Application about Human Machine Interface

WinCC flexible 2005, Accessing a Panel via an HTML Page Supported by Sm@rtAccess

Application Description
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Foreword

Objective of the application

This application was created to show the user...

- how, with the aid of Sm@rt service (SOAP), current process values can be monitored and accessed in a plant configured with WinCC flexible.
- an option of evaluating and archiving process values via the HTML page.

Main contents of this application

This application deals with the following key elements:

- Instructions for creating an individual HTML page for the visualization of process values.
- Required WinCC settings
- Hardware requirements

Delimitation

This application does not include a description of

- the SIMATIC STEP 7 engineering tool.
- the used multi panel.

Basic knowledge of these topics is required.
Document structure

The documentation of this application is divided into the following main parts.

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<th>Description</th>
</tr>
</thead>
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<tr>
<td>Application Description</td>
<td>You are provided with a general overview of the contents. You are informed on the used components (standard hardware and software components and the specially created user software).</td>
</tr>
<tr>
<td>Principles of Operation and Program Structures</td>
<td>This part describes the detailed functional sequences of the involved hardware and software components, the solution structures and – where useful – the specific implementation of this application. It is only required to read this part if you want to familiarize with the interaction of the solution components to use these components, e.g., as a basis for own developments.</td>
</tr>
<tr>
<td>Structure, Configuration and Operation of the Application</td>
<td>This part takes you step by step through structure, important configuration steps, startup and operation of the application.</td>
</tr>
<tr>
<td>Appendix</td>
<td>This part of the documentation includes further information, e.g. bibliographic references, glossaries, etc.</td>
</tr>
</tbody>
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Reference to Automation and Drives Service & Support

This entry is from the internet application portal of Automation and Drives Service & Support. Clicking the link below directly displays the download page of this document.

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Application Description

Contents

You are informed on the used components (software components and the created user software).

The displayed performance data illustrates the performance capability of this application.

1 Automation Problem

You are provided with information on...

the specific automation problem discussed in this documentation.

1.1 Overview

Introduction

Your customer has different requirements for the process visualization of his/her production plant.

- Central visualization with an MP 277 touch panel directly at the plant.
- Monitoring and input of process values using MS Internet Explorer.
- Distributed data acquisition via a PC that communicates with the operator panel via an Ethernet connection.
Overview of the automation problem

The figure below provides an overview of the automation problem.

Description of the automation problem

Your customer has different plant sections that are visualized with several multi panels, e.g. of the MP 277 Touch type. The multi panels are designed in such a way that they include the machine parameters for the corresponding plant section.

The operator panels are networked to a higher-level PC for data security via an Ethernet network (archiving of plant/ machine parameters at a central location, for example control room/office).

It is to be possible to output and change selected machine parameters of the individual plant sections via a PC (office PC). The access to the data is to be possible from each workstation.

Visualization software is not installed on the corresponding PCs. For this reason, the visualization is performed via a “standard HTML page” (page is called via MS Internet Explorer).

1.2 Requirements

This WinCC flexible application is integrated into a STEP 7 project, it is to meet the requirements listed below:

Controller requirements

The controller plays a minor role in this application. The controller is merely used for the simulation of process values that are displayed on the panel.
HMI requirements

- The HMI is to be realized by an MP277 Touch (screen diagonal: 12 inches).
- The following operating options are to be available:
  - Input/output of the current production data.
  - Archiving of the opening angle values of rate regulators used in a cooling circuit.
  - Archiving of the data on a PC that is connected to the panel via an Ethernet connection.
  - Display of the archived rate regulator data in a curve archive.

PC station / PC stations requirements

PC station 1 (data PC and web server):
A customary PC is used on which standard Microsoft products such as WORD and Excel and MS Internet Explorer are installed.

The process data of the corresponding plant (archive data) is stored on "PC station 1".
The plant-specific HTML pages are centrally stored/managed in an additional directory.

PC station 2 (shift supervisor PC):
A customary PC is used on which standard Microsoft products such as WORD and Excel and MS Internet Explorer are installed.

The PC is to enable the following operating options:
- Call of the different plant-specific HTML pages.
- Display of process values on the corresponding HTML pages.
- Option of changing/setting plant parameters via the HTML page.
- Output of trend curves in a Microsoft Excel file
  (of the archived process data of the rate regulators).
2 Automation Solution

You are provided with information on the solution selected for the automation problem.

2.1 Overview of the overall solution

Diagrammatic representation
The figure above schematically shows the most important components of the solution.

Configuration
A “factory network” is located on the left side. In this network, all operator panels are connected to one another via an Ethernet connection.

The data between the operator panels and the controller is exchanged via a PROFIBUS connection.

Plant-specific data is output via the operator panels. This data is partially stored in a data log that is stored on “PC station 1” (data and web server PC).
All operator panels feature the integrated “Sm@rtAccess: Web service (SOAP)” WinCC flexible functionality. This integrated functionality enables to access variables of the operator panels with the aid of an HTML page (described later in this application).

An “office network” is located on the right side of figure 2-1. In this network, all computers/PCs are connected to one another via an Ethernet connection.

The “data and web server PC” (PC station 1) is used as a central PC on which the process values are archived. This PC is simultaneously used as a “web server”. This functionality enables to access data of this PC with the aid of Internet Explorer without having to previously perform a computer-specific logon.

The HTML pages described in the course of this document are also located on PC station 1 so that possible changes to these HTML pages only have to be performed at one location.

The “shift supervisor PC” (PC station 2) is used as an input/output unit for the process visualization with the aid of the self-created HTML pages.
The interfaces between the Ethernet network of the office and the Ethernet network of the plant section can be very different.

This application does not describe the coupling of different networks. For information on how to establish a connection between the office network and a plant network, please contact your network administrator.

Figure 2-2

The following network configurations are possible.

- Direct connection of the nodes via an Ethernet connection (office PC with the panels).
- Adequate components, e.g. routers or gateways, are used to connect two separate Ethernet networks (separate office network and plant network).
- Connection via different network configurations. Please note the entry “WinCC flexible teleservice” (Entry ID 19865167).

In this application, both networks (office network and factory network) are directly connected via a switch (same subnet).
2.2 Description of the core functionality

The creation of an individual HTML page with the integrated machine data of the corresponding plant section is the core of this application. This data is called using Internet Explorer. The individual multi panels are accessed via the integrated MiniWeb server of WinCC flexible. The office PC is connected to the plant via an Ethernet connection.

2.2.1 STEP 7 configuration

A CPU 315-2DP was used for the application. The program blocks used in STEP 7 are only used for the simulation of process values that are to be displayed on the panel.

2.2.2 WinCC flexible configuration

An MP277 Touch was used for the application. The project consists of two screens.

- Screen_01 (Production Data)
- Screen_02 (Flow Position Regulator Cooling Station 1 and 2)

In the permanent window, you can use the corresponding buttons to call the following functions/pages:

- “Production Data” page
- “Regulating Position Diagram” page
- Control panel
- Change language
- RT End
“Screen_01” is used to simulate and display different production data. Normally, such data is distributed over several screens. For greater clarity, this data were combined to form one screen.

**Simulation Plant Status (point 1):**

The following three buttons enable you to simulate plant statuses:

- Working
- Fault
- Service

A symbolic I/O box (point 2) indicating the current plant status is located to the right of these buttons.

**Target / Actual values (point 3):**

Production data, in this case of manufactured brake discs, is output via I/O boxes.

“Arrow keys” (point 4) are located to the right of the input boxes.
The “arrow keys” can be used to modify / simulate the values of the input boxes.

In the bottom part of the screen (point 5), two output boxes via which the current crank angle of a flow cooling is displayed. The values are mere simulation values and used for the recording of process values (archiving) and representation in a trend display.

**Screen_02 (Regulating Position Diagram)**

"Screen_02" shows a trend display. In the trend display, the archived data of the rate regulators for cooling circuits 1 and 2 is output.

The x-axis of the chart indicates the time. The y-axis shows the opening angle position as a percentage.
The standard buttons for the trend display are located below the display.

Figure 2-6

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>│</td>
<td>Stops trend recording or continues trend recording.</td>
</tr>
<tr>
<td>│</td>
<td>Zooms into the displayed time section.</td>
</tr>
<tr>
<td>│</td>
<td>Zooms out of the displayed time section.</td>
</tr>
<tr>
<td>⬅</td>
<td>Scrolls one display width backward (to the left).</td>
</tr>
<tr>
<td>⬅</td>
<td>Scrolls one display width forward (to the right).</td>
</tr>
<tr>
<td>⬅♂♀</td>
<td>Scrolls back to the beginning of the trend recording. The start values of the trend recording are displayed there.</td>
</tr>
<tr>
<td>⬅♂♀</td>
<td>Moves the ruler backward (to the left).</td>
</tr>
<tr>
<td>⬅♂♀</td>
<td>Moves the ruler forward (to the right).</td>
</tr>
<tr>
<td>⬅♂♀</td>
<td>Shows or hides the ruler.</td>
</tr>
</tbody>
</table>
### 2.2.3 HTML configuration

The HTML configuration consists of a total of 4 configured HTML pages.

1. Startpage.html
2. Plant_1.html
3. Plant_2.html
4. Plant_3.html

---

**Startpage.html**

![Startpage HTML Page](image)

Three graphical links are displayed on the start page.

Each plant section has its plant-specific HTML page. Select the corresponding graphics to go to the linked plant section in which the plant-specific data is stored.

- **Plant I, Line I**
  Brake Disc Production.
- **Plant II, Line I**
  Paint Spray Line, Type Class 1
- **Plant II, Line II**
  Paint Spray Line, Type Class 2
Plant I, Line I

The “Plant I, Line I” internet page contains the following functions:

Figure 2-8

Brief description:

1. The section includes the plant section headline and the “plant picture”.

2. The logon to the configured plant section is performed here. 
   After entering **User** (administrator) and **Password** (100), select the 
   “Log On” button to log on. 
   Use the “Log Off” button to log off.

3. Select the “Read/Refresh” button to update the page with the 
   production data.

**Note:**
Internet pages are normally “static pages”. This means that 
if the content of a page changes when viewed, e.g. process values, 
these changed values are displayed only after a page update.

4. This section contains the output of the different process values – the 
   current setpoint and actual values of a “brake disc manufacturing” are 
   output here.
5. This section also includes two input boxes. The expected amount of pieces can be set here. Use the “Write” button to transfer the values to the operator panel/controller.

6. Select the “Process Data” button to call the “Evaluation_Process_Data.xls” Microsoft Excel list. In this Excel file, you can select a data range of the archived variable values. Subsequently, a chart for this selected area is automatically generated. **Note:** The archived values are from the two rate regulators of the cooling circuit.

**Plant II, Line I**

The “Plant II, Line I” internet page is used as an example of further pages.

The creation/configuration is performed analogously to “Plant I, Line I”.
Plant II, Line II

The “Plant II, Line II” internet page is used as an example of further pages.

Figure 2-10

The creation/configuration is performed analogously to “Plant I, Line I”.

Device setting

To be able to use the SOAP web service, the “Sm@rtAccess: Web service (SOAP)” option has to be set in Device Settings.
### 2.3 Required hardware and software components

#### Hardware components

<table>
<thead>
<tr>
<th>Component</th>
<th>No.</th>
<th>MLFB / order number</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIMATIC S7-300, DIN RAIL L=480MM</td>
<td>1</td>
<td>6ES7390-1AE80-0AA0</td>
<td>= minimum length</td>
</tr>
<tr>
<td>SIMATIC S7-300, CPU 315-2 DP</td>
<td>1</td>
<td>6ES7 315-2AG10-0AB0</td>
<td>Alternatively, any other S7 300/400 CPU can also be used.</td>
</tr>
<tr>
<td>SIMATIC S7, MICRO MEMORY CARD F. S7-300/C7/ET 200S IM151 CPU, 3.3 V NFLASH, 64 KB</td>
<td>1</td>
<td>6ES7953-8LF11-0AA0</td>
<td>64KB MICRO MEMORY CARD or larger.</td>
</tr>
<tr>
<td>12-inch MP277 Touch Multi Panel</td>
<td>1</td>
<td>6AV6643-0CD01-1AX0</td>
<td>Alternatively, another panel can also be used (xP 270 and later).</td>
</tr>
<tr>
<td>SIMATIC NET, 830-2 CONNECTING CABLE FOR PROFIBUS, PREASSEMBLED CABLE WITH TWO 9-PIN SUB D PLUGS, TERMINATING RESISTORS REVERSIBLE, 3 M</td>
<td>1</td>
<td>6XV1830-2AH30</td>
<td>2-wire shielded cable with PROFIBUS connectors for connecting the MP277 Touch to the CPU.</td>
</tr>
<tr>
<td>Ethernet cable for connecting MP277 and PC stations</td>
<td>1</td>
<td></td>
<td>Standard cable</td>
</tr>
<tr>
<td>Standard PC with Windows XP SP2</td>
<td>2</td>
<td></td>
<td>No high requirements for the computer capacity</td>
</tr>
</tbody>
</table>
### Standard software components

**Table 2-2**

<table>
<thead>
<tr>
<th>Component</th>
<th>No.</th>
<th>MLFB / order number</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIMATIC S7, STEP7 V5.3</td>
<td>1</td>
<td>6ES7810-4CC07-0YA5</td>
<td>Further ordering information, system requirements and STEP7 compatibility are available on the Customer Support pages on the internet. <a href="http://support.automation.siemens.com">http://support.automation.siemens.com</a></td>
</tr>
<tr>
<td>WinCC flexible 2005 Standard SP1</td>
<td>1</td>
<td>6AV6 612-0AA01-1CA5</td>
<td>At least WinCC flexible 2005 Standard SP1 HF6 is required to open the project.</td>
</tr>
<tr>
<td>WinCC flexible /Sm@rtAccess for SIMATIC Panel</td>
<td>1</td>
<td>6AV6618-7AB01-1AB0</td>
<td></td>
</tr>
<tr>
<td>MS Office Front Page</td>
<td>1</td>
<td></td>
<td>Alternatively, any text editor or further software can be used for editing/creating HTML pages.</td>
</tr>
</tbody>
</table>
Example files and projects

The following list includes all files and projects used in this example.

Table 2-3

<table>
<thead>
<tr>
<th>Component</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>HTML_Projekt.zip</td>
<td>The zip file contains:</td>
</tr>
<tr>
<td></td>
<td>• The STEP 7 project</td>
</tr>
<tr>
<td></td>
<td>• The WinCC flexible project integrated in STEP 7</td>
</tr>
<tr>
<td></td>
<td>• Four HTML pages</td>
</tr>
<tr>
<td></td>
<td>- Startpage.html</td>
</tr>
<tr>
<td></td>
<td>- Plant_1.html</td>
</tr>
<tr>
<td></td>
<td>- Plant_2.html</td>
</tr>
<tr>
<td></td>
<td>- Plant_3.html</td>
</tr>
<tr>
<td></td>
<td>• Two Excel files</td>
</tr>
<tr>
<td></td>
<td>- Evaluation_Process_Data.xls</td>
</tr>
<tr>
<td></td>
<td>- Regulating_Units0.csv</td>
</tr>
</tbody>
</table>

2.4 Performance data

Application software

Table 2-4: Performance data of the application software

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Performance data</th>
<th>Additional note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program size</td>
<td></td>
<td>Additional note</td>
</tr>
<tr>
<td>Project:</td>
<td>15MB</td>
<td></td>
</tr>
<tr>
<td>Project (.zip)</td>
<td>3.2MB</td>
<td></td>
</tr>
<tr>
<td>MMC:</td>
<td>2678 bytes</td>
<td></td>
</tr>
<tr>
<td>Main memory:</td>
<td>872 bytes</td>
<td></td>
</tr>
<tr>
<td>Maximum cycle time</td>
<td>2ms</td>
<td>For CPU 315-2 DP</td>
</tr>
<tr>
<td>Number of HMI screens</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>
Principles of Operation and Program Structures

Contents

This part describes the detailed functional sequences of the involved hardware and software components, the solution structures and – where useful – the specific implementation of this application.

It is only required to read this part if you are interested in the interaction of the solution components.

3 General Functional Mechanisms

You are provided with information on...

the general functional mechanisms that apply with regard to the creation of HTML pages and the integration of variable values within these pages.

3.1 Basics for creating HTML pages

To provide also readers with little or no experience in creating HTML pages with an introduction to the topic, some basic information on "creating HTML pages" will be listed in the following sections.

Basic properties

Anybody who has "surfed" the internet knows different web sites. To go to a web site, you enter the corresponding URL (address), for example www.Google.de, in the used browser, for instance: MS Internet Explorer. The Google web site then appears at the just named URL address.

In this application, the address "http://192.168.0.230/HTML_Data/Startpage.html" is entered instead of the URL address “Google”.

The configured start page via which a linking to the individual plant sections is performed is called via this address.

3.1.1 What is HTML?

Web sites are predominantly created using HTML. HTML is an abbreviation of Hypertext Markup Language.

It is a script language that is relatively easy to learn.

3.1.2 HTML program code

This application does not include a detailed description of the used commands of the HTML configuration since this would go beyond the scope of this documentation.
A large number of documentations dealing with “creating HTML pages” or “HTML manuals” that describe “HTML” basics and the corresponding configuration are available on the internet.

**Note:**
All links and programs listed and presented below are subject to change in the course of time. Please understand that they cannot be updated.

**Links**

The “SELFHTML” organization has proven to be particularly useful.
http://de.selfhtml.org/

This website provides very detailed information on "HTML", for example:

- Basic HTML page structure
- Creating tables
- Integrating graphics
- Creating links, etc.

For example, the following links are suitable for English-speaking countries.
http://www.htmlcodetutorial.com/ or http://www.w3schools.com/

**Tip:**
If you have little or no experience in creating HTML pages, please observe the information provided by, for instance, “SELFHTML”.
It facilitates the understanding of the following sections.
3.1.3 Required software

Special software is not required to edit or view the configured HTML pages (code) – any text editor can be used.

**Note:**

A large number of free tools and tools that can be purchased can be found on the internet that facilitate the creation of HTML pages and support you in configuring.

The “MS Office FrontPage” software was used for this application.

3.2 Sm@rtAccess: SOAP web service

The communication between HTML pages and operator panel is based on SOAP.

**What is SOAP?**

WinCC flexible provides the option of using the web service (SOAP). The web service (SOAP) is based on the Simple Object Access Protocol. For example, it enables you to access the variables of an operator panel from an external application via Ethernet – in this case, the “external application” would be the display of values on the HTML pages described later in this documentation.

By selecting the “Sm@rtAccess: Web service (SOAP)” option in WinCC flexible, a web server is installed on the operator panel and started and stopped together with Runtime.

3.2.1 Microsoft SOAP Toolkit

To ensure that the variables can later be correctly displayed on the HTML pages, install the “Microsoft SOAP Toolkit” on the “web server PC” (PC station 1).

The SOAP Toolkit is a free Microsoft add-on and can be downloaded from the internet at “http://msdn.microsoft.com/webservices”. 
3.3 Data access to Windows CE operator panels

The data access via the web service (SOAP) to Windows CE operator panels works only via the device name of the operator panel, **not** via the specification of the IP address.

For this reason, enter the operator panel device name with the corresponding IP address on the PCs in the hosts file (can be found, for example, in the following path: C:\WINNT\system32\drivers\etc).

In this case:
192.168.0.210      MP277_HTML

In addition, you can enter the IP address of “your own PC” and its name (not mandatory).

The figure below shows the hosts file with the stored data.

Figure 3-1

<table>
<thead>
<tr>
<th>Hosts File Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>192.168.0.210 MP277_HTML</td>
</tr>
<tr>
<td>IP Address and name from the PC</td>
</tr>
</tbody>
</table>

Notes:

- When you are using several operator panels, enter these panels in the hosts file.
- Make these hosts file entries on each PC with which you want to later access the operator panel.
3.4 Web server functionality

A web server is a server that provides information via the Hypertext Transfer Protocol (HTTP). The Hypertext Transfer Protocol (HTTP) is a protocol for transferring data over a network. It is mainly used to load web sites and other data from the world wide web (WWW).

In this application, the web server functionality is used to enable a data exchange with several PCs via Internet Explorer in an internal company network.

Overview

Figure 3-2
4 Functional Mechanisms “on the Plant Side”

You are provided with...

- valuable information on the STEP7 program structure
- valuable information on the WinCC flexible program structure

4.1 STEP 7 program structure

Overview

The figure below shows the program structure / program blocks of the STEP 7 project.
The STEP 7 project is only used for the simulation of process values for two rate regulators. In addition, the project is used for the “data management” of the entered process data (expected/actual amount of pieces of the “brake disc manufacturing”).

Block description

The following table lists and explains the used STEP 7 blocks.

<table>
<thead>
<tr>
<th>Block</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>OB1</td>
<td>Organization block (called by the operating system) for the cyclic program processing.</td>
</tr>
</tbody>
</table>
| FC10  | Used for calculating a random number. The block has two parameters.  
- HiLimit  
  (upper limit of the random number’s range of values)  
- RandomNumber  
  (generated random number)  
The block is called/used in FC12. |
| FC12  | Contains the program for simulating the process values for the two rate regulators. |
### 4.2 WinCC flexible project structure

**Overview**

The WinCC flexible project is used for simulating process values. These process values will later be output on an HTML page.

In actual operation, the process values would normally be stored on different project pages. In this case, all required data was placed on one page for greater clarity and arranged in such a way that the view basically corresponds to the HTML page that will be described later.

<table>
<thead>
<tr>
<th>Block</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DB100</td>
<td>Simulation program: Includes the process data.</td>
</tr>
<tr>
<td>SFC64</td>
<td>TIME_TCK. You read the CPU system time with SFC 64 “TIME_TCK” (time tick) – used in FC10.</td>
</tr>
</tbody>
</table>
4.2.1 Configuration explanation for “Screen_1”

Overview of “Screen_1”

“Screen_1” is called as a start screen.
In “Properties > Events”, the “Panel_Start” script is called when the screen is generated.
The script sets the “plant status” to a defined status – in this case “Working”.

Note:
The configured function is executed in the script only after a “restart” of the panel.

Figure 4-3

1, Permanent Display

“Production Data” button
Use the “ActivateScreen” function to call “Screen_1” “Production Data”.

“Regulating Position Diagram” button
Use the “ActivateScreen” function to call “Screen_2” “Regulating Position Diagram”.

---

The text continues with further details and configurations related to the “Screen_1” as described in the document.
“System” button
Use the “OpenControlPanel” function to open the control panel of the operator panel. You can make system settings (e.g. change transfer settings).

“English/Deutsch” button
Use the “SetLanguage” function to change between the configured languages German and English on the operator panel.

“RT End” button
Use the “StopRuntime” function to stop the operator panel Runtime.

Note:
Functions in the permanent window can be called from any screen.

2, Simulation Plant Status
The same functions have been configured for the Working, Fault and Service buttons. In “Properties > Events > Press / Release”, bits (internal variables) are set via which an evaluation concerning the last used button is performed. In addition, a script is called in which an evaluation of the previously described bits is performed. Depending on the set bit, a value of a variable is transferred via which a text is output in a symbolic I/O box. Furthermore, a text of a further variable is transferred. This text will later be used on the HTML page to display the plant status.

3, Output of Target and Actual Values
Target values:
Two output boxes have been configured under “Target”. The values for these “output boxes” are specified by the HTML pages that will be described later.

Actual values:
Four input/output boxes have been configured under “Actual”. The values for these “input/output boxes” can be specified by both the arrow keys located to the right of the boxes and by the HTML pages that will be described later.
Arrow keys:
The “arrow keys” are buttons of the “Graphics” type.
The same functions have been configured for the buttons.

In “Properties > Events > Click”, the value of the configured variable can be increased or decreased using the “IncreaseValue” or “DecreaseValue” button.

4. Rate Regulator Position

Two output boxes have been configured.
The values of these output boxes are specified/simulated by the S7 controller – see section 4.1. (block description, FC12).

The variable values are archived with each value change.
The path (storage location) for the data log is located on the “web server PC” (PC station 1).

For information on how to create the path on the “web server PC” (PC station 1), please refer to chapter 5.1.2 “Process data archiving”.
4.2.2 Configuration explanation for “Screen_2”

Overview of “Screen_2”

Figure 4-4

1, Trend Display
The configured trend display displays the archived values of the rate regulator position of cooling circuit 1 and 2.

The value axis on the right (Y-axis) has a range of values from 0 to 100. The X-axis indicates the time. The text orientation is right, this means: New values are entered from the right.

2, Trend Display Property
In “Properties > Trend”, the names for the curves to be displayed are defined and parameterized. In this case Unit_1 for rate regulator 1 and Unit_2 for rate regulator 2.

3, Trend Display Property
The trend display is an “archive curve”. In 3, the corresponding data log is selected. In this case the “Regulating_Units” archive.
4, Trend Display Property

The corresponding variable has to be assigned to each curve. In 4, you can select the corresponding variable.

The most important trend display settings have now been completed.

4.2.3 “Regulating_Units” data log

In “Project Tree > Historical Data > Data Logs”, a short-term archive named “Regulating_Units” has been created. The two process variables of the rate regulator are archived in this archive.

The path (storage location) of the archive is located on the “data and web server PC” (PC station 1) – “\Field-PG\ProcessData\Plant_Data\Plant_1”.

4.2.4 Device settings

To be able to use the “SOAP” web service, the “Sm@rtAccess: Web service (SOAP)” option has to be set in Device Settings in “Project Tree > Device Settings > Runtime services”.

Figure 4-5
5 Functional Mechanisms of “Office Workplace”

You are provided with valuable information on...

- setting up the “data and web server PC” (PC station 1)
- the HTML program structure
- the “Evaluation_Process_Data.xls” Excel file
- setting up the “shift supervisor PC” (PC station 2)

5.1 Setting up the “data and web server PC” (PC station 1)

Note:
Before changing the settings on your PC, please contact your administrator.

Basic information
The “data and web server PC” (PC station 1) includes the following points.

- Data management of the general data such as
  - all configured HTML pages.
  - plant displays.
  - Excel lists/files.
- Data of the archived process data of the operator panels.
- Set up web server.
5.1.1 Setting up the project folders

General data
The following subdirectories were created on drive “D:\” of the data and web server PC.

Figure 5-1

| Address | D:

Folders

Desktop
- My Documents
- My Computer
- 3½ Floppy (A:)
- Local Disk (C:)
- Datenträger (0:)

HTML_Data
- Plant_Data
  - Plant_1
  - Plant_2
  - Plant_3
- RECICLER
- System Volume Information
- Datenträger (E:)

“HTML_Data” folder:
The data of the configured HTML start page (Startpage.html) and the plant pictures stored for this page (Factory_1.gif to Factory_3.gif) and the “Evaluation_Process_Data.xls” Excel table (this Excel list will be described later in this document) are stored in the “HTML_Data” folder.

“Plant_Data” folder:
The “Plant_Data” folder includes one separate subfolder (Plant_1 to Plant_3) for each plant section.
The data specific for the plant section is located in the corresponding subfolder.
“Plant_1” folder:
The configured HTML page for plant section 1 and the associated plant picture are stored in the “Plant_1” folder. In addition, the process data of the flow cooling for this plant section is archived here.
The folders “Plant_2” and “Plant_3” have the same structure.

5.1.2 Process data archiving

The two rate regulator process variables of plant section 1 (Plant I, Line I) are archived on the “web server PC” in the “D:\Plant_Data\Plant_1” directory.

To enable the operator panel to store/save the data there, the drive or the folder must be “shared”.

On the operator panel the following path name was stored for the files to be archived: “\Field-PG\ProcessData\Plant_Data\Plant_1”.

The storage path name consists of
- \computer name = Field-PG
- \share name = ProcessData
- \subfolder_1 = Plant_Data
- \subfolder_2 = Plant_1

Note on the computer name:
To check the computer name, open the “web server PC” system properties by selecting “Start > Settings > Control Panel > System”.
Now click the “System” folder.
The Windows “Control Panel” dialog box opens.
Now click the “Computer Name” folder.
You can see the computer name and adapt it if required.
Note on the share name:

Sharing a folder.
First select the drive or folder you want to share.
Use the right mouse button to open the drive/folder properties.
Select “Sharing” to go to the individual parameters.

Note:
In this example, the complete drive “D” was shared on the “web server PC”.
This ensures that you have access to all subfolders that are located there
and it is not required that you share each individual folder separately.

Figure 5-2

Point 1:
In “Share name”, you can see all currently entered share names.

Point 2:
Click the “New Share” button. The “New Share” Windows dialog box opens
(see point 3).
Point 3:
In “New Share”, enter “ProcessData” as a share name. In “User limit”, you can limit the number of users who may simultaneously access this drive/folder.
Subsequently, click the “Permissions...” button. A further Windows dialog box opens. (See point 4).

Point 4:
In “Permissions for”, you can define the specific permissions users have on this shared drive/folder (Full Control / Change / Read).
Select “Full Control”. Click “OK” to confirm all entries.

Note on the subfolders:
Special settings for the “subfolders” are not required.
It is only required that the names correspond to the names stored in the WinCC flexible configuration – in this case “Plant_Data” and “Plant_1”.

View of a shared folder:
In the figure below, the “symbolic hand” indicates that drive “D” is shared. The actual share name cannot be seen (not to be confused with the drive name “Datenträger” [data medium]).

Figure 5-3
5.1.3 Setting up the web server

Note:
The subsequent settings were made on a PC with the Microsoft Windows XP Professional SP2 operating system.

“Internet Information Services (IIS)” installation

Internet Information Services (IIS) is the name for specific functions for publishing documents and files on the internet and intranet. The delivery of Windows XP Professional includes limited IIS services as an optional component. The number of simultaneous connections is limited to a maximum of 10; but this is sufficient for this application.

First open the control panel by selecting “Start > Settings > Control Panel”.

Subsequently, open the “Add or Remove Programs” function.

Different options are displayed on the left side of the window. Select “Add/Remove Windows Components”.

The “Windows Components Wizard” dialog box opens.

Select “Internet Information Services (IIS)”. Use the “Next >” button to start the installation of the component.

Note:
The installation may require the Windows installation CD.
Setting up the web server

- First open the control panel by selecting “Start > Settings > Control Panel”.
- Double-click the “Internet Information Services” function. The dialog box below opens.

Figure 5-5
Creating the required virtual directories:

Use the right mouse button to select the “Default Web Site” path. A dialog box opens in which you can execute different functions. Select “New > Virtual Directory...”. The Virtual Directory Creation Wizard is started.

Select the “Next >” button to continue.

In the next step, enter a name for the virtual directory to be created – in this case “HTML_Data”.

Select the “Next >” button to continue.

**Note:**
It is not necessary that the virtual directory name corresponds to the name in which the configured HTML pages will later be located/stored (Windows Explorer directory).
In this application, the names of the virtual directories and the Windows Explorer directories are identical.
It is thus not required to use new, additional names for the virtual drives.
In the next step, enter the directory in which the later content of the website is located.

**Note:** You can also subsequently adapt the access permissions to your requirements.
In the next step, finish the Virtual Directory Creation Wizard.

Create a further virtual directory named “Plant_Data”.

In the figure below, you see the created folders “HTML_Data” and “Plant_Data”.

The folder contents correspond to the way they are displayed in Windows Explorer. They are automatically created by the system.

**Figure 5-8**

Note:

In the “Properties” of the individual folders, you can make a large number of settings; additional settings are not required for this application.

For further information on the individual parameters, please refer to the MS online help.
5.2 HTML configuration

Introduction

The used commands of the HTML configuration will not be described in detail in the following description.

This section focuses on the essentially necessary functions, for example, which steps/commands are required to establish a connection to the operator panel or how the variables have to be declared.

How and where the variables and texts are eventually placed on the HTML page (design of the HTML page) does initially not influence the actual function, namely establishing a connection to the operator panel and its variables.

Structure of the configured HTML pages

The structure of the configured HTML pages is basically identical.

- Document type/declaration (information on the used HTML version).
- Header data, e.g. information on the title
- Body (texts, references, graphics, etc.)

A “table structure” was used for the basic design of the pages. This enables to properly align the individual texts and variables. The table borders are “invisible” so that the borders are not visible. The border properties can be edited later and displayed accordingly.
5.2.1 “Startpage.html” HTML page

“Startpage.html”

The start page is used as an overview of the different plant sections. The individual plant-specific HTML pages are called via a link.

The example below is used to explain how a link to another HTML page is implemented.

Figure 5-9

```
1: (Line 33)
Plant section headline (Plant I, Line I)
2: (Line 37)
href = hyper reference.
The reference target is listed after the href attribute.

In this case, the complete storage path is:
//192.168.0.230/Plant_Data/Plant_1/Plant_1.html

The address consists of:
- //IP address of the computer on which the HTML page is located
- /Subfolder 1 (Plant_Data).
- /Subfolder 2 (Plant_1).
- Name of the file to be called (Plant_1.html).

The HTML page to be called is located on the “web server PC” (PC station 1). The PC’s IP address is 192.168.0.230.
```
The subfolders and their names correspond to the **virtual directories** that have previously been used when setting up the web server!
For more information, please refer to chapter 5.1.3 “Setting up the web server”.

3: (Line 37)
The “plant picture” was inserted as a graphical user interface.
The Factory_1.gif “plant picture” is located in the same directory as Startpage.html. For this reason, no further path names are necessary.
If the graphic is located in another folder than the “Startpage.html” folder, enter this folder accordingly.

4: (Line 38)
Additional plant code (Brake Disc Production 1).

**Example description of the HTML code:**

**Designation**
- `<tr>` starts a new table row
- `<\tr>` end of a table row
- `<td>` starts a header cell
- `<\td>` associated end tag

**Note:**
For more information, please refer to the corresponding technical literature.
5.2.2 “Plant_1.html” HTML page

Overview of “Plant_1.html”

All plant-relevant data is listed on the “Plant_1.html” plant page. In addition, an Excel list via which the archived process flow cooling data can be called and output in a curve diagram can be called by selecting the “Process Data” button.

Figure 5-10

***Plant Overview / -Information***

**Current Production Data**

- [Read / Refresh]

**Plant Status**

- Date / Shift
- Actual / Last

**Evaluation Historical Data Tag**

- (Cooling Circuit 1 and 2)
- [Read / Refresh]
For greater clarity, the page content was divided into individual functions. This ensures that statements have to be configured twice.

The actual HTML configuration for establishing the connection basically only consists of 10 lines. Please observe the description of the “ReadValue()” function.

When you are using, for example, the “FrontPage” software, the “line number” is displayed on the left screen edge. This considerably facilitates the navigation within the document.

**Note:** Different software tools exist that also include this functionality.

---

**Line 1 to 12**

Lines 1 to 12 include the basic framework of the HTML page. The document type declaration (information on the used HTML version) and the header (header data. E.g. information on the title).

---

**Line 17 to 34, “ResetLogin()” function**

The “ResetLogin()” function is started by selecting the “Log Off” button. The content of all variable fields is overwritten with a “blank entry”. All previous data is then no longer visible.

---

**Line 43 to 53, “InputFieldReset()” function**

The “InputFieldReset()” function is executed when the “LogOn()” or “ButtonWriteClicked()” function has been started.

The content of the specified variable fields is overwritten with a “blank entry”. All previous data is then no longer visible.

For the respective background:

See operational sequence description of the “LogOn()” function.

---

**Line 58 to 64, “LogOn()” function**

The “LogOn()” function is executed by selecting the “Log On” or “Read / Refresh” button and via the “FileCall()” function.

The following three functions are successively executed.

- InputFieldReset()
- Password()
- ReadValue()
Operational sequence description / background:
When logging on, user name and password cannot be directly checked for their validity.
This would only be possible if a user management existed.
The user data for the logon is stored on the corresponding operator panel.
You do not have direct access to this data.
For this reason, initially all variable fields are “cleared”. Subsequently, the “Password()” function and the “ReadValue()” function are executed.
After all fields have been “cleared”, it is checked whether the fields have been “written to” after a certain period of time. This period for this check is generated by the “system” and cannot be influenced.
If the variable fields have not been successfully “written to”, either the “login data” are incorrect or the connection to the operator panel is faulty.
In case of a fault, a message is output.

Line 69 to 76, “ButtonWriteClicked()” function
The “ButtonWriteClicked()” function is started by selecting the “Write” button.
The following four functions are successively executed.
- Password()
- WriteValue()
- InputFieldReset()
- ReadValue()

Line 81 to 108, “Password()” function
The “Password()” function is called via the “LogOn()” or “ButtonWriteClicked()” function.
The “Password()” function only checks whether an entry for the login data (user and password) has been made in the variable fields. It cannot be checked whether the entered data are correct since a user management does not exist – see operational sequence description of the “LogOn()” function.
If the corresponding login boxes are not filled out, a message is output.
Line 113 to 155, “ReadValue()” function

The “ReadValue()” function is called via the “LogOn()” or “ButtonWriteClicked()” function.
It is used to transfer values from the operator panel to the HTML page.

Line 118 to 135:

The part that is responsible for the communication between operator panel and HTML page is located in lines 118 to 135.

The WSDL file (Web Services Description Language) is located on the server that provides the web service – in this case the operator panel.
To be able to use this service, the location where the WSDL file is located has to be entered.

Program code excerpt, line 122/123:

```
"WSDL_URL = "http://" & Server_Name & "/soap/RuntimeAccess?wsdl"
Rt.mssoapinit WSDL_URL"
```

“Server_Name” is a variable name.

In line 220, the operator panel name this HTML page is to access is assigned via this variable.
Instead of the “Server_Name” variable, you can also directly enter the operator panel name (in this case MP277_HTML).

**Note:**
The name of the operator panel has to be entered.
The name resolution is performed via the **hosts file**.
Please also observe the description for point 3.3, “Data access to Windows CE operator panels”.

Line 134 to 135:

To ensure that only authorized persons can access the process data of the operator panel, the operator has to log in with the correct login. The login data are entered in the variable fields “user” (user name) and “passw” (password).

The login data correspond to the login data on the operator panel defined by you in the control panel
(Control Panel > “WinCC flexible Internet Settings” folder > “Web Server” menu option > “User Administration” menu option).
In this example, the standard user login was used.

- **User**: Administrator
- **Password**: 100

**Note:**
User name and password can also be permanently stored.

**Line 140 to 146:**
In lines 140 to 146, the variables stored in these lines are read out. The values will later be output by the operator panel via the HTML page.

**Line 148 to 153:**
In lines 148 to 153, it is checked whether a specific variable has been "written to". This enables to determine whether a connection to the operator panel has been established or whether the login data have been entered correctly.

**Line 160 to 198, “WriteValue()” function**
The “WriteValue()” function is called via the “ButtonWriteClicked()” function. It is used to transfer values to the operator panel via the HTML page.

**Line 172 to 192:**
Lines 172 to 192 basically have the same content as the previously described lines 118 to 135 in the “WriteValue()” function.

**Line 195 to 196:**
In lines 195 to 196, the variables stored in these lines are written to. These two variables “Value10” and “Value11” enable to later specify values to the operator panel via the HTML page.

**Line 203 to 210, “FileCall()” function**
The “FileCall()” function is executed when selecting the “Process Data” button.

**Line 205 to 206:**
In line 205, the “LogOn” function is executed. This ensures that an unauthorized call of this data is not possible. If no valid logon exists, a message box is displayed (line 206).
Line 208:

In line 208, the address of the storage path for the “Evaluation_Process_Data.xls” Excel file is stored. The address consists of the “web server PC” IP address and the “HTML_Data” subfolder.


Line 219 to 237, “variable declaration”

In lines 219 to 237, the process variables of the operator panel are assigned to the internal variables of the HTML page. The advantage is that when a process variable is changed, this change only has to be made at one location.

In addition, the device name for the “Server_Name” variable is assigned here.

You can enter the device name on the operator panel in:
“Control Panel” > “System” folder > “Device Name” menu > “Device name” input box.

Line 248 to 358, “HTML page layout”

Lines 248 to 358 include the HTML page layout.

• Headlines
• Arrangement of the variable fields
• Arrangement of the buttons

For information on how to configure, for example, a table (visible / invisible) or how to adapt the font size, please refer to the technical literature.
5.2.3 “Plant_2.html” and “Plant_3.html” HTML page

Overview of “Plant_2.html”

The “Plant_2.html” and “Plant_3.html” plant page only consists of the basic framework for creating an HTML page and a prepared “plant picture”.

Figure 5-11

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta name="author" content="Helmut Hoelzmann">
<meta name="date" content="2007-02-14">
<meta http-equiv="Content-Type" content="text/html; charset=windows-1252">
<title>Plant 2 Site under construction</title>
</head>
<body>
<p><font size="3" face="Arial">Site under construction!</font></p>
<p><img src="http://192.168.0.230/Plant_Datas/Plant_2/Plant_2.gif" alt="" border="2"></p>
</body>
</html>
```

Note:
The “MS FrontPage” software was used for the creation of the HTML pages. In “MS FrontPage”, you can, for example, select the “Show Split View” button. This Split pane enables you to quickly find individual text lines in the HTML code.

In the “bottom” window, select the text or the image you want to edit. In the “top” window, the line is displayed in which, for example, the text is located.
5.3 Microsoft Excel files

5.3.1 “Evaluation_Process_Data.xls” MS Excel file

The “Evaluation_Process_Data.xls” Excel file is used to automatically generate a chart of the archived flow cooling process data.

The required functions have been implemented with a script.

You can view and edit the script.

To do this, open the “Visual Basic” Editor. To show the Editor, select “View > Toolbars > Visual Basic”.

Figure 5-12
Overview of “Evaluation_Process_Data.xls”

Figure 5-13

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

1. Filing Path: (You can enter an alternative file path of the variable archives here)
2. Data Copy
3. Start Time: (TT:MM:SS:SSS) 02.05.2007 16:12:00
4. Preparing Diagram
5. Tag Name | Date / Time | Value
---|---|---
Process_Data.Var_21 | 02.05.2007 15:10:36 | 74
Process_Data.Var_20 | 02.05.2007 15:10:37 | 50
Process_Data.Var_20 | 02.05.2007 15:10:45 | 79
Process_Data.Var_21 | 02.05.2007 15:10:46 | 79
Process_Data.Var_20 | 02.05.2007 15:10:53 | 89
Process_Data.Var_21 | 02.05.2007 15:10:56 | 4
Process_Data.Var_20 | 02.05.2007 15:11:01 | 88
Process_Data.Var_21 | 02.05.2007 15:11:04 | 100
Process_Data.Var_20 | 02.05.2007 15:11:09 | 47
Process_Data.Var_21 | 02.05.2007 15:11:14 | 95
Process_Data.Var_20 | 02.05.2007 15:11:17 | 25
Process_Data.Var_21 | 02.05.2007 15:11:23 | 50
Process_Data.Var_20 | 02.05.2007 15:11:25 | 95
Process_Data.Var_21 | 02.05.2007 15:11:33 | 15
Process_Data.Var_20 | 02.05.2007 15:11:33 | 15
Process_Data.Var_21 | 02.05.2007 15:11:41 | 37
Process_Data.Var_20 | 02.05.2007 15:11:42 | 21
Process_Data.Var_21 | 02.05.2007 15:11:48 | 50
Process_Data.Var_20 | 02.05.2007 15:11:52 | 25
Process_Data.Var_20 | 02.05.2007 15:11:56 | 9
Process_Data.Var_21 | 02.05.2007 15:12:01 | 57
Process_Data.Var_20 | 02.05.2007 15:12:04 | 89
Process_Data.Var_21 | 02.05.2007 15:12:11 | 52
Process_Data.Var_20 | 02.05.2007 15:12:12 | 69
Process_Data.Var_20 | 02.05.2007 15:12:20 | 47
1. Filing Path:
The archived process data of the two rate regulators for the cooling circuit are located on the “web server PC”. This storage path is permanently stored in the Excel file (script). If you want to enter a different path including file name, you can enter this name in this field. The file that is stored in the storage path will then be used for the subsequent evaluation.

2. Use the “Data Copy” button to start the evaluation. All existing data from the “data log” (opening angle position of the cooling circuit regulators) are copied into this Excel list (5).

3. Select Group:
After copying the data has been completed, the data are listed in (5). In Start Time and End Time, you specify the data range you want to display in a chart later. In this example, the data between 15:12h and 15:15h has been selected.

4. Use the “Preparing Diagram” button to create/generate a chart from the selected data range (3).

5. In this section, all copied data are listed
   - Tag Name
   - Date / Time
   - Value

6. The Excel list contains a total of three spreadsheets
   - ProcessData:
     Used for the evaluation
   - DiagramValue:
     The values of the selected data range are output here.
   - Diagram:
     In this spreadsheet, a chart is generated from the selected data range. The chart can be post-edited. It is, for instance, possible to change the font size, etc.
The “ProcessData” spreadsheet and the “Diagram” spreadsheet are shown below.

**Note:**
It is not required to delete the created data/charts before a new generation run (4).

**“ProcessData” spreadsheet (example)**

![Excel spreadsheet](image)

The “ProcessData” spreadsheet lists all data of the two process variables “Var_20” and “Var_21” for the selected period.
**“Diagram” spreadsheet (example)**

Figure 5-15

The chart shows the two process variables “Var_20” (blue) and “Var_21” (purple) for the selected period as a graphical representation.

**Note:**
You can later adapt and edit the chart for your requirements, e.g. font size, etc.

### 5.3.2 “Regulating_Units0.csv” MS Excel file

The “Regulating_Units0.csv” Excel file contains the archived flow cooling process data.
The Excel file is automatically generated by the operator panel.
5.4 Setting up the “shift supervisor PC” (PC station 2)

The settings described in the following sections can be made on the “shift supervisor PC” (PC station 2) and on possible further PC stations.

- Adjusting the hosts file.
- Adjusting the security settings in MS Internet Explorer.

5.4.1 Adjusting the hosts file

For a description on how to adjust the hosts file, please refer to chapter “3.3 Data access to Windows CE operator panels”.

5.4.2 Adjusting the security settings in MS Internet Explorer

The “Plant_1.html” HTML page includes “ActiveX controls”.

Before you can log on to the “Plant_1.html” page, you have to set the Security Settings in Internet Options to “Low”.

Instructions:

- Open MS Internet Explorer.
- Select “Tools > Internet Options” to open Internet Options.
- The “Internet Options” dialog box opens. In this dialog box, select the “Security” tab.

Note:

When Internet Explorer is open, the “Web content zone” you are currently in is displayed on the bottom right screen edge. For example, this can be “Internet” or “Local intranet”. You find this zone designation also in the Security Settings in Internet Options.

- Select the Web content zone that is displayed on the bottom right edge of Internet Explorer, e.g., “Local intranet”.
- Set the security level to “Low”. Subsequently, select the “Custom Level” button. The Security Settings dialog box opens.
- In this dialog box, activate the “Initialize and script ActiveX controls not marked as safe” setting.
- Click “OK” to confirm all entries.
Example of an error message that is displayed if the security settings have not been considered and if you have tried to log on to the “Plant_1.html” HTML page:

![Error Message]

**Alternative setting:**

If you cannot/must not set the security settings for the “Internet” or “Local intranet” to “Low”, you can also assign the created HTML pages to the “Trusted Sites” Web content zone. Normally, only sites whose origin you know and sites you trust are assigned to the “Trusted Sites” Web content zone.

For questions about security, please contact your administrator.

**5.4.3 Opening an Excel file using Internet Explorer**

The “Plant_1.html” HTML page includes the “Process Data” button that is used to open the “Evaluation_Process_Data.xls” Excel file.

To ensure that the Excel file is not opened via Internet Explorer but by the actual “Excel software”, it may be required to adjust the folder options for Excel.

If Explorer is used to open the Excel file, which is indicated by the "IP address in the header", you cannot copy files. A runtime error appears.

**Adjusting folder options for Excel:**

- Open “My Computer”.
  - To open “My Computer”, double-click the corresponding icon on the desktop or open Windows Explorer.
- In the “Tools” menu, select “Folder Options”. A dialog box opens. In this dialog box, select the “File Types” tab.
- In the “Registered file types” list, select the “XLS Microsoft Excel Worksheet” Office document type and click “Advanced”. A dialog box opens.
• In the “Edit File Type” dialog box, deactivate the “Browse in the same window” checkbox.
• Confirm the entries with OK and close all dialog boxes.

View in “Folder Options > File Types > Edit File Type”

Figure 5-17
6 Modifications to the Example Program

You are provided with information on...
what you can do to adapt the sample project to your project environment.

Note:
If you make changes to your PC, it may useful to contact your network administrator.

6.1 Adjusting the IP addresses

IP addresses
You can adjust the IP addresses on your PC in:
“Start > Settings > Network Connections”.
In “Network Connections”, select the installed network card and open the network card properties.
In “General”, select the “Internet Protocol (TCP/IP)” element.
Open the properties of this element.
In “General”, select “Use the following IP address”.
You can now enter the IP address.

6.2 HTML pages, adapting links

Startpage.html
“Startpage.html” includes defined links to the individual, configured “plant pages” such as “Plant_1.html”.
This address has to be adjusted if you have a different IP address or folder structure.
Example, link to the “Plant_1.html” page (line 43).
href=http://192.168.0.230/Plant_Data/Plant_1/Plant_1.html

Plant_1.html
The “Plant_1.html” plant page includes defined links and variables for the configured operator panel, for example the device name, etc.

Line 220: Device name of the operator panel.
Lines 222-235: Variable declaration.
Adjust these paths/names, etc. accordingly.
6.3 **MS Excel files**

**“Regulating_Units0.csv” archive file**

A storage path for the "web server PC" was stored for the data log (\Field-PG\ProcessData\Plant_Data\Plant_1). If you have a different storage path/folder structure, adjust it accordingly.

**“Evaluation_Process_Data.xls” Excel file**

Storage path:
In the Excel file, the storage path for calling the “Regulating_Units0.csv” data log is permanently stored in a script.

```
"strFilePath = http://192.168.0.230/Plant_Data/Plant_1/Regulating_Units0.csv"
```

If the “Regulating_Units0.csv” Excel file has a different storage path/folder structure, adjust it accordingly.

**Note on the evaluation of the “Regulating_Units0.csv” file:**

The script in the “Evaluation_Process_Data.xls” Excel file evaluates the individual process variable via the ";" separator (semicolon).

If a “period” is used as a separator instead of the “semicolon”, the “semicolon” has to be replaced by a “period” in the script.

**Script excerpt:**

```
strArr = Split(strValExtern, ";") ' Evaluation of the separator from the CSV file, possibly to be replaced by a period.
```

6.4 **Name resolution using DNS / DHCP**

In this application, the “hosts” file is used for the name resolution. A name resolution can also be performed using DNS.

For information on how to set up a name resolution using “DNS”, please refer to the technical literature.

6.5 **Used IP addresses in the scripts**

Instead of the IP addresses, you can also enter the computer name. Please observe the information in chapter 5.4.1 “Adjusting the hosts file.”
Structure, Configuration and Operation of the Application

Contents

This part takes you step by step through structure, important configuration steps, startup and operation of the application.

7 Installation and Startup

You are provided with information on...

the hardware and software you have to install and the steps necessary to start up the example.

7.1 Hardware and software installation

This chapter describes which hardware and software components have to be installed. The descriptions and manuals as well as delivery information included in the delivery of the respective products should be observed in any case.

Hardware installation

For details on the hardware components, please refer to chapter 2.3. For the hardware configuration, please follow the instructions listed in the table below:

Table 7-1

<table>
<thead>
<tr>
<th>No.</th>
<th>Instruction</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Install your used S7-300/400 controller according to the installation regulations. The following FAQ provides more information on this topic. <a href="http://support.automation.siemens.com/WW/view/en/15390415">http://support.automation.siemens.com/WW/view/en/15390415</a></td>
<td>---</td>
</tr>
<tr>
<td>2.</td>
<td>Install your used operator panel according to the installation regulations. The following entry provides more information on this topic (e.g. MP277 manual). <a href="http://support.automation.siemens.com/WW/view/en/23337820">http://support.automation.siemens.com/WW/view/en/23337820</a></td>
<td>---</td>
</tr>
<tr>
<td>3.</td>
<td>Use a PROFIBUS cable to connect the PROFIBUS interface of the S7 controller to the PROFIBUS interface of your operator panel.</td>
<td>---</td>
</tr>
<tr>
<td>4.</td>
<td>Connect the Ethernet interface of the operator panel to the Ethernet interfaces of the connected PCs.</td>
<td>---</td>
</tr>
</tbody>
</table>
5. Set the following network addresses.
   - **PC station 1:**
     IP address: 192.168.0.200
     SUB net: 255.255.255.0
   - **PC station 2:**
     IP address: 192.168.0.230
     SUB net: 255.255.255.0
   - **MP277 Touch operator panel:**
     IP address: 192.168.0.210
     SUB net: 255.255.255.0

**Note**

The installation guidelines always have to be observed.

### Standard software installation

**Table 7-2**

<table>
<thead>
<tr>
<th>No.</th>
<th>Instruction</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>It is required that the software specified in chapter 2.3 table 2-2 is installed on your PG/PC. Please observe the system requirements in any case. For more information, please refer to the Customer Support pages on the internet.</td>
<td>Link to the Customer Support pages. <a href="http://support.automation.siemens.com">http://support.automation.siemens.com</a></td>
</tr>
</tbody>
</table>

### 7.2 Application software installation

**Table 7-3**

<table>
<thead>
<tr>
<th>No.</th>
<th>Instruction</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Transfer the STEP 7 configuration to your S7 controller. For information on how to transfer a STEP 7 configuration to a controller, please refer to the information provided on the Customer Support pages on the internet.</td>
<td>Link to the Customer Support pages. <a href="http://support.automation.siemens.com">http://support.automation.siemens.com</a></td>
</tr>
<tr>
<td>2.</td>
<td>Transfer the WinCC flexible configuration to your operator panel. For information on how to transfer a configuration to an operator panel, please refer to the corresponding manual.</td>
<td>Link to the Customer Support pages. <a href="http://support.automation.siemens.com">http://support.automation.siemens.com</a></td>
</tr>
<tr>
<td>3.</td>
<td>Set up the corresponding directories as described in chapter 5. Copy the supplied files to the corresponding directories.</td>
<td>---</td>
</tr>
</tbody>
</table>
8 Operation of the Application

You are provided with information on how to operate all functions of this application.

Overview

The essential functions have already been described in the previous chapters.

It is required that

- you have already transferred the STEP 7 configuration and the WinCC flexible configuration to the corresponding hardware
- a connection between S7 controller and operator panel has been established.
- an Ethernet connection to the individual PCs and the operator panel exists.
- the folder structure has been created as described and that the corresponding files are located in the folders (HTML pages, Excel files, etc.).

8.1.1 Call of “Startpage.html”

Table 8-1

<table>
<thead>
<tr>
<th>No.</th>
<th>Instruction</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Open MS Internet Explorer on your PC (office PC). In the address box, enter the following address. <a href="http://192.168.0.230/HTML_Data/Startpage.html">http://192.168.0.230/HTML_Data/Startpage.html</a></td>
<td>After the connection has been established, the configured start page is displayed.</td>
</tr>
</tbody>
</table>
### 8.1.2 Call of the plant pages, for example “Plant_1.html”

<table>
<thead>
<tr>
<th>No.</th>
<th>Instruction</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>“Startpage.html” includes one graphic for each plant section. The corresponding link for the configured plant section is stored behind each graphic. Click the respective graphic with the mouse pointer. The stored HTML page is opened in a new window.</td>
<td><img src="image1" alt="Diagram" /></td>
</tr>
<tr>
<td>2.</td>
<td>New window, for example “Plant_1.html”. <strong>Note:</strong> You can also open the plant page, for example “Plant_1.html”, directly. Open MS Internet Explorer on your PC (office PC). In the address box, enter the following address. <a href="http://192.168.0.230/Plant_Data/Plant_1/Plant_1.html">http://192.168.0.230/Plant_Data/Plant_1/Plant_1.html</a> <strong>After the connection has been established, the configured “Plant_1.html” plant page is displayed.</strong></td>
<td><img src="image2" alt="Diagram" /></td>
</tr>
</tbody>
</table>
### 8.1.3 Operation of the “Plant_1.html” page

Table 8-3

<table>
<thead>
<tr>
<th>No.</th>
<th>Instruction</th>
<th>Remark</th>
</tr>
</thead>
</table>
| 1.  | First log on with user and password.  
User: **Administrator**  
Password: **100** |  
Subsequently, select the “Log On” button.  
The connection to the operator panel is established.  
**Note:**  
If the login data are incorrect or if the connection to the operator panel cannot be established, an error message is displayed. |
| 2.  | After a successful logon the current data are displayed in the corresponding boxes. In “Target Specification”, you can specify “process values”. Use the “Write” button to transfer the specified values to the operator panel. | |
| 3.  | “Evaluation Historical Data Tag”  
You can output the archived flow cooling process data in a chart via the Excel file. | |
8.1.4 Operation of the “Evaluation_Process_Data.xls” Excel table

Table 8-4

<table>
<thead>
<tr>
<th>No.</th>
<th>Instruction</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>“Data Copy” button: Use the “Data Copy” button to copy the archived data from</td>
<td>Filing Path: If the specified storage path of the archived process data for the flow cooling has changed, you can enter a different</td>
</tr>
<tr>
<td></td>
<td>the “Regulating_Units0.csv” Excel file to this Excel file.</td>
<td>storage path in the “Filing Path:” field. When copying, this storage path is accessed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Start Time: Enter the date from which the chart is to output the process values.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>End Time: Enter the date from which the chart is to output the last process value.</td>
</tr>
<tr>
<td></td>
<td>Note: You can copy the data (date) from the “B” column to the fields “Start</td>
<td>Note: When selecting a new data range, you do not have to delete the previously created chart.</td>
</tr>
<tr>
<td></td>
<td>Time” and “End Time” respectively.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Preparing Diagram” button: Use the “Preparing Diagram” button to generate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>the chart from the selected range (Start Time / End Time) in a separate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>spreadsheet (see “Diagram” spreadsheet). The data from the selected range is</td>
<td></td>
</tr>
<tr>
<td></td>
<td>output in the “DiagramValue” spreadsheet.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Note:</td>
<td></td>
</tr>
</tbody>
</table>
### Accessing a Panel via an HTML Page

**Structure, Configuration and Operation of the Application**  
**Operation of the Application**

**Accessing a Panel via an HTML Page**

<table>
<thead>
<tr>
<th>No.</th>
<th>Instruction</th>
<th>Remark</th>
</tr>
</thead>
</table>
| 2.  | **“DiagramValue” spreadsheet:**  
The selected data is output in the **“DiagramValue” spreadsheet.** | ![DiagramValue spreadsheet](image) |
| 3.  | **“Diagram” spreadsheet:**  
The automatically generated chart from the previously selected data range is located in the **“Diagram” spreadsheet.** | ![Diagram chart](image) |
9 Additional Notes

9.1 HTML Validator

The HTML Validator checks HTML documents for conformity with W3C HTML and XHTML recommendations and other HTML standards.

After creating an HTML page, you should check this page with an “HTML Validator”.

Different tools that execute this functionality are available on the internet.

The HTML pages created in this application were checked using a web-based tool that is available at: http://validator.de.selfhtml.org/.

9.2 Error recovery

Faulty connection

If you have problems with the communication to the individual components such as PC or operator panel, please check the following settings.

Network address:

Check your Network Connection settings

- IP address
- SUB net (are all nodes in the same SUB net?)

Name resolution:

Check the “name resolution” in the hosts file.
The hosts file has to be adjusted on each computer.

Login data:

Check the login data you have entered on the operator panel. These data are used for the logon via the HTML page.

Device name:

Compare the device name in the operator panel to the name you have used in the “Plant_1.html” HTML document for the “Server_Name” variable.
Opening Excel file using Internet Explorer

If the “Evaluation_Process_Data.xls” Excel file cannot be directly opened with “Excel” but only using Internet-Explorer, check the “Folder Options” for Excel.
10 Literature

10.1 Bibliographic references

This list is by no means complete and only provides a selection of appropriate sources.

Table 10-1

<table>
<thead>
<tr>
<th>Topic</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>/3/</td>
<td>STEP7 Automating with STEP7 in STL and SCL Hans Berger Publicis MCD Verlag ISBN 3-89578-113-4</td>
</tr>
<tr>
<td>/4/</td>
<td>HTML manuals Due to the large number of manuals, we cannot recommend a specific document. “SELFHTML 8.1 as a book” is suitable for German-speaking countries.</td>
</tr>
</tbody>
</table>
10.2 Internet links

This list is by no means complete and only provides a selection of appropriate sources.

<table>
<thead>
<tr>
<th>Topic</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>\2\ Siemens A&amp;D Customer Support</td>
<td><a href="http://www.ad.siemens.de/support">http://www.ad.siemens.de/support</a></td>
</tr>
<tr>
<td>\3\ HTML configuration</td>
<td><a href="http://de.selfhtml.org">http://de.selfhtml.org</a> <a href="http://www.htmlcodetutorial.com/">http://www.htmlcodetutorial.com/</a></td>
</tr>
<tr>
<td>\4\ How do you integrate an operator panel into a local network?</td>
<td><a href="http://support.automation.siemens.com/WW/view/en/1333639">http://support.automation.siemens.com/WW/view/en/1333639</a></td>
</tr>
</tbody>
</table>

11 History

Table 11-1 History

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1.0</td>
<td>06/01/07</td>
<td>First edition</td>
</tr>
</tbody>
</table>