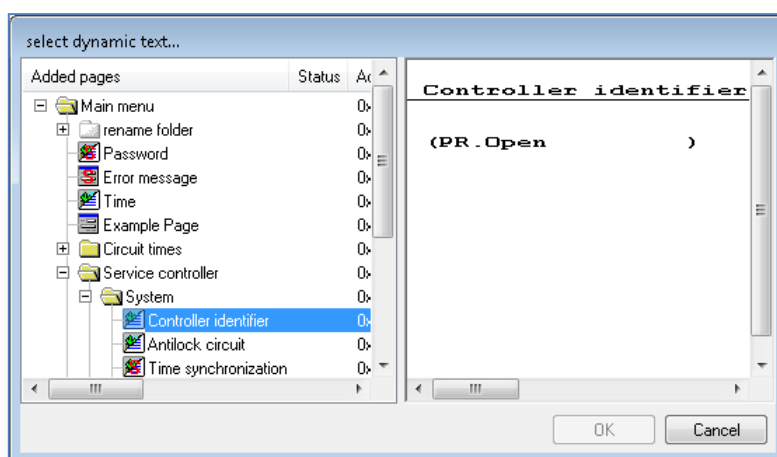
A dynamic text can be applied to a directory. This means the name of the directory will be the content of a variable. If the content of the variable changes then the name of the directory will change as well when loading the tree.

Example The directory name should always be equal to the *controller identifier*.

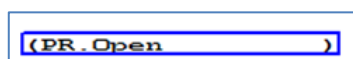
select the directory which should get the dynamic text. Then call the context menu and click on *apply dynamic text....* A window will open providing all *added pages*.



Search in the left window part for the controller identifier. If you have found and selected it then a preview will be shown in the right part of the window.



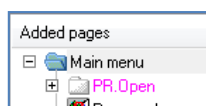
Select the controller identifier (blue frame) and confirm with **OK**.



If the controller identifier is changed then the name of the directory will change now as well.

Notice

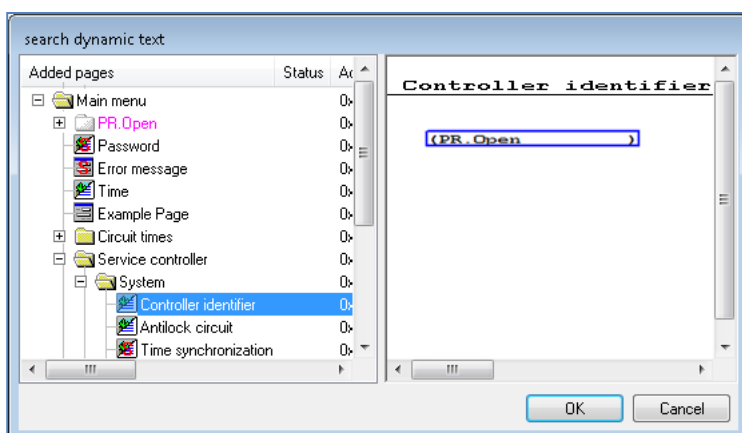
If the name of a directory is assigned to an dynamic text then the text will be visualized in pink.



If you want to remove the text then just rename the directory. Thereby the dynamic link will be removed.

Search Dynamic Text...

By this menu point it is possible to find the source of a dynamic text. The result will be shown in the following window.

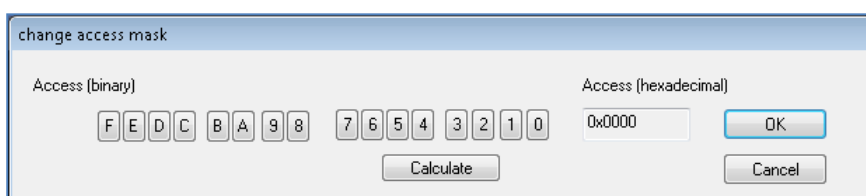


In the left window the page from which the dynamic text is will be marked and in the right window the element will be framed.

Notice This search works only on dynamic text which target is on an *added page*. Dynamic texts which are *EDA* should always be on *added pages* because otherwise they will not have reasonable content.

Change Access Mask...

The access of the pages is automatically generated by the elements of the pages. The access can be adjusted individually (See [HTML Page → Properties Dialog → Tab – Access / Option](#)).



By the button *Calculate* the parameterized access will be calculated and directly applied.

Notice If an access is set where no element is viewable on the page then an empty page will be shown later.

Insert Page

Adds the selected page or directory from the area *not sorted pages* to the *added pages* behind the selected element. If no element is selected then it will be inserted at the end (See also [Creating the Tree Structure → Insert Not Sorted Pages](#)).

Delete Page

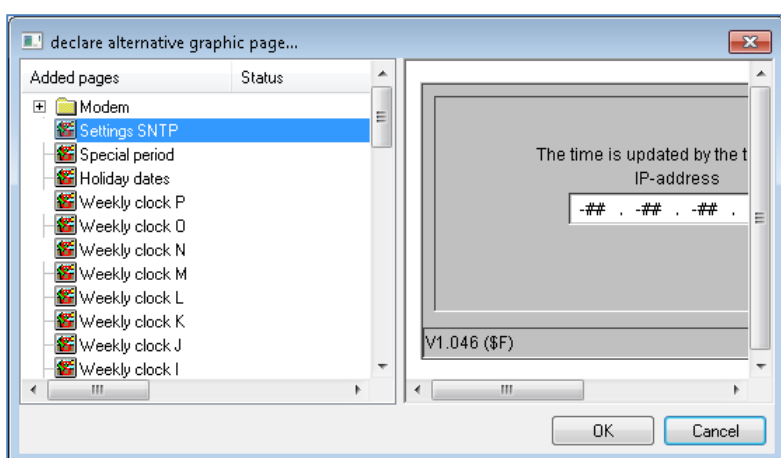
Removes the selected page or directory from the *added pages* and adds the selected page or directory to the area *not sorted pages* behind the selected element. If no element is selected then it will be inserted at the end (See also [Creating the Tree Structure → Deleting Added Pages](#)).

Hinweis Die Seiten sind nicht gelöscht, sie stehen weiter zur Verfügung, sind jedoch nicht in die Menüstruktur eingebunden.

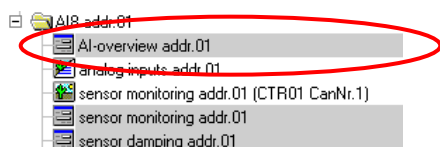
Declare Alternative Graphic Page ...

You can declare an alternative graphic page for any HTML page. This page will be shown in the graphic mode of OPENweb.

Select an HTML page in the area *added pages* which should get an alternative graphic page. Call this menu point and select in the opening dialog on the left side the graphic page which should be used. Confirm the selection by OK. In the right area of the dialog a preview is provided.



Notice Pages marked with dark grey cannot be linked to a graphic page because they are hidden in the graphical visualization.



If a page has an alternative graphic page it is symbolized by .



Delete Alternative Graphic Page

Removes the set alternative graphic page and puts it into the area *not sorted pages*.

Fade page in at graphical visualization

Single text pages can be hidden in the graphical visualization. This might be useful if to one text page an alternative graphic page, containing information of two text pages, is declared. In this case the second text pages can be hidden.

Edit FUP Page

This menu point opens the FUP-Editor to edit the FUP page. System FUP page cannot be edited. They are marked by the following symbols  / .

Tabs

There is one tab each for HTML, FBG5/LSD-C and TUP. The editing is the same for all types.



HTML

Here you configure the tree structure for OPENweb / OPENview.

FBG5/LSD-C

Here you configure the tree structure for FBG5 and LSD-C.

Notice This option is only available if is enabled at the additional BDFs (See chapter [HTMLConf](#))

TUP

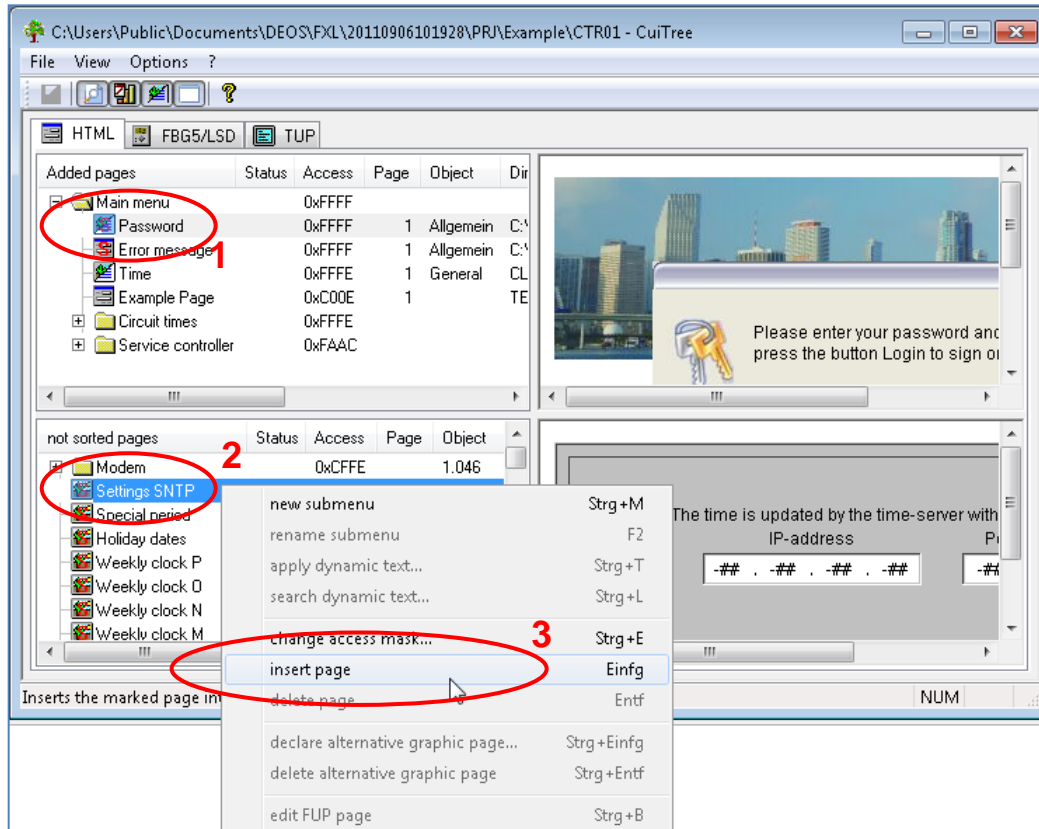
Here you configure the tree structure for TUP.

Notice This option is only available if is enabled at the additional BDFs (See chapter [HTMLConf](#))

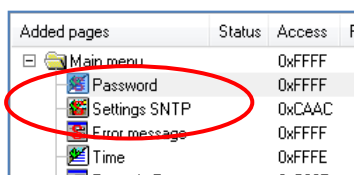
Creating the Tree Structure

Insert Not Sorted Pages

Select first in the area *added pages* the page under which the new page should be inserted. Then use the context menu on the desired page in the area *not sorted pages*. By *insert page* the page will be moved below the selected page.



By *insert page* the page will be moved below the selected page.



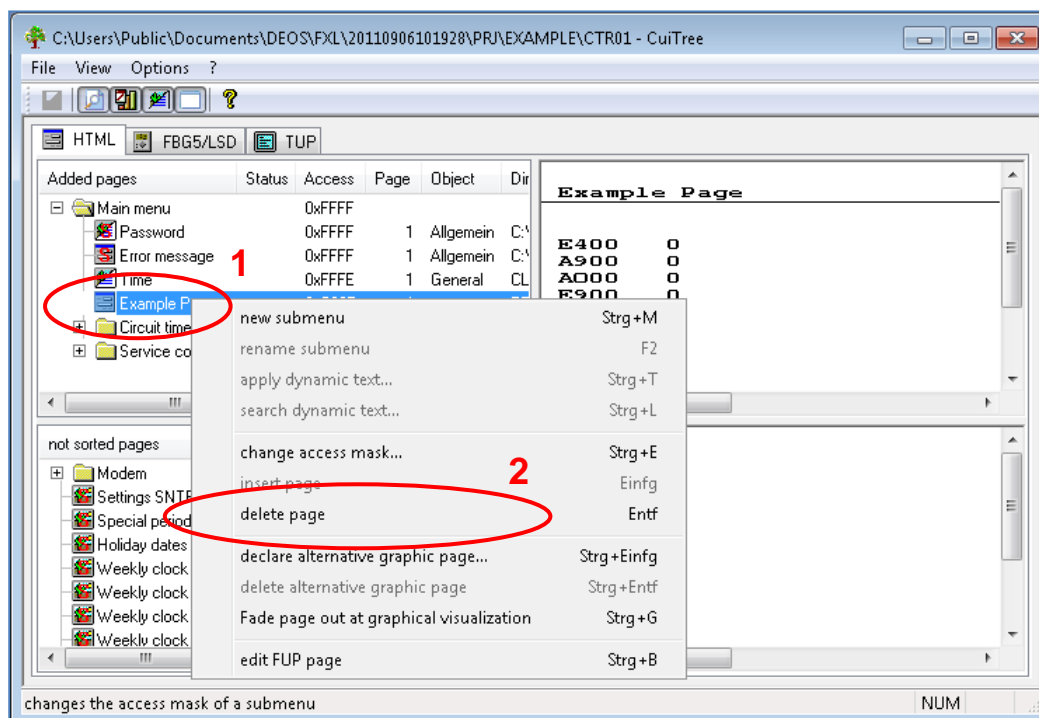
Hint

This process can be also done by Drag & Drop. The page will be inserted under the element you are on. If you stay on a directory for 3 seconds then it will open (or close if it was opened).

Deleting Added Pages

Select the page from the area *added pages* first and then you have to call the context menu point *delete page*.

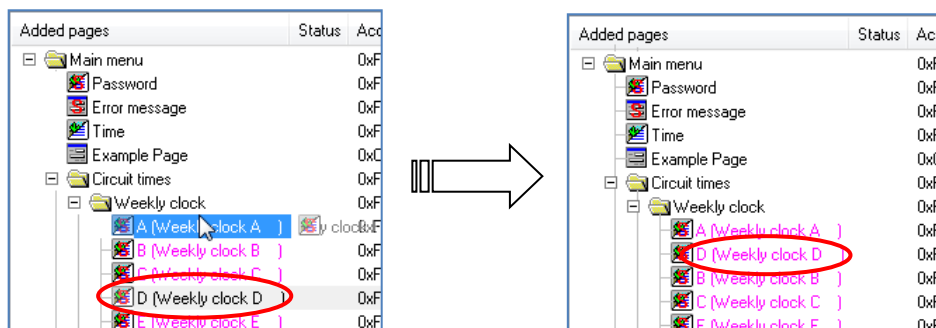
Notice The page is not deleted but moved into the area *not sorted pages*. If no page was selected in that area then the page will be moved to the end of the list.



Hint This can be done also by drag & drop. You have to drag the page over the element under which it should be put into the list. If you stay on a directory for 3 seconds then it will open (or close if it was opened).

Move Pages and Menus

The position of the inserted menus in the list can be easily changed by drag & drop. Select the page or menu and move it to the desired position which will be marked. If you release the mouse button then the page or menu will be inserted under the currently selected list element. If you stay on a directory for 3 seconds then it will open (or close if it was opened).



13. Appendix

Keywords in FUP XL

It is possible to use keywords as shortcuts in FUP XL. The following list shows the available keywords:

Keyword	Meaning	Description
\$x / \$X	Extension of the FUP page	Constant with the identifier \$x or \$X Example module address \$x module address \$X
\$s / \$S	Name of the controller	Title Example Module in the CTRL \$s Module in the CTRL \$S
\$f / \$F	Name of the FUP page	Setting in the DialogCall01 Example \$f:1 \$F:1
\$H	Source	Name of the harddisk
\$N	User	Name of the logged in user at the computer
#G	Alternative graphic page	It is possible to set an alternative graphic page by this keyword. The set graphic page will be opened in the tree if graphical visualization is enabled. Example time program #G/stat_ht.f01:1
#A	Hide in graphic mode	It is possible to hide an HTML page by this keyword. Furthermore the HTML page will be hidden if the graphical visualization is enabled. Example pump control #A
SUB#	Put all titles into the same directory	By this keyword it is possible to set a directory name in the FUP page header. All pages HTML pages and graphic pages having this directory name will be put automatically into this directory in the CuiTree. Thereby all pages can be moved from the <i>not sorted pages</i> to the <i>added pages</i> in one step. Example SUB#EX-fan

Keyword	Description with example
E. / e.	If a TEXT MESSAGE in the FUP-Editor begins with E. or e. then this keyword will be replaced by <i>ERROR</i> .
I. / i.	If a TEXT MESSAGE in the FUP-Editor begins with I. or i. then this keyword will be replaced by <i>INFO</i> .
W. / w.	If a TEXT MESSAGE in the FUP-Editor begins with W. or w. then this keyword will be replaced by <i>WARNING</i> .
M. / m.	If a TEXT MESSAGE in the FUP-Editor begins with M. or m. then this keyword will be replaced by <i>MESSAGE</i> .
A. / a.	If a text message in the FUP-Editor begins with A. or a. then this keyword will be replaced by <i>ALARM</i> .
__	<p>If a REFERENCE in the FUP-Editor begins with __ (2 underscores) then no memory will be allocated for this reference. Therefore it is not possible to access this REFERENCE by a cross reference. These REFERENCES are used to use up unused outputs.</p> <p>Example __empty00</p>
%%	<p>Parts of a COMMENT in the FUP-Editor and parts of texts on HTML or TUP pages (but not on FBG5 / LSD pages) can be visualized bold by this keyword.</p> <p>Example %%H%%ello → Hello</p>
%%%%	If the title of an HTML or graphic page consists only of %%%% then it will not be shown in the list of <i>not sorted pages</i> .
%%%%	If the object or function part of a FUP page begins with %%%% then this one will <u>not</u> be added automatically to every programmed TEXT MESSAGE.
^	<p>If a COMMENT in the FUP-Editor begins with this keyword then the text will be moved by half of the grid value to the top. Thereby lines can be commented which are drawn horizontal at the same height without having the COMMENTS be crossed by the line.</p> <p>Example ^operation pump</p>
^...^	<p>If a part of a title or TEXT MESSAGE should be dynamic then this keyword can be used. It is required that the dynamic part is as input or output on the same FUP page. You can use a text or a value as dynamic part. The format of the set output or input is applied to the dynamic part.</p> <p>Example M-Bus address (^I01^)</p> <p>Notice Please consider that TEXT MESSAGEs with dynamic text parts will not be created till it is shown. Therefore it might be required to protect these values by LATCH-elements.</p> <p>Attention Please consider to not send TEXT MESSAGEs with dynamic parts which change constantly by modem to OPENweb. The event server cannot send those messages to the set recipient.</p>
##INCLUDE	<p>Include-specifications within a COMMENT can be indicated in the FUP editor by the control sequence ##INCLUDE.</p> <p>Example ##INCLUDE mainmem.def</p>

##LBLADR The adress of an INPUT within a CONSTANT can be indicated in the FUP editor by the control sequence ##LBLADR.

Example ##LBLADR clock.f:A06

Notice A FUP-page must always be indicated.