HMI Template Suite
(WinCC Unified)

SIMATIC WinCC Unified
SIMATIC HMI Unified Comfort Panels

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1 Introduction

1.1 Overview

Systems and machines are becoming more and more complex and, therefore, the demands on the system operators are increasing. For this reason, designing an intuitive and graphically appealing user interface as a link between human and machine is becoming increasingly more important.

The HMI Template Suite offers you templates and ideas to make the configuration of your HMI Operator Panel clear and modern.

Figure 1-1 Visualization with the “HMI Template Suite”

Layout and design are designed for smooth operation, transparency, and scalability. In this way, you can simplify the operation of your machine and reduce operator errors.

1.2 Principle of Operation

The basis of the “HMI Template Suite” is a fully configured Operator Panel. This Operator Panel contains basic navigation and operating functions. On this basis, you can easily build and extend your project modularly using further HMI objects from the library.

The “HMI Template Wizard” helps you create your new Operator Panel by selecting the contents and then having the Wizard integrate them into your project via Openness. The basis for the configuration of the Wizard is again the library “HMI Template Suite (WinCC Unified)".

This gives you a uniform “look & feel” with a consistent operating concept, in addition to saving time during configuration.
1.3 Operating Philosophy

There is a philosophy behind every operating concept. This operating philosophy covers points such as the following:

- How is the operator notified of the current state of the machine?
- How is the operator shown when or where an operator action is necessary?
- How are the implications of an operator action made clear to the operator?

Humans are not able to register as much information as they would like to at one time. For this reason, it is necessary to present solid information in such a way as to allow the operator to register all the information quickly and intuitively. An easy-to-follow HMI plays a major role in this regard.

Note
You can find additional information on the operating philosophy in the free HMI Design Masterclass:
https://www.siemens.com/hmi-design-masterclass

1.4 Components Used

The following hardware and software components were used to create this application example:

Table 1-1

<table>
<thead>
<tr>
<th>Components</th>
<th>Quantity</th>
<th>Item number</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIMATIC HMI MTP700 Unified Comfort</td>
<td>1</td>
<td>6AV2128-3GB06-0AX0</td>
<td>Alternatively, you can use Operator Panels in sizes from 7 to 22 inches.</td>
</tr>
<tr>
<td>SIMATIC WinCC Unified V16 (Engineering)</td>
<td>1</td>
<td>6AV2153-....1-6...</td>
<td>Engineering in the TIA Portal.</td>
</tr>
<tr>
<td>SIMATIC WinCC Unified PC RT V16</td>
<td>1</td>
<td>6AV2154-....1-6...</td>
<td></td>
</tr>
</tbody>
</table>
2 HMI Template Wizard

The HMI Template Wizard helps you create the configuration for your Unified Operator Panel even faster.

Figure 2-1

Requirements

The Template Suite Wizard accesses the selected contents of the library via the TIA Portal Openness interface and integrates them into your project.

It is therefore necessary that the user with which you are logged in to the Engineering PC is a member of the Windows user group "Siemens TIA Openness".

Figure 2-2
2.1 Installing HMI Template Wizard

1. Download the file "91174767_HMITemplateSuiteWizard_1.0.0.0_Setup.zip" from this application example and unzip it.

2. Then start the installation by double-clicking the application “SIMATIC HMI Template Suite Wizard V1.0.0 Setup”.

3. Follow the setup instructions and perform all installation steps.

Note
After you have clicked “Install”, a Windows message appears asking if you want to allow the app to make changes to your computer. Confirm this with “Yes”. 
2.2 Operating the HMI Template Wizard

1. Start the “SIMATIC HMI Template Suite Wizard” via the Windows Start menu inside the “Siemens Automation” folder.

2. Select a device
   - In the first step, select which device (Unified Comfort Panel or PC station with WinCC Unified Runtime) you want to create (1).
   - Then select the desired resolution (2).
   - Click “Next” (3).

Note
Alternatively, start the Wizard via the “HMITemplateWizard” application in the folder “C:\Program Files\Siemens\SIMATIC HMI Template Suite Wizard”.

![Image of HMI Template Wizard interface]
3. Select a TIA project  
   - In the next step, choose whether you want to modify an existing TIA project (1) or create a new project. 
     If you create a new project, you must also specify the "Project name" and "Location". 
     - Click "Next" (2).

4. The properties of the project are displayed as read-only. Click "Next" to proceed to the screen selection.

Note  
In order for the "HMI Template Wizard" to access the project properties and contents, you must first approve the TIA Portal Openness access. A corresponding message appears in the TIA Portal, which you must confirm.
5. Adjust screen layout
   - Open the group “Screen templates” (1).
   - In the next step, select any unneeded screen objects (2).

   ![Image of HMI Template Wizard](image)

   **Note**
   When clicking the name of a grouping or an element, it will be highlighted in the preview, as seen with the “ThirdLevelNavigation” example in the image.

6. Add example screens
   - Then open the “Screens” group (1).
   - Using the preview in the middle area of the Wizard, you can scroll through and select the screens you want to include in your project (2).
   - Click “Next” (3).

   ![Image of HMI Template Wizard](image)
7. In the last step, all chosen settings are displayed again in summary. Click "Finish" to finalize the Wizard and apply the changes to your project.
3 Description of the Library

3.1 Structure of the Library

With the “HMI Template Suite” library, you can create your project individually and with ease using preconfigured graphics and control elements.

The template is available for WinCC Unified in the following resolutions:

- 800x480 pixels (MTP700)
- 1280x800 pixels (MTP1000 and MTP1200)
- 1366x768 pixels (MTP1500)
- 1920x1080 pixels (MTP1900 and MTP2200)

Drag & Drop the various HMI objects into your Operator Panel.

**Note**  
When dragging an Operator Panel into your project, make sure that you also include the faceplates (see also Chapter 4.1.1).  

Use the preconfigured Operator Panels that are stored in the library under the different resolutions in the folder “00 – Device”.

![Tree view of HMI Template Suite](image)

**Preparing the HMI Operator Panel**

Visualization offers the perfect basis for your project. The Operator Panel already contains all of the necessary elements for operation:

- Navigation and title bar
- Display of notifications/alarms
- Adjustment and diagnostics pages
- HMI templates for varying levels of navigation

**Note**  
The Operator Panels are located in the library within the subfolders “00 – Device”. They are stored according to resolution.

You can create your visualization on this basis and enhance it using the other objects (i.e. pop-up screens) from the library.
3 Description of the Library

Preconfigured pop-up screens

The pop-up screens are used to display alarms or to change parameters in the machine. You will find the pop-up screens in the subfolder “01 - Resolution independent > 01 - Pop-up screen”.

Figure 3-2, Pop-up screens

Note

The preconfigured pop-up screens are screens that are used as pop-ups in WinCC Unified via a faceplate.

Preconfigured HMI screens

The preconfigured HMI screens allow you to use dashboards, overview screens, or operator wizards.

Note

The HMI screens are stored in the subfolder “02 - Screens” in the respective resolution.

Figure 3-3
Preconfigured navigation and control panels

Use the navigation and function buttons for the tasks and functions of the machine. You can use these elements to create different navigation levels.

Note

You can find the navigation and control panels in the “04 – Grouped objects” subfolder.

---

Figure 3-4, Navigation and Control objects

- HMI Template Suite (WinCC Unified)
  - Types
    - HMI Template Suite
  - WinCC Unified
    - 01 - Resolution independent
    - 02 - 000 x 480
    - 03 - 1280 x 800
  - 04 - Device
    - 01 - ScreenLayout
    - 02 - Screen
  - 05 - Pop-up screens
  - 06 - Grouped objects

- Function Panel
  - 06 - How to use function panel
  - 07 - Functions
  - 08 - Functions (2x4)
  - 1x - Functions

- Navigation
  - Option Panel Variations
    - Option_Panel_1_Button
    - Option_Panel_2_Button

- Third Level Variations
  - SubNav_1_Button
  - SubNav_2_Button
  - SubNav_3_Button

- Notifications
  - 06 - How to use the notifications
    - Notification_Error
    - Notification_OK
    - Notification_Warning
3.2 Color and Design Concept

3.2.1 Concept

The entire project is created in flat design. Flat design is a minimalist style that refrains from using three-dimensional effects (shadows or textures). This facilitates configuration and provides clarity for operators, as the focus remains on the content.

For optimal usability and ergonomics, a simple color concept is used for this project.

Colors:

- an accent color
- various graded gray tones for navigation
- light gray for the Main Window and to operate the system

The accent color is used to highlight objects such as the title bar or active buttons and tabs.

Shades of gray are used to distinguish the navigation bars and the status bar from the contents of the main screen.

The Main Window background is lighter. The main content stands out due to its placement in the middle of the Operator Panel and the high-contrast differentiation from the other objects at the edge of the screen.

3.2.2 Colors

For visualization, the following colors are used for HMI objects.

Table 3-1, Main colors

<table>
<thead>
<tr>
<th>Color</th>
<th>RGB color code</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="color-blue-rgb.png" alt="Blue" /></td>
<td>0, 161, 209</td>
<td>Blue, accent color, Button (active)</td>
</tr>
<tr>
<td><img src="color-anthracite-rgb.png" alt="Anthracite" /></td>
<td>38, 39, 41</td>
<td>Anthracite, Main Navigation (background)</td>
</tr>
<tr>
<td><img src="color-dark-gray-rgb.png" alt="Dark gray" /></td>
<td>72, 73, 78</td>
<td>Dark gray Title bar (background) Option Panel, background</td>
</tr>
<tr>
<td><img src="color-gray-rgb.png" alt="Gray" /></td>
<td>181, 190, 197</td>
<td>Gray, Button (inactive)</td>
</tr>
<tr>
<td><img src="color-light-gray-rgb.png" alt="Light gray" /></td>
<td>205, 211, 215</td>
<td>Light gray, Main Window background</td>
</tr>
<tr>
<td><img src="color-light-gray-rgb.png" alt="Light gray" /></td>
<td>240, 242, 243</td>
<td>Light gray, Thirdlevel Navigation (background)</td>
</tr>
<tr>
<td><img src="color-white-rgb.png" alt="White" /></td>
<td>255, 255, 255</td>
<td>White, Status bar (background), content board (background) SubNavigation (background)</td>
</tr>
</tbody>
</table>
The following colors are defined for status displays:

<table>
<thead>
<tr>
<th>Color</th>
<th>RGB color code</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>234, 206, 33</td>
<td>Warning color 1</td>
</tr>
<tr>
<td></td>
<td>231, 121, 16</td>
<td>Warning color 2</td>
</tr>
<tr>
<td></td>
<td>222, 56, 88</td>
<td>Alarm</td>
</tr>
<tr>
<td></td>
<td>94, 209, 173</td>
<td>Status OK</td>
</tr>
</tbody>
</table>

### 3.3 Overview of Layouts

The following names are predefined for the individual objects of the “HMI Template Suite”. In **Table 3-3** the elements and their intended use are listed.

**Table 3-3. Identification of the navigation levels**

<table>
<thead>
<tr>
<th>No.</th>
<th>Element</th>
<th>Position</th>
<th>Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Title bar</td>
<td></td>
<td>Display of the title, opening the option panel</td>
</tr>
<tr>
<td>2.</td>
<td>Status bar</td>
<td></td>
<td>Displaying important information, z. e. g. current parameter set, registered user, or status of the machine. The display can be adjusted according to the machine.</td>
</tr>
<tr>
<td>3.</td>
<td>MainWindow (application area)</td>
<td></td>
<td>Display of plant modules, dashboards, machine operation</td>
</tr>
<tr>
<td>4.</td>
<td>MainNavigation</td>
<td></td>
<td><strong>First-level navigation:</strong> Display of the menu and switching between modules, or displaying messages or settings</td>
</tr>
<tr>
<td>5.</td>
<td>SubNavigation</td>
<td></td>
<td><strong>Second-level navigation:</strong> Navigation bar at the bottom edge of the screen, within a machine module</td>
</tr>
<tr>
<td>6.</td>
<td>Third-level-Navigation</td>
<td></td>
<td><strong>Third-level navigation:</strong> Additional level for better structuring</td>
</tr>
</tbody>
</table>

**Note**

A fourth navigation level is possible by using a “Tab” view. You can find configuration details for this navigation level in Chapter 3.3.1.
Screen layout with faceplates

The Start Screen in WinCC Unified is divided into six faceplates, corresponding with the areas as shown in Table 3-3.

Note

If the contents of the Title bar (1) and Status bar (2) remain the same throughout the project, a faceplate can also be used for both areas.

Figure 3-5, Start Screen layout with faceplates

The contents displayed in the faceplate are configured in the folder “Screens”.

Note

In the “01_ScreenLayout” screen, the following elements are located next to the faceplates:

- “btnHideMainNavigation”:
  Closes the MainNavigation if it is open and is clicked outside the MainNavigation.
- “RecBackground”:
  Semi-transparent rectangle that blocks the entire image except the image that is called as a pop-up.
3.3.1 Navigation Levels in Detail

First-Level Navigation (“MainNavigation”)

Figure 3-6, HMI Template Suite, MainNavigation

The first-level navigation (MainNavigation) is implemented via a faceplate “swMainNavigation” in the “01_ScreenLayout” screen on the right side. The “03_MainNavigation” screen is displayed in the faceplate.

The main navigation can be displayed via the hamburger (≡) menu in the Title bar.

Note

If you want to show or hide levels of navigation and highlight the selected navigation point, please refer to Chapter 3.3.2.

In the main navigation, you can switch between the configured application and the global message page. In “Settings”, you can, for example, change the display language or the brightness of the Operator Panel.

Configuration

The first menu level is already included in the preconfigured Operator Panel.

Figure 3-7
Second-level navigation

Second-level navigation (SubNavigation) is the main navigation of a module. It is located at the bottom edge of the screen and can be displayed using the “ShowSubNavigation” script (see Chapter 3.3.2).

Figure 3-8. HMI Template Suite, second menu level

You can switch between the individual HMI screens of a plant module using the navigation bar (see Chapter 5.2).

Configuration

The second-level navigation is configured via the “swSubNavigation” faceplate in the “01_ScreenLayout” screen. You can configure page calls and adjust the text in the corresponding screen, “04_SubNavigation”.

Figure 3-9

Third-level navigation (optional)

Third-level navigation can be used within a module to give a more detailed structure to the displayed module functionalities.

Figure 3-10 Third navigation bar
The navigation bar is implemented as text-based navigation. However, you can also switch to icon-based navigation using the button properties. This saves space for system visualization on smaller Operator Panels.

Configuration

The third-level navigation is also implemented as the “swThirdNavigation” faceplate in the “01_ScreenLayout” screen. You can configure the page calls and insert the icons for the buttons of the third-level navigation bar in the corresponding screen, “05_ThirdNavigation”.

Figure 3-11, third-level navigation

Fourth-level navigation (optional)

On an HMI screen, you also have the option of displaying content in a clear and structured manner using the following “Tab” view.

Operators are familiar with tab views as they appear in a number of everyday applications, which makes them intuitive to use.

Figure 3-12 Example visualization

<table>
<thead>
<tr>
<th>Tab 1</th>
<th>Tab 2</th>
<th>Tab 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter 1</td>
<td>Parameter 2</td>
<td>Parameter 3</td>
</tr>
<tr>
<td>0000</td>
<td>0000</td>
<td>0000</td>
</tr>
<tr>
<td>Parameter 5</td>
<td>Parameter 6</td>
<td>Parameter 7</td>
</tr>
<tr>
<td>0000</td>
<td>0000</td>
<td>0000</td>
</tr>
</tbody>
</table>
3 Description of the Library

Configuration:
A “Tab” view is already stored in the “Mixed Examples” folder in the library. The contents of the tabs are each implemented in a separate screen. The different tabs allow you to set the respective screen in the faceplate via a “click” event.

Figure 3-13 HMI screen “Tab view”

3.3.2 Script Functions of the Navigation Levels

Within the navigation levels, several scripts from the global “Navigation” module are used.

Figure 3-14

Note
To ensure that the scripts are executed correctly, the screen objects within the navigation must be numbered sequentially. The name before the number (e.g. “btnSubNav”) can be freely defined, but must remain the same for all elements.

e.g. “btnSubNav1”, “btnSubNav2”, “btnSubNav3”, etc.
“HideMainNavigation” function
The script function hides the first-level navigation “MainNavigation”.

“HideSubNavigation” function
The script function hides the second-level navigation “SubNavigation”.

“HideThirdNavigation” function
The script function hides the third-level navigation “ThirdNavigation”.

“HighlightButton (ButtonName)” function
The script function highlights the screen object in the accent color that was defined in the “ButtonName” parameter.

Note
The main navigation screen objects are named “txtMainNav..” by default. If you change the name of the screen objects within the MainNavigation, you must adapt it in the script function as well.

“ShowMainNavigation” function
The script function displays the first-level navigation “MainNavigation”.

“ShowSubNavigation (ButtonNumber)” function
The script function shows the second-level navigation “SubNavigation”. With the parameter “ButtonNumber”, you can specify which screen object of the “SubNavigation” should be set to active.

Note
If the second-level or third-level navigation is displayed again after a screen change, the screen object specified with the “ButtonNumber” parameter is set to active.

“ShowThirdNavigation (ButtonNumber)” function
The script function shows the third-level navigation “ThirdNavigation”. With the parameter “ButtonNumber”, you can specify which screen object of the “ThirdNavigation” should be set to active.
3.4 Elements of the HMI Template

3.4.1 Title bar

The “Title bar” is located at the top of the screen. It contains a short title that shows the operator of the plant which area of the visualization it deals with. The title should be informative. The menu can be activated using the menu icon on the right-hand side.

Dark gray is used as the background color for the “Title bar”.

Figure 3-15 Title bar with access to the first menu level

Note: Clicking the text of the “Title bar” will take you to the overview screen.

3.4.2 Status bar

The “Status bar” is found directly beneath the “Title bar”. The “Status bar” contains dynamic components and displays:

- the state of the different sections of the system
- the parameter set currently being used
- and the user

Figure 3-16 Status bar

The color of the left icon visualizes the current operating state of the system. The color white is used for the “Status bar”. This makes it stand out from the upper “Title bar” and the lower main window.

Statuses of the Status bar

In this paragraph, the display of the different plant statuses is briefly explained. Depending on the status of the machine (Variable: CurrentMachineState) the “Status bar” changes as follows:

Figure 3-17 Normal operating state:

CurrentMachineState = 1

Figure 3-18 Normal operating state, startup:

CurrentMachineState = 2-3

Figure 3-19 Error, system stoppage:

CurrentMachineState = 4
### 3.4.3 Option Panel

The “Option Panel” can be displayed on the right side of the screen.

The following actions can be performed in the Option Panel:

- Functions or actions that have a temporary effect on the machine.
- Global functions that should be accessible from several or all HMI screens.

Figure 3-20, Option Panel with 4 buttons

**Access the Option Panel on the right side of the screen:**

Use the button on the right side of the screen to open the Option Panel (see Figure 3-20).

Since the button is relatively narrow, icons must be used here.

Figure 3-21 Example “List view” screen with access to the Option Panel on the right side
3.4.4 Main Window

The screen edges of the Operator Panel are used for navigation or to display global functions. The operating area of the plant or the Main Window is located in the middle of the Operator Panel.

Figure 3-22 Main window of your visualization

This is the area where the operator’s main attention is focused. For this reason, configure the visualization of the machine in the main area of the Operator Panel. This central area takes up about 70% of the display area. The background color is light gray. The contents of the main display can consist of additional tabs or controls for navigation within the screen.

3.4.5 Buttons and Icons

Colors

Configure a palette of preset colors to achieve a consistent design of your configuration. You can store these as “User-defined”. When setting the colors via the quick access, you can select the colors accordingly (see also Chapter 3.2.2).

Figure 3-23
Size

For the HMI Template Suite, a minimum button size of 40x40px has been defined. This ensures that all buttons are of sufficient size to be operated.

Appearance

The uniform design of the buttons is ensured by the use of an operating concept. The following table lists the objects, what they represent, and what they mean.

Table 3-4. Overview of the most important buttons in the project

<table>
<thead>
<tr>
<th>Object name</th>
<th>Appearance</th>
<th>Use/place of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Button”</td>
<td></td>
<td>Standard button, for normal operating action e.g. executing a function or opening a pop-up screen.</td>
</tr>
<tr>
<td>“Cancel_Abort_Close”</td>
<td></td>
<td>Button to cancel actions or close pop-up screens. → no effect on the machine.</td>
</tr>
<tr>
<td>“Delete”</td>
<td></td>
<td>Button that triggers a delete action. → critical actions.</td>
</tr>
<tr>
<td>“Execute_Action”</td>
<td></td>
<td>Button for actions that have an effect on the machine, such as executing script functions or setting machine parameters.</td>
</tr>
<tr>
<td>“StatusBar”</td>
<td></td>
<td>Button for opening the pop-up screens of the Status bar, e.g. login dialog or Recipe view. Button for opening a pop-up screen for controlling the plant module. → Additional content via pop-ups</td>
</tr>
<tr>
<td>“SubNavigation_Active”</td>
<td>Module 1</td>
<td>Navigation button for the “SubNavigation” bar. Display of active status (pressed).</td>
</tr>
<tr>
<td>“ScreenTab_Inactive”</td>
<td>Tab 3</td>
<td>Button for the “Tab bar”, unpressed state</td>
</tr>
<tr>
<td>“ScreenTab_Active”</td>
<td>Tab 3</td>
<td>Button for the “Tab bar”, pressed state</td>
</tr>
</tbody>
</table>

Note

To configure buttons without a color gradient, text fields were used in the “Template Suite_V16 (Unified)”. With WinCC Unified, the event “Click left mouse button” can also be used to execute “Events” on a “text box”. This is done using both mouse and touch operation.
3.4.6 Text and I/O Fields

To ensure a uniform and clean typeface on the Operator Panels, text and I/O fields can be configured in the “HMI Template Suite” in a standardized way. This ensures consistency and allows the HMI to be configured more intuitively and quickly.

Size

Present the text in such a way that the operators can recognize them quickly and reliably. The font size used depends on the distance between the operator and the configured Operator Panel.

Font

“Siemens Sans” was used as the default font for all text and process values.

Appearance of texts

Table 3-5, Overview of the defined text templates

<table>
<thead>
<tr>
<th>Style name</th>
<th>Appearance</th>
<th>Use/place of use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard style</td>
<td>Text</td>
<td>Standard object, unrestricted</td>
</tr>
<tr>
<td>“Regular (center)”</td>
<td>Text</td>
<td>Standard object, unrestricted</td>
</tr>
<tr>
<td>“Regular (right)”</td>
<td>Text</td>
<td>Standard object, unrestricted</td>
</tr>
<tr>
<td><strong>Title bar, Status bar &amp; Pop-ups</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Headline”</td>
<td>Text</td>
<td>Dark heading, unrestricted</td>
</tr>
<tr>
<td>“Headline (Center)”</td>
<td>Text</td>
<td>The middle heading, unrestricted</td>
</tr>
<tr>
<td>“SubHeadline”</td>
<td>Text</td>
<td>Heading, only for pop-up screens</td>
</tr>
<tr>
<td>“TitleBar”</td>
<td>Text</td>
<td>Font, only for the Title bar</td>
</tr>
<tr>
<td>“Navigation”</td>
<td>Text</td>
<td>Font, only for main navigation purposes</td>
</tr>
<tr>
<td>“SubNavigation_Inactive”</td>
<td>Text</td>
<td>Used for active navigation or tab</td>
</tr>
<tr>
<td>“StatusBar_Title”</td>
<td>Text</td>
<td>Heading for the Status bar</td>
</tr>
<tr>
<td>“StatusBar_Text”</td>
<td>Text</td>
<td>Text, only for the Status bar</td>
</tr>
<tr>
<td><strong>Notifications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“Notification_OK”</td>
<td>Text</td>
<td>Notification at the bottom of the screen, for non-critical information</td>
</tr>
<tr>
<td>“Notification_Warning”</td>
<td>Text</td>
<td>Notification at the bottom of the screen, for important information</td>
</tr>
<tr>
<td>“Notification_error”</td>
<td>Text</td>
<td>Notification at the bottom of the screen, for critical information</td>
</tr>
<tr>
<td><strong>Miscellaneous</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>“OptionPanel_Title”</td>
<td>Text</td>
<td>Heading for the Option Panel</td>
</tr>
<tr>
<td>“ContenBoard_Title”</td>
<td>Text</td>
<td>Heading, only for use in HMI faceplates.</td>
</tr>
</tbody>
</table>
3 Description of the Library

<table>
<thead>
<tr>
<th>Style name</th>
<th>Appearance</th>
<th>Use/place of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Default”</td>
<td>[Image]</td>
<td>Display of the stored value or for standard values</td>
</tr>
</tbody>
</table>

### Appearance of I/O fields

Input fields are marked with a white background. If the I/O field does not have a white background or frame, it is not possible to add an entry in the field. The operator can thus see at a glance whether the field allows an entry.

Table 3-6, Overview of the configured I/O fields in the project

<table>
<thead>
<tr>
<th>Name</th>
<th>Appearance</th>
<th>Use/place of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Standard style”</td>
<td>[Image]</td>
<td>Standard object, unrestricted</td>
</tr>
<tr>
<td>“Regular (center)”</td>
<td>[Image]</td>
<td>Standard object, unrestricted</td>
</tr>
<tr>
<td>“Regular (right)”</td>
<td>[Image]</td>
<td>Standard object, unrestricted</td>
</tr>
<tr>
<td>“Regular_Out (left)”</td>
<td>[Image]</td>
<td>Use only to output values</td>
</tr>
<tr>
<td>“Regular_Out (center)”</td>
<td>[Image]</td>
<td>Use only to output values</td>
</tr>
<tr>
<td>“Regular_Out (right)”</td>
<td>[Image]</td>
<td>Use only to output values</td>
</tr>
<tr>
<td>“StatusBar”</td>
<td>[Image]</td>
<td>Used for the Status bar</td>
</tr>
<tr>
<td>“ContentBoard_Output”</td>
<td>[Image]</td>
<td>Output and input field on a “ContentBoard”</td>
</tr>
<tr>
<td>“ContentBoard_Output (center)”</td>
<td>[Image]</td>
<td>Output and input field on a “ContentBoard”</td>
</tr>
<tr>
<td>“ContentBoard_Large_Output”</td>
<td>[Image]</td>
<td>Output and input field on a “ContentBoard”</td>
</tr>
</tbody>
</table>

### 3.4.7 Rectangles

Rectangle styles are defined with the main colors (Colors, see Chapter 3.2.2). The rectangles are defined without a border so that they fit into the specified flat design.
4 Library Elements

This chapter explains the additionally available screens and screen objects and their intended use.

4.1 Screen Objects

4.1.1 Faceplates

You can find the following faceplates in the library: “01 - Resolution independent > 03 - Objects”:

Figure 4-1 Screen object in the library

Note

To be able to use the faceplates in your project, you must first store them in the “Common data > Unified faceplate types” folder.

This step is also required if you move a preconfigured device into your project using drag & drop.

You can interconnect the “faceplates” using the type interface.

1. To do this, select an HMI object in Engineering.
2. In the inspector window, go to the “Properties” tab
3. Open the “Interface” group in the properties under “Miscellaneous”.

HMI Template Suite (Unified)
Article ID: 91174767, V1.0, 04/2020
How to interconnect the individual elements is explained in the corresponding chapter in a table.

Figure 4-2, Faceplate interface in Engineering

<table>
<thead>
<tr>
<th>Interface</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Step1”</td>
<td>Connect one HMI tag for each step. Depending on the value of the tag, the display changes as follows: HMI tag = “0”</td>
</tr>
<tr>
<td>“Step2”</td>
<td>HMI tag = “1”</td>
</tr>
<tr>
<td>“Step3”</td>
<td>HMI tag = “2”</td>
</tr>
</tbody>
</table>

Progress Indicator

Use the “Progress Indicator” to visualize the progress of a process. Each point visualizes one process step. As soon as the step has been completed, it is displayed in blue with a white tick.

Figure 4-3, “Process Indicator”

Value Stepper

The “Value Stepper” is an element with two buttons used to increase or decrease a value. The current value is displayed between the two switches.

Figure 4-4 “Value Stepper” in Engineering

There are different templates of the “Value Stepper” for “Real” and “Int” values in the library.
Table 4-2 Faceplate interface

<table>
<thead>
<tr>
<th>Interface</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Value”</td>
<td>Connect to an HMI tag (Int/LReal). If you click the “-” button, the tag value is reduced by the delta value. If you click the “+” button, the tag value is increased by the delta value.</td>
</tr>
<tr>
<td>“Delta”</td>
<td>Connect to an HMI tag (Int/LReal). The “Value” tag is incremented or decremented by this value.</td>
</tr>
</tbody>
</table>

4.1.2 ContentBoard

The “ContentBoard” is a purely visual tool for grouping and structuring HMI elements on a screen.

The “ContentBoard” consists of a white rectangle. This rectangle is placed behind the HMI objects to represent a functional context.

**Configuration**

Insert a new screen into your image and assign the color white to the rectangle.

**Figure 4-5, “ContentBoard” engineering example**

Note

You can use horizontal and vertical lines within the content board as additional structuring features.
4.2 HMI Screens

In the library, you can find ready-made HMI screens for various applications. These templates should support you in creating your own HMI Operator Panel. The following types of templates are at your disposal:

- Dashboards
- Machine overviews
- Wizard
- Function panel
- Notifications
- Additional Example Screens

Figure 4-6 Example HMI screens

Note
The screens serve as a template for your visualization. You still have to connect the objects accordingly so that the objects can display process values.
4.2.1 Dashboards

With a Dashboard, you can display the most important information and evaluations such as the “efficiency” or “produced quantity” of the machine. Furthermore, the most important HMI Screens are linked to it.

The Dashboard, therefore, displays the most important information about a machine and links to other HMI screens at a glance.

In the library, different versions are preconfigured for different application scenarios. From the multitude of display formats, you can always put together new Dashboards individually adapted to your machine. In addition to the two variants shown, further variants are available in the library.

Figure 4-7 Example Dashboards
4.2.2 Machine Modules

The Machine Modules Overview allows you to keep track of your area of responsibility at all times. The machine module overview pages show the machine states or possible errors for each subarea or module and thus provide a good overview.

One click takes you to the detailed view of a module. In addition to the two variants shown, further variants are available in the library.

Figure 4-8 Example Machine Modules Overview
4.2.3 Wizard

Use

Use a “Wizard” to guide the operator through some steps in a predefined order. The Wizard should always appear on the entire screen. This allows the operator to concentrate fully on the current step. Only apply the new settings to the configuration once the operator has completed all steps. For the Wizard, versions with 3 to 5 operating steps are available. Figure 4-9, Example Wizard (4 steps)

4.2.4 Notifications

Use

Notifications are displayed at the bottom of the screen. If you are in second-level navigation, the message overlays the navigation elements (see Fig. 2-14). If you do not use the second-level navigation, the notification also appears along the bottom of the screen.

Figure 4-10 Example notification

A short Notification is Best
4.2.5 Function Panel

You can use the “Function Panel” to dynamically enable or disable a specific functionality or module of your machine.

By pressing a button, the previous state is inverted (two states). Depending on the status, it should be displayed with a different color.

Different versions are available for different panel sizes and variants with 4, 8, and 16 buttons.

Figure 4-11 Example function panel

![Function Panel Example](image-url)
4.2.6 Additional Example Screens ("Mixed Examples")

Additional example screens ("Mixed Examples") are preconfigured in the library in order to clarify the visualization concept and promote ideas for your own implementation.

In addition to the two variants shown, further variants are available in the library.

Figure 4-12 Example visualization
5 Notes on Configuration

Requirements

Before you start configuring your HMI Operator Panel, you must prepare a complete design concept with concrete visualization ideas.

Note

If you need more information and tips on creating a design concept, take a look at the free “HMI Design Masterclass”.

The “HMI Design Masterclass” gives you an introduction to the topic of HMI design in 7 x 10 min video units.

Link to the Masterclass: https://www.siemens.de/hmi-design-masterclass

Integrating the library

1. Download the library from the article page and unzip it. https://support.industry.siemens.com/cs/ww/en/view/91174767

2. Open the library with the TIA Portal. Create a new project or open an existing configuration.

3. Open the “Libraries” task card (1).

4. Then open the “Global libraries” palette (2).

5. Click the icon to open a library (3). The “Open Global Library” window opens.

Figure 5-1
6. Select the library
   - In the window, navigate to the file folder where the library file is located (1).
   - Select the file “HMI Template Suite (WinCC Unified)” (2).
   - Then click “Open” (3).

Figure 5-2

7. View of the open library file (1).
   From here you can navigate to the screen objects or the fully configured HMI Operator Panels.

Figure 5-3
8. Once you have selected the appropriate object, move the object to the project directory using drag & drop. In this case, the fully configured “MTP1200” is added to the project directory using “Add new device”.

**Note:**
The Operator Panels are sorted by resolution in the “00 – Device” folder. All elements (navigation bars, example screens, etc.) of the library are already included in these Operator Panels.

9. In the next step, copy the faceplate from the library into your project (see Chapter 4.1.1).

10. The Operator Panel is now fully configured. You can test it immediately with the runtime simulation or load it into a real Operator Panel. For this, adjust the IP address to your configuration.

**Note**
If you add an Operator Panel to your project, you must also add the faceplates from the folder “01-Resolution independent > 03 -Faceplates” in the project navigation under “Common data > Unified faceplate types”.

**Using additional screen objects**
Use the other screen objects, as well as the preconfigured HMI screens and assemble your visualization step by step. You can remove unused elements from the Operator Panel.
5.1 Setting the Language

The stored projects and screen objects have been created in the following languages.

- German (Germany)
- English (United States)

For the project texts to be displayed correctly, the previously mentioned languages must be activated. Check the language settings in your project.

- “Project navigation > Languages & resources > Project languages”
  Figure 5-5

- “Project navigation > Configuration > Runtime settings”
  Figure 5-6
5.2 Creating Templates with Faceplates

A “01_ScreenLayout” screen with several faceplates is created in the library (see also Chapter 3.3). You can create your templates according to the arrangement of the individual faceplates. You can use the faceplate Object property “Visibility” to define in which screen the faceplate should be visible.

Figure 5-7

Accessing screens via navigation levels

The navigation levels can be used, for example, to access screens. To configure these, proceed as follows:

1. Select the screen object that you want to use to switch screens.
2. Open the “Events” of the screen object.
3. Add the “ChangeScreen” system function

Figure 5-8
4. Enter the name of the image to be displayed in the center faceplate.
5. Change the input mode for the faceplate path to “String”.
6. Enter the path “../swContent” in the field “Faceplate path”.

Figure 5-9

Note

Runtime screen
The button for accessing the currently active screen is always displayed in the accent color.

Highlighting the active screen is done using the script function “HighlightButton” in the Global Module “Navigation”.
5.3 Accessing Screens as Pop-Ups

In WinCC Unified, you can access screens as pop-ups. The system function “OpenScreenInPopup” is used for this.

Note: By setting the “WindowFlags” property to zero, you hide all faceplate properties (frame, moveable, etc.).

Block background

To focus on the content of the screen (opened as a pop-up), the background is displayed as locked. For this purpose, a semi-transparent rectangle has been configured in the “01_Screenlayout” screen in level 6, which is switched to visible when the screen is displayed.
5.4 Example of Machine Operation

This chapter shows the basic operation of the “HMI Template Suite”.

In this application example, the “Application” button is not used to execute any function. Create your own visualization of your system, which you can access with the “Application” button.

An example is shown of what the operation of your machine can look like.

First menu level

1. Click the hamburger menu in the upper right corner (1).
   In this first menu level, you have access to your main visualization, a message and diagnostics window, and a settings page.

2. Click the first “Application” button to start your visualization.

Figure 5-12, Dashboard visualization
Overview of using Dashboards

A Dashboard is recommended for the Start Page, e.g. with the screen “SCREEN_01_Dashboard_Overview_3”. This screen shows both the current efficiency and that of the last 3 days.

On the left you can see 2 modules. The button allows you to then jump from the Dashboard to the Module Overview.

Figure 5-13, Dashboard visualization
6 Appendix

6.1 Service and support

Industry Online Support

Do you have any questions or need assistance?
Siemens Industry Online Support offers round the clock access to our entire service and support know-how and portfolio.
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https://support.industry.siemens.com

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• Spare parts services
• Repair services
• On-site and maintenance services
• Retrofitting and modernization services
• Service programs and contracts
You can find detailed information on our range of services in the service catalog web page:
https://support.industry.siemens.com/cs/sc

Industry Online Support app

You will receive optimum support wherever you are with the "Siemens Industry Online Support" app. The app is available for Apple iOS, Android and Windows Phone:
https://support.industry.siemens.com/cs/ww/en/sc/2067
6.2 Links and literature

Table 6-1

<table>
<thead>
<tr>
<th>No.</th>
<th>Subject</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Siemens Industry Online Support</td>
<td><a href="https://support.industry.siemens.com">https://support.industry.siemens.com</a></td>
</tr>
<tr>
<td>2</td>
<td>Link to the article page of the application example</td>
<td><a href="https://support.industry.siemens.com/cs/ww/en/view/91174767">https://support.industry.siemens.com/cs/ww/en/view/91174767</a></td>
</tr>
<tr>
<td>3</td>
<td>Link to the HMI Design Masterclass Video series</td>
<td><a href="https://www.siemens.com/hmi-design-masterclass">https://www.siemens.com/hmi-design-masterclass</a></td>
</tr>
<tr>
<td>4</td>
<td>Link to the HMI Template Suite page</td>
<td><a href="https://www.siemens.com/hmi-template-suite">https://www.siemens.com/hmi-template-suite</a></td>
</tr>
</tbody>
</table>

6.3 Change documentation

Table 6-2

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1.0</td>
<td>04/2020</td>
<td>First edition</td>
</tr>
</tbody>
</table>