HMI Template Suite

The HMI Template Suite assists you in creating a modern and functional HMI design with the help of templates, screens, and objects.

WinCC Comfort V16, WinCC Basic V16

https://support.industry.siemens.com/cs/ww/en/view/91174767

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1 Introduction

1.1 Overview

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

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

Figure 1-1 Visualization with the "HMI Template Suite"
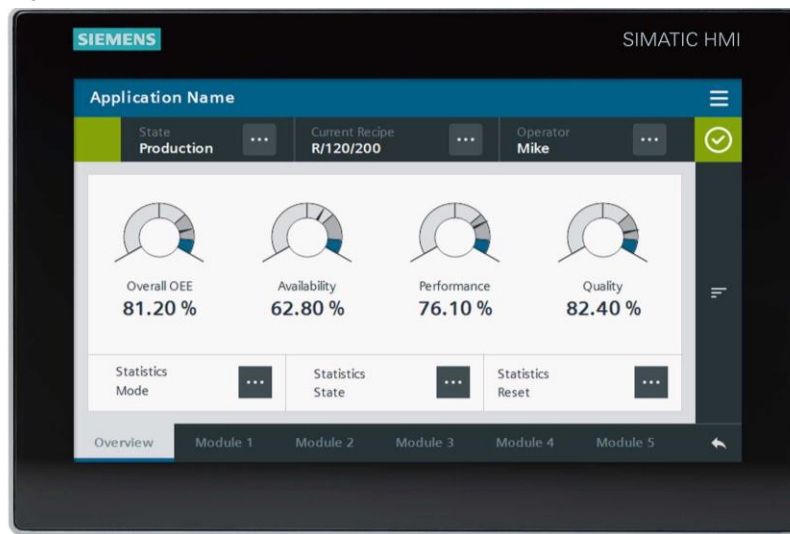
Layout and design are designed for smooth operation, transparency, and scalability. In this way, you can simplify the operation of your machine and reduce operator errors.

1.2 Principle of Operation

The basis of the "HMI Template Suite" is a fully configured Operator Panel. This Operator Panel uses the style "HMI Template Suite V2.x.x" as well as basic navigation and operating functions. On this basis, you can easily build and extend your project modularly using further HMI objects from the library.
This gives you a uniform "look & feel" with a consistent operating concept, in addition to saving time during configuration.

1.3　Components Used

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

Table 1-1

Component	Quantity	Item number	Note
SIMATIC HMI TP900 Comfort	1	6AV2124-0JC01-0AX0	Alternatively, you can use Operator Panels in sizes from 7 to 12 inches.
SIMATIC HMI KTP 900 Basic	1	6AV2123-2JB03-0AX0	Alternatively, you can use Operator Panels in sizes from 7 to 12 inches.
WinCC Comfort V16	1	6AV2101-0AA06-0AA5	Engineering in the TIA Portal.
WinCC Basic V16	1	6AV2100-0AA06-0AA5	Engineering in the TIA Portal

This Application Example consists of the following components:

Table 1-2

| Component	File name	Note
Library	HMI_Template_Suite_Libraries_CODE_V16.zip	You can download the library under the Entry ID 91174767
Documentation	91174767_HMITemplateSuite_V3_DOC_en.pdf	This document

1.4   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 in resolutions of 800x480 pixels and 1280x800 pixels for WinCC Comfort and WinCC Basic.

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

Use the preconfigured Operator Panels that are stored in the library under the different resolutions in the folder "00 – Device".
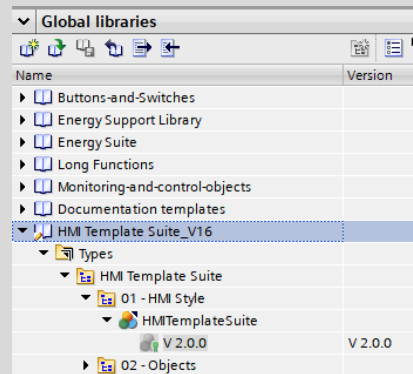
Figure 1-2
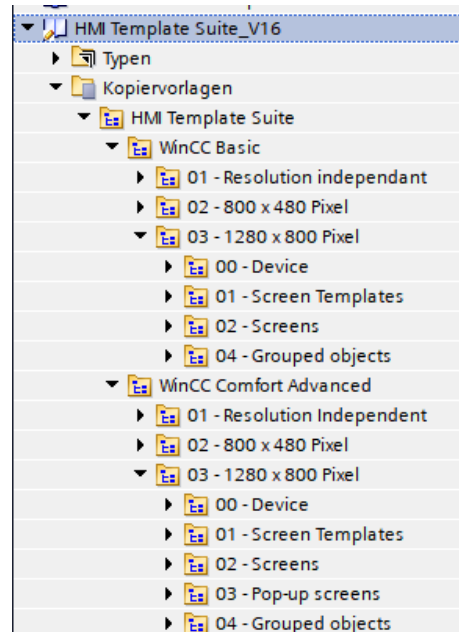
- KTP900 Basic
- KTP1200 Basic
- TP900 Comfort
- TP1200 Comfort
- TP1200 Comfort Upgrading
  (The Panel is identical to the TP1200 Comfort Panel. Additional screens are integrated, which can be accessed via the template screen "02_Two_Nav_Levels".)

Note	When integrating HMI objects into your own Operator Panel, make sure to use the "HMITemplateSuite" style.

You can access the following content:

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 Diagnosis Pages
- HMI Templates for different deep 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 foundation and enhance it using the other objects from 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 screen in the
"01 – Resolution Independent > 01 – Pop-up screens" subfolder.
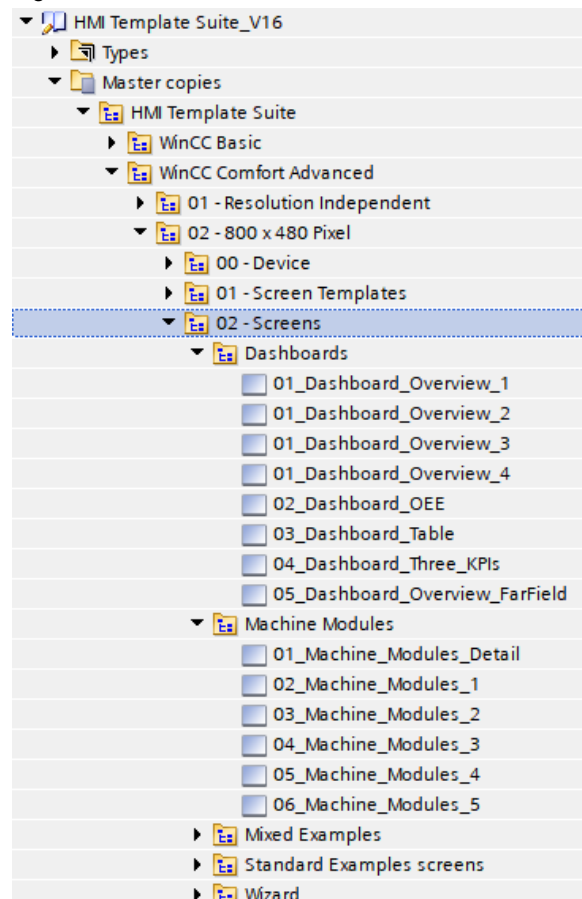
Figure 1-3, Pop-up screens
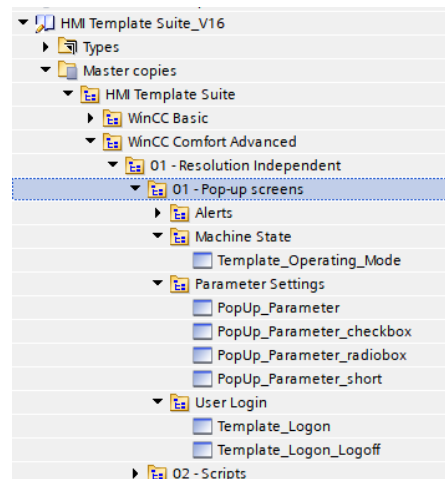
Preconfigured HMI screens

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

| Note	You can find the HMI screens in the "02 – Screens" subfolder. They are stored according to resolution.

Figure 1-4, HMI screens

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 levels of navigation.

Note	You can find the navigation and control panels in the "04 – Grouped objects" subfolder.

Figure 1-5, Navigation and control objects
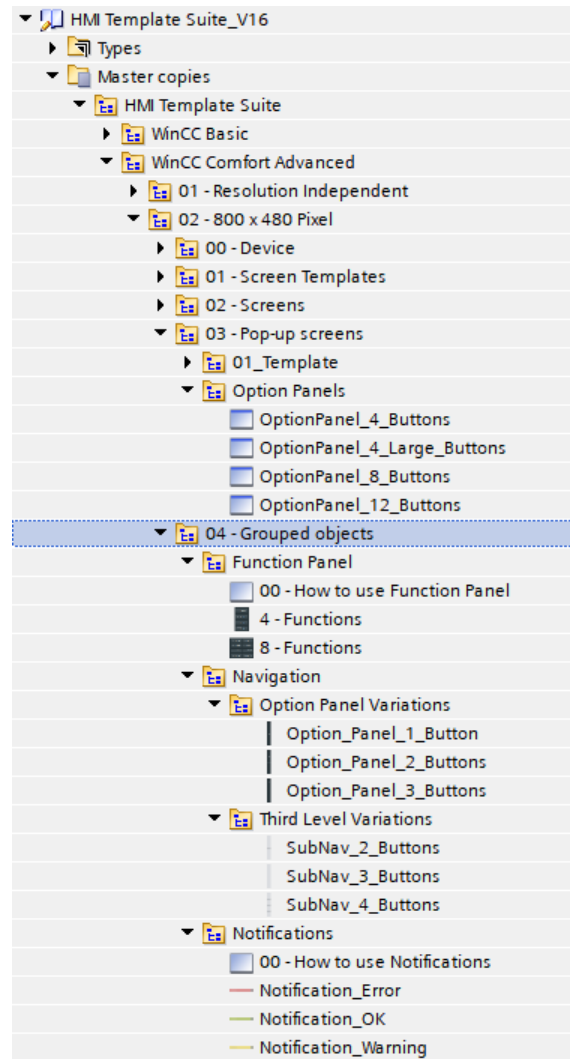
1.5   Differences in Functionality Between SIMATIC Comfort and Basic Operator Panels

The concept is designed and optimized for the functionalities of WinCC Comfort Operator Panels. Due to the different functional scope of the WinCC systems, some functions and HMI elements cannot be displayed in other WinCC systems. The adaptations and changes of the "HMI Template Suite" for the individual WinCC systems are described in the following chapter.

Colors

Compared to SIMATIC HMI Comfort or Mobile Panels, the SIMATIC HMI Basic Panels have a limited color space. The colors used in the library are automatically converted to the nearest possible color in the RGB color space. Slight color deviations may therefore occur automatically.

Pop-up screens

If a pop-up screen is included in the concept, it is converted into a full-screen visualization in WinCC Basic. The full screen mode allows the operator to close the screen only with the "Close" button after it has been entered. Usability is, therefore, comparable to that of pop-up screens. When the operator clicks on the "Close" button, the last active screen with the navigation bars is displayed again.
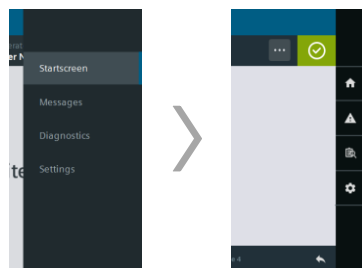
Figure 1-6
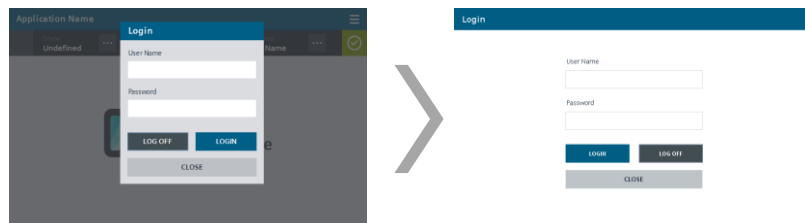
Navigation slide-in

The slide-in for the first menu level cannot be displayed in WinCC Basic. As an alternative, a permanently visible navigation bar is displayed on the right side of the screen. The navigation bar is configured in WinCC Basic for all HMI templates. By using icons for the navigation bar, you save space for your visualization.

Figure 1-7

HMI Types

The screen objects in Chapter 2.1 are available as HMI types. HMI types are not supported in WinCC Basic Engineering. The objects can, therefore, not be used for Basic Panels.

1.6 Color and Design Concept

1.6.1 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 chosen for this project.

Colors:

- An accent color
- Various graded gray tones for navigation
- Light gray for the Main Window, to operate the plant

The accent color is used to highlight objects such as the title bar or to highlight 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 background of the main screen is bright. The main content stands out because of its placement in the middle of the Operator Panel and the high-contrast differentiation from the other objects at the edge of the screen.

HMI styles

Using the HMI styles ensures a uniform design in the TIA Portal project.

The HMI style of the "HMITemplateSuite V2.0.0" defines the design of the elements used.

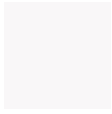| Note	The HMI style is optimized for the "Siemens Sans" font. If you use other fonts, optical deviations may occur.

Figure 1-8, "HMITemplateSuite" HMI style
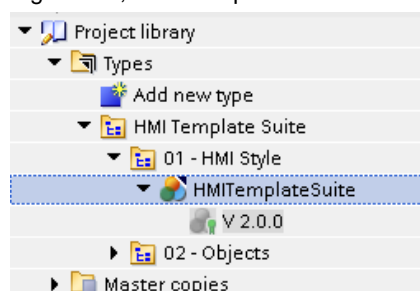
1.6.2 Colors

The following colors in the HMI style are used for the visualization or for HMI objects.

Table 1-3, Main colors

Color	RGB color code	Function
	0, 95, 135	Accent color, blue, Title bar
	218, 220, 224	Light, Main window
	39, 51, 56	Dark gray, Status bar (background)
	64, 77, 83	Gray, Status bar (buttons)
	196, 199, 204	Light gray, Option Panel, background
	249, 247, 248	White, ContentBoard

The following colors are defined for status displays:

Table 1-4, Status colors

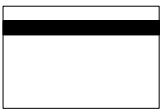| Color	RGB color code	Function
	234, 206, 33	Warning color 1
	231.121, 16	Warning color 2
	202, 51, 51	Alarm
	133, 164, 7	Status OK

1.7 HMI Template Design

This chapter covers the design and concept of the "HMI Template Suite". The prefabricated Operator Panel already contains the layout, navigation, and user administration, as well as signaling and diagnostic systems.

1.8 Overview of Layouts

The following names are predefined for the individual objects of the "HMI-Template Suite". In Table 1-5 the elements and their intended use are listed.

Table 1-5, Designation of the levels of navigation

|	Element	Position	Uses
1.	Title bar		Display of the title, opening the option panel
2.	Status bar		Displaying important information, e.g., current recipe, logged in user, or state of the machine The display can be adjusted according to the machine
3.	Navigation slide-in		**First-level navigation:** Display of the menu and switching between modules, or displaying messages or settings
4.	SubNavigation		**Second-level navigation:** Navigation bar at the bottom edge of the screen. Within a machine module
5.	Thirdlevel-Navigation		**Third-level navigation:** Additional level for dividing the controller, optional

Note	An additional level of navigation is possible in the "Tab" view. You can find configuration details for this level of navigation in Chapter 1.8.1.

1.8.1 Levels of Navigation in Detail

First-level navigation

Figure 1-9 HMI Template Suite, first menu level
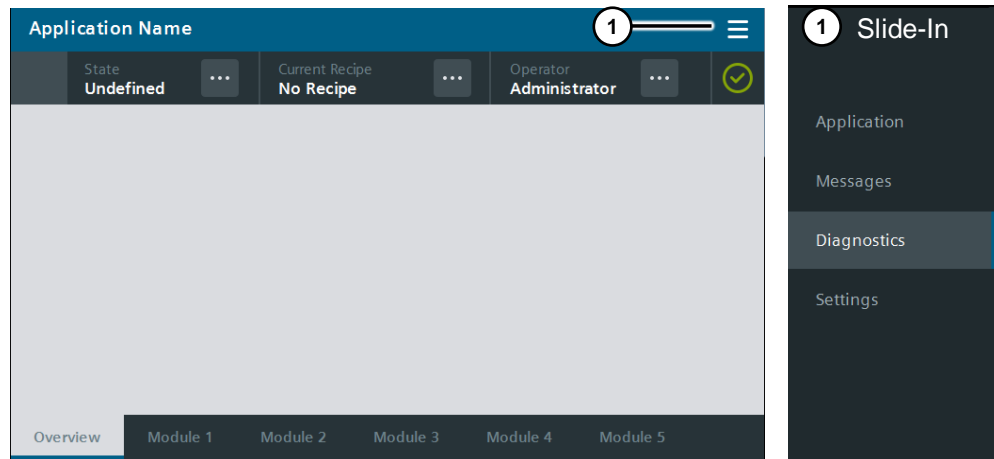
First-level navigation is triggered using a slide-in on the right-hand side.

The slide-in gives you access to the global HMI screens. You can use it to switch between the configured application, the global message page, and the diagnostics page. In "Settings", you can, for example, change the display language or the brightness of the Operator Panel.

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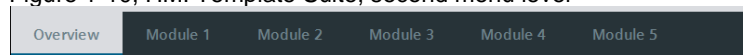The first menu level is already included in the preconfigured Operator Panel.

Note	Please note the differences for WinCC Basic Operator Panels, see Chapter 1.5

Second-level navigation

Second-level navigation is the main navigation of a module. It is located at the bottom of the screen and is permanently visible.
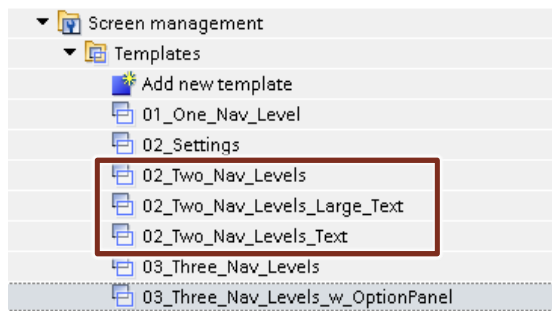
Figure 1-10, HMI Template Suite, second menu level

You can switch between the individual HMI screens of a plant module using the navigation bar.

Configuration
Second-level navigation is contained in the "Two_Nav_Levels*" HMI Templates. In these templates, you can configure page requests and adjust the texts.
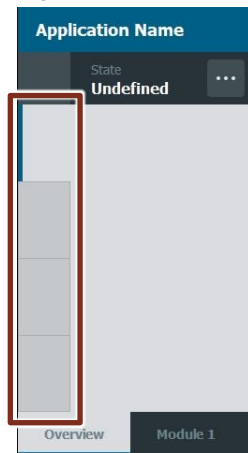
Figure 1-11, HMI Templates, second-level navigation

Third-level navigation (optional)

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

Figure 1-12, Third-level navigation bar

The navigation bar is designed for icons, as text-based navigation takes up too much space on smaller Operator Panels and does not allow enough room for plant configuration.

Configuration

Third-level navigation is contained in the HMI Templates "Three_Nav_Levels*". In these templates, you can configure the page views and insert the icons for the buttons of the third navigation bar.

Figure 1-13 HMI templates, third-level navigation
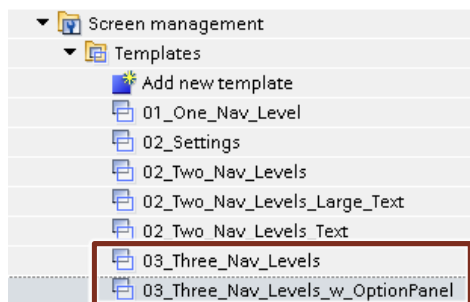
Fourth-level navigation (optional)

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.
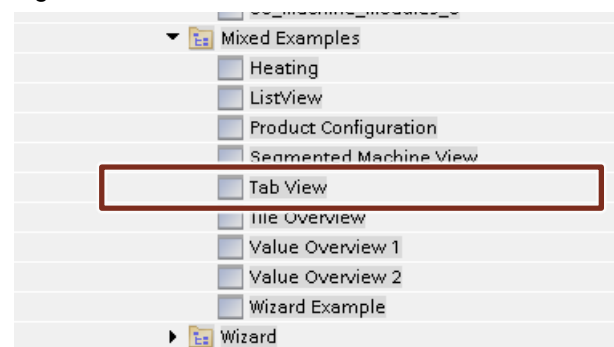
Figure 1-14 Example visualization
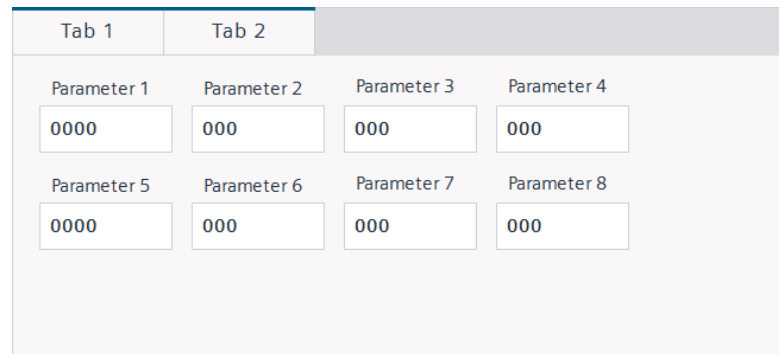
Configuration:

A "Tab" view is already stored in the library as an "example screen".
With the different tabs, you can set a tag via a "Button Click" event. You can show the corresponding content with "Visibility" animations.

Figure 1-15, HMI screen "Tab View"

1.8.2 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 status of the machine?

• How is the operator shown when or where an operator action is necessary?

• How is it made clear to the operator of the implications of an operator action?

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.

1.9 Elements of the HMI Template

1.9.1 Title bar

The title bar is located at the upper edge 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. Accent colors are used for the "Title Bar".

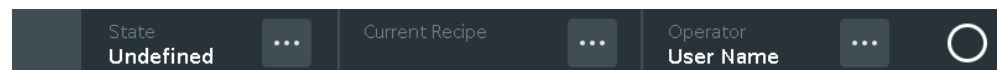Figure 1-16, Title bar with access to the first menu level

1.9.2 Status bar

The "Status bar" is found directly beneath the "Title bar". The "Status bar" is variably structured and shows you:

- the condition of the different sections of the system
- the recipe currently being processed
- the user

Figure 1-17 Status bar

On the right side, the current status of the plant is displayed via the "Diagnostic icon". Click on the "Diagnostic icon" to open the "System Diagnostic Control". A color change and symbol change in the right square of the "status bar" visualizes a change in the diagnostic state of the system.

A color change in the left square visualizes the current operating state of the system.

A shade of dark gray is used for the "Status bar". This helps distinguish it from the "Header line" above and the Main Window below.

Variants of the Status bar

This paragraph briefly explains the various combinations of plant status and diagnostic state issues.

This depends on the machine state (tag: CurrentMachineState) and the error state (tag: DiagState).

Figure 1-18 Normal operating state

CurrentMachineState = 1; DiagState=0

Figure 1-19 Normal operating state, startup

CurrentMachineState = 2-3; DiagState=0

Figure 1-20 Error, system stoppage

CurrentMachineState = 4; DiagState=1

1.9.3 Option Panel

The "Option Panel" can be displayed on the **right side of the screen**.

The following actions should 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.

This is used, for example, to implement manual operation.

Figure 1-21, Option Panel with 4 buttons
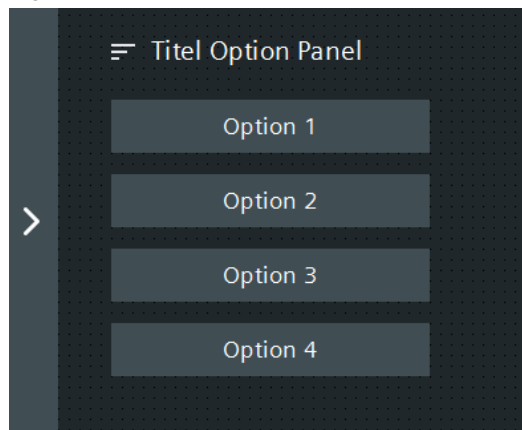
| Note | Please note the differences for WinCC Basic Operator Panels, see Chapter 1.5 "Differences in Functionality Between SIMATIC Comfort and Basic Operator Panels". |

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 1-21).

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

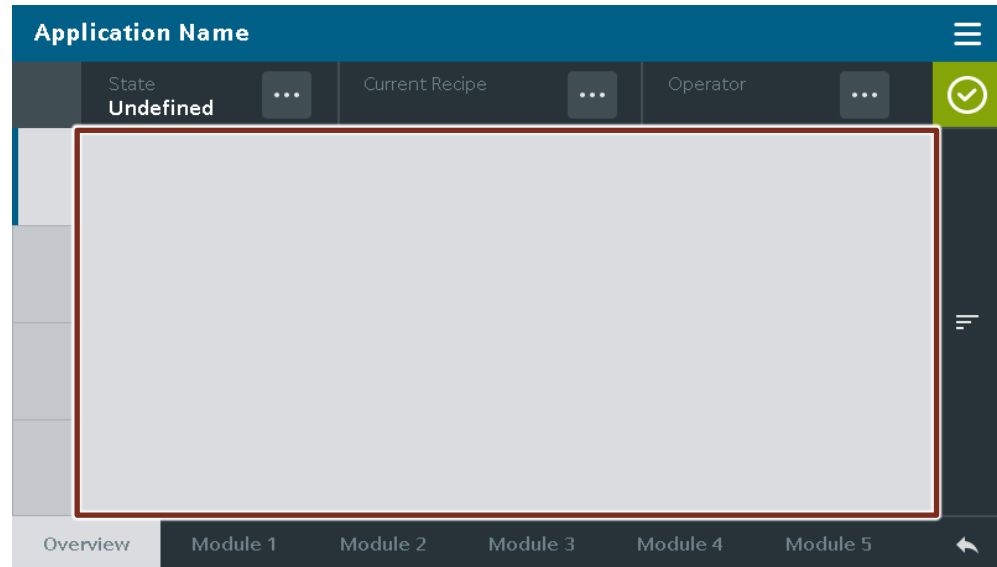Figure 1-22, The "List view" example screen with the Option Panel on the right
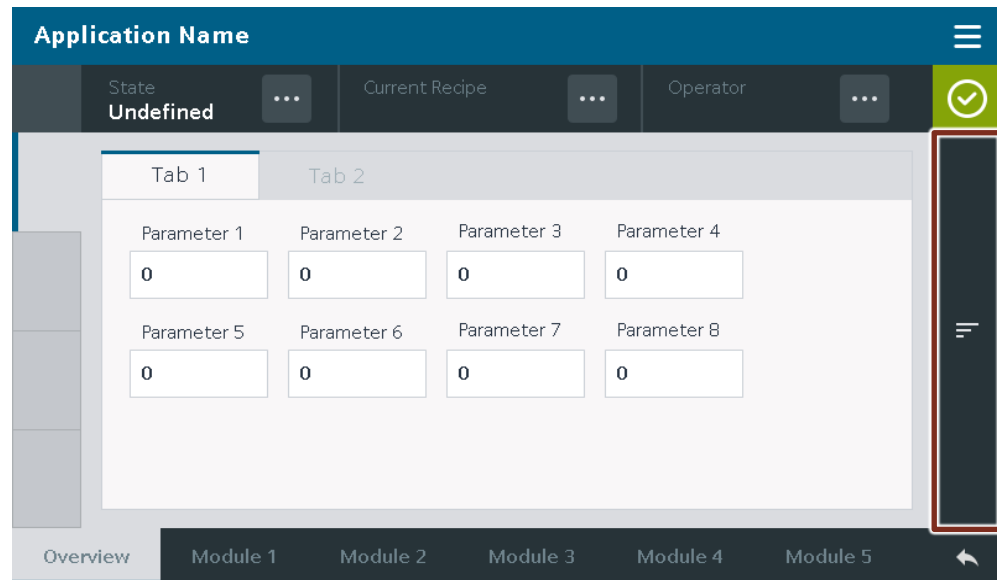
1.9.4   Main Window

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 1-23, Main window of the 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%. The background color is light gray.

The content of the main displays may contain additional tabs or controls for navigating within the screen.

1.9.5   Buttons and Icons

Using HMI styles ensures that the same element design is used consistently for each operator action.
You can customize styles globally via the "Style Editor". The changes are applied immediately to the entire project.

You can find these and other defined buttons, texts, and misc. elements in the "HMITemplateSuite V2.x.x" HMI Style in the project library:

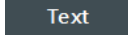Figure 1-24, "HMITemplateSuite" HMI style
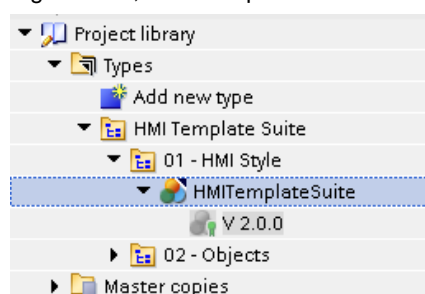
Size

A minimum size of 40x40px has been defined for the HMI Template Suite. This ensures that all buttons can be operated conveniently and easily via the touch screen.
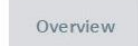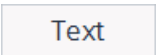
Appearance

Using an HMI style ensures the uniform appearance of the buttons. The following table presents objects in the style of the "HMI Template Suite".

Table 1-6, Overview of the most important buttons in the project

Style name	Appearance	Use/place of use
"Button"	Text	Standard button for normal operator actions such as triggering a function or opening a pop-up screen
"Cancel_Abort_ Close"	CLOSE	Button for canceling actions or closing pop-up windows. ->no effect on the machine
"Delete"	DELETE	Button for actions performing a delete activity. ->Critical actions
"Execute_Action "	LOGIN	Button for actions that have an effect on the machine, such as executing scripts or setting machine parameters.
"Status bar"	...	Button for opening a pop-up window for the Status bar, e.g. a log-on dialog or a recipe view. Button for opening a pop-up screen for controlling the plant module. ➔ Additional content via pop-ups
"SubNavigation_ Inactive"	Overview	Navigation button for the "SubNavigation" bar. Display of inactive status (unpressed).
"SubNavigation_ Inactive"	Overview	Navigation button for the "SubNavigation" bar. Display of active status (pressed).

Style name	Appearance	Use/place of use
"btn_PrevScreen"		When this button is pressed, you leap back to the previous screen.
"ScreenTab_ Inactive"	Text	Button for the "Tab bar", unpressed state
"ScreenTab_ Active"	Text	Button for the "Tab bar", pressed state

1.9.6 Texts and IO Fields

To ensure a uniform and clean typeface on the Operator Panels, templates for texts are defined in the HMI style "HMITemplateSuite".

This not only ensures consistency, but also makes the HMI more intuitive and faster to configure.
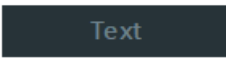
Size
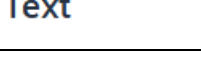
Present the texts in such a way that the operators can recognize them quickly and reliably.

The font size used depends on the distance between the operator and the configured Operator Panel.

Appearance of texts

Table 1-7, Overview of the defined text templates
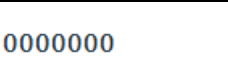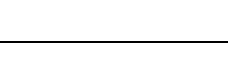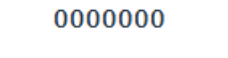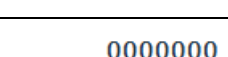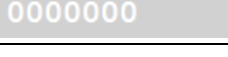
Style name	Appearance	Use/place of use
Standard style	Text	Standard object, free use
"Regular (center)"	Text	Standard object, free use
"Regular (right)"	Text	Standard object, free use
"SubHeadline"	Text	Header. Only used in pop-up screens
"SubHeadline center"	Text	Header. Only used in pop-up screens
"lightHeadline"	Text	Light header, free use
"Headline"	Text	Dark header, free use
"Headline (Center)"	Text	The middle header, free use
"SubNavigation"	Text	Text for the navigation bar
"StatusBar_Display"	Text	Font for the status bar display
"StatusBar_Title"	Text	Header for the status bar
"StatusBar_Text"	Text	Text, only for the status bar

Style name	Appearance	Use/place of use
"TitleBar"	Text	Font, only for the title bar
"navigation"	Text	Font, only for navigation purposes
"OptionPanel_Title"	Text	Header for the option panel
"ContenBoard_Title"	**Text**	Header. Only used in HMI faceplates.
"State"	Text	Machine state display.
"Notification_OK"	Text	Notification at the bottom, For uncritical information
"Notification_Warning"	Text	Notification at the bottom, For important information
"Notification_error"	Text	Notification at the bottom, For critical information

Appearance of IO fields

Input fields are marked with a white background. If the IO field does not have a white background, no input is possible in the field.
The operator can see at a glance whether the field permits an entry to be made.

Table 1-8, Overview of the defined IO field templates

Style name	Appearance	Use/place of use
"Standard style"	0000000	Standard object, free use
"Regular (center)"	0000000	Standard object, free use
"Regular (right)"	0000000	Standard object, free use
"Regular_Out (left)"	0000000	Only used for the output of values
"Regular_Out (center)"	0000000	Only used for the output of values
"Regular_Out (right)"	0000000	Only used for the output of values
"StatusBar"	0000000	Only used for the status bar.
"ContentBoard_Output"	0000000	Output and input field on a "ContentBoard"
"ContentBoard_ Large_Output"	0000000	Output and input field on a "ContentBoard"

Style name	Appearance	Use/place of use
"ContentBoard_Output (center)"	0000000	Output and input field on a "ContentBoard"

1.9.7 Rectangles

Rectangle styles are defined with the main colors (Colors, see Chapter 1.6.2).

The rectangles are defined without a border so that they fit into the specified flat design.

2 Library Elements

2.1 Screen Objects

In this chapter, the additionally available screen objects and their purpose are briefly explained.

You can find the following additional screen objects in the library below: "Type > HMI Template Suite > 02 – Objects":

Figure 2-1, Screen objects in the library
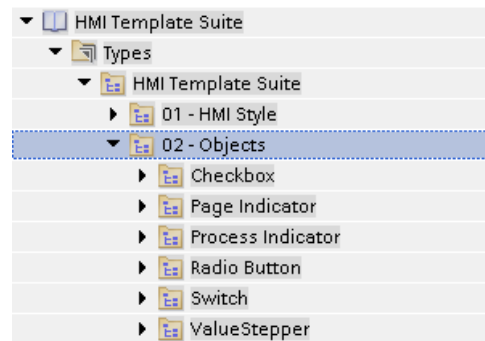
Note	In the "Type Editor" you can globally adapt the existing objects for your project. You can drag & drop types into an HMI screen and link them together.	
	The screen object types are available for WinCC Comfort/Advanced.	

You can link the types via the type interface. To do this, select an HMI object in Engineering. In the Inspector window, go to the "Properties" tab and select "Interface".

How to interconnect the individual elements is explained in the respective chapter in a table.

Figure 2-2, Type interface in Engineering
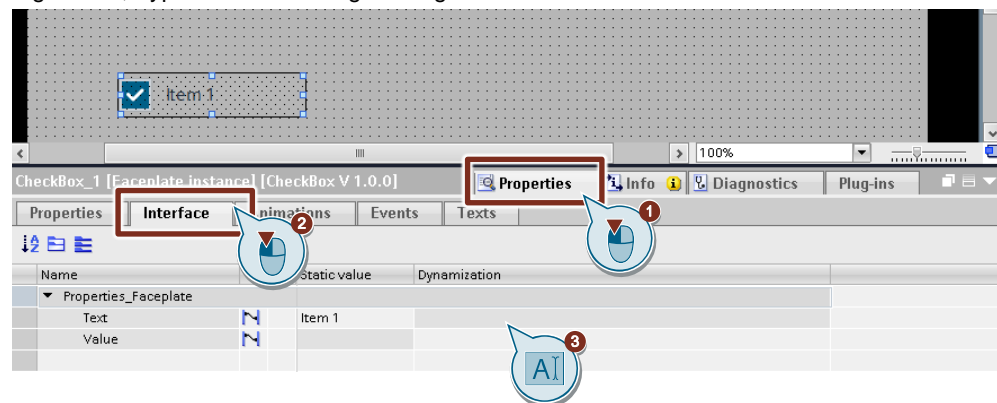
2.1.1 Check Box

Use a check box to select one or more items from a list. After changing the selection, the change is immediately active. If you only want to select one option from the list at a time, it is better to use "Radio Buttons".

Figure 2-3, Check box in Engineering

Interface type

Table 2-1

Interface	Function
"Text"	Interconnect a static text (Display text for the buttons)
"Value"	Connect to an HMI tag (Bool). When the element is clicked, the HMI tag changes to True.

2.1.2 Radio Button

UseRadio Buttons to select one or more elements from a list.

Note:
If you want to be able to select multiple options, use a check box.

Figure 2-4 Radio buttons in Engineering
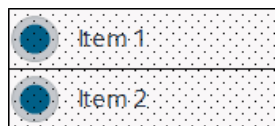
Interface type

Table 2-2

Interface	Function
"Item1" "Item2" "Item3"	Interconnect a static text for each "Item" element (Display text)
"Value"	Connect to an HMI tag (Int). The tag is set depending on the selected "Item" element. The first option has the value "0", the second option the value "1", and so on.

2.1.3 Page Indicator

The Page Indicator shows the current position of the currently selected screen in a flat list of multiple screens. The display appears in a series of small indicator points that represent the screens in the order of their opening. The current indicator point is colored blue. To change the current page, you should place navigation arrows next to the Page Indicator.

This type of display is intended for pages that are on the same hierarchy level. Always center the display at the bottom of the screen.

Versions from 2 to 5 pages are available.

Figure 2-5 "Page Indicator" in Engineering

Interface type

Table 2-3

Interface	Function
"pageIndicatorTag"	Connect to an HMI tag (Int).
	If the tag = "1", the first circle is colored blue. With "2", the second circle, and so on.

2.1.4 Process Indicator

Use the "Process 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 2-6 "Process Indicator" in Engineering

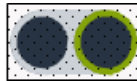**Interface type**

Table 2-4

Interface	Function
"Step1"	Connect one HMI tag for each step.
"Step2"	As soon as the HMI tag = "1", the corresponding step is
"Step3"	colored blue and marked with a white tick.
…	

2.1.5 Switch

Use a "Switch" to turn a single option on or off permanently. After the status change, the change is immediately visible.

Different versions are available.

Figure 2-7 Switch in Engineering

Interface type

Table 2-5

Interface	Function
"Value"	Connect to an HMI tag (Bool). Click on the button to invert the specified tag.

2.1.6 Value Stepper

The "Value Stepper" is a two-button element that increases or decreases a value. The current value is displayed between the two switches. Use the Value Stepper if you want to trigger large predefined value changes with a single click. The element is well suited for enabling predefined leaps in value.

Figure 2-8 "Value Stepper" in Engineering
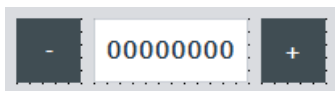
There are different templates of the "Value Stepper" for "Real" and "Int" values in the library.

Interface type

Table 2-6

Interface	Function
"delta"	Connect to an HMI tag (Int/LReal). Assign a start value to this HMI tag. The tag is increased or decreased by this value.
"Value"	Connect to an HMI tag (Int/LReal). If you click on the "-" button, the tag value is reduced by the delta value. If you click on the "+" button, the tag value is increased by the delta value.

2.1.7 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 rectangle into your screen and assign the HMI style "ContentBoard" to the rectangle.

Figure 2-9 "ContentBoard" engineering example
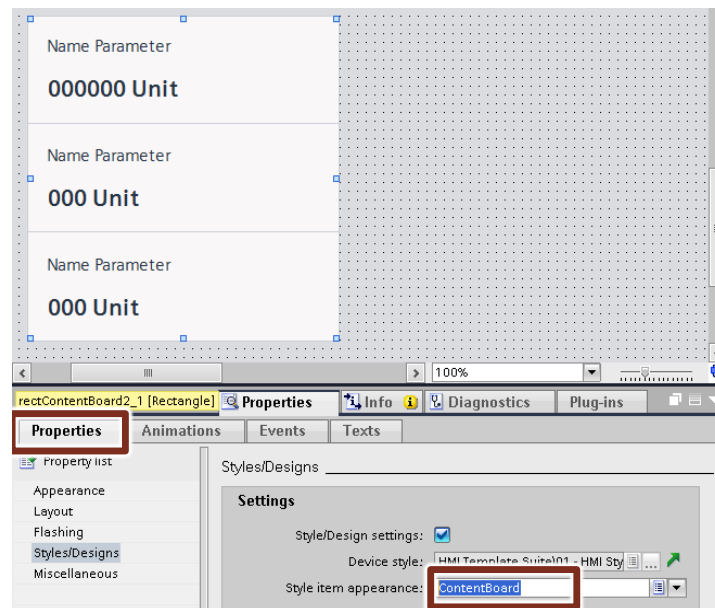
2.2 HMI Screens

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
- Wizards
- Notifications
- Function panel
- Further example screens

Figure 2-10, HMI screen example
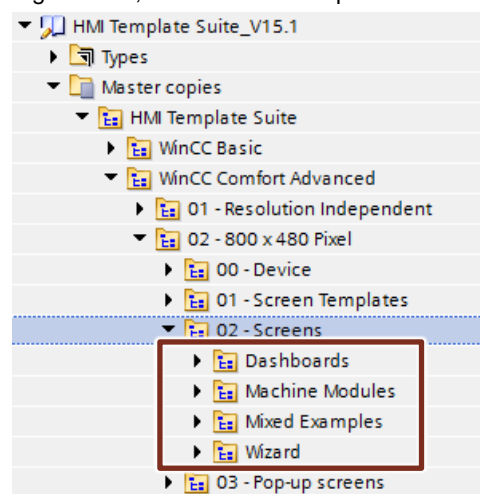
| Note	The screens serve as a template for your visualization. You still have to interconnect the objects so that the objects can display values.

2.2.1 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 important HMI screens are linked to it.

The Dashboard thus 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 2-11, Example dashboards
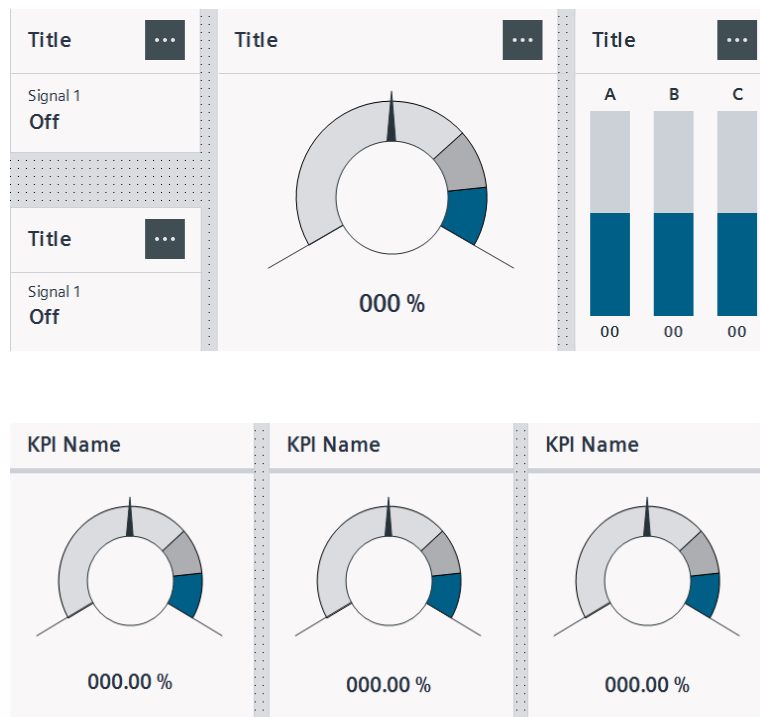
2.2.2 MachineModules

The "MachineModules" 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 2-12 Example module overview

2.2.3   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 when the operator has completed every step.

For the Wizard, versions with 3 to 5 operating steps are available.

Figure 2-13 Example machine module Wizard overview
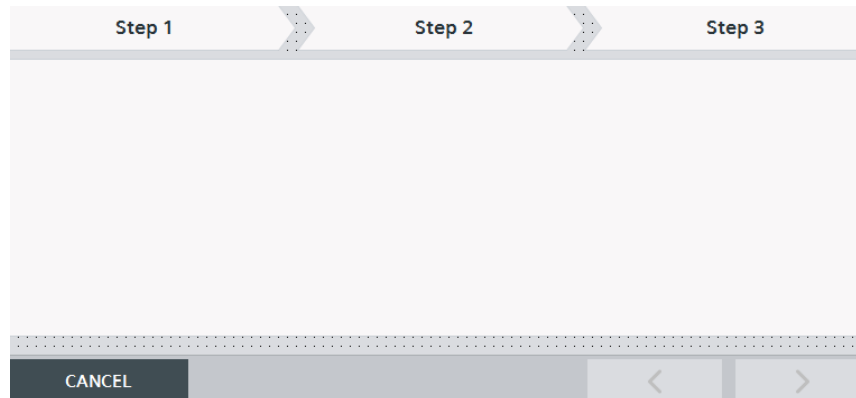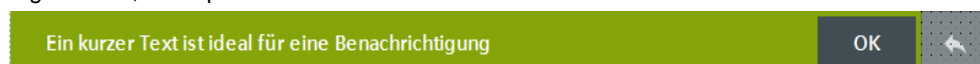

2.2.4   Notifications

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 2-14, Example notification

2.2.5 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). The different state should be represented with a different color.

Different versions are available for different panel sizes and variants with 4, 8, and 12 buttons.

Figure 2-15 Example function panel
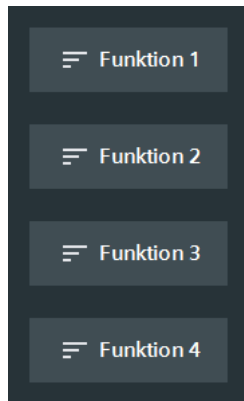
2.2.6 Additional Example Screens ("Mixed Examples")

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 2-16 Example visualization
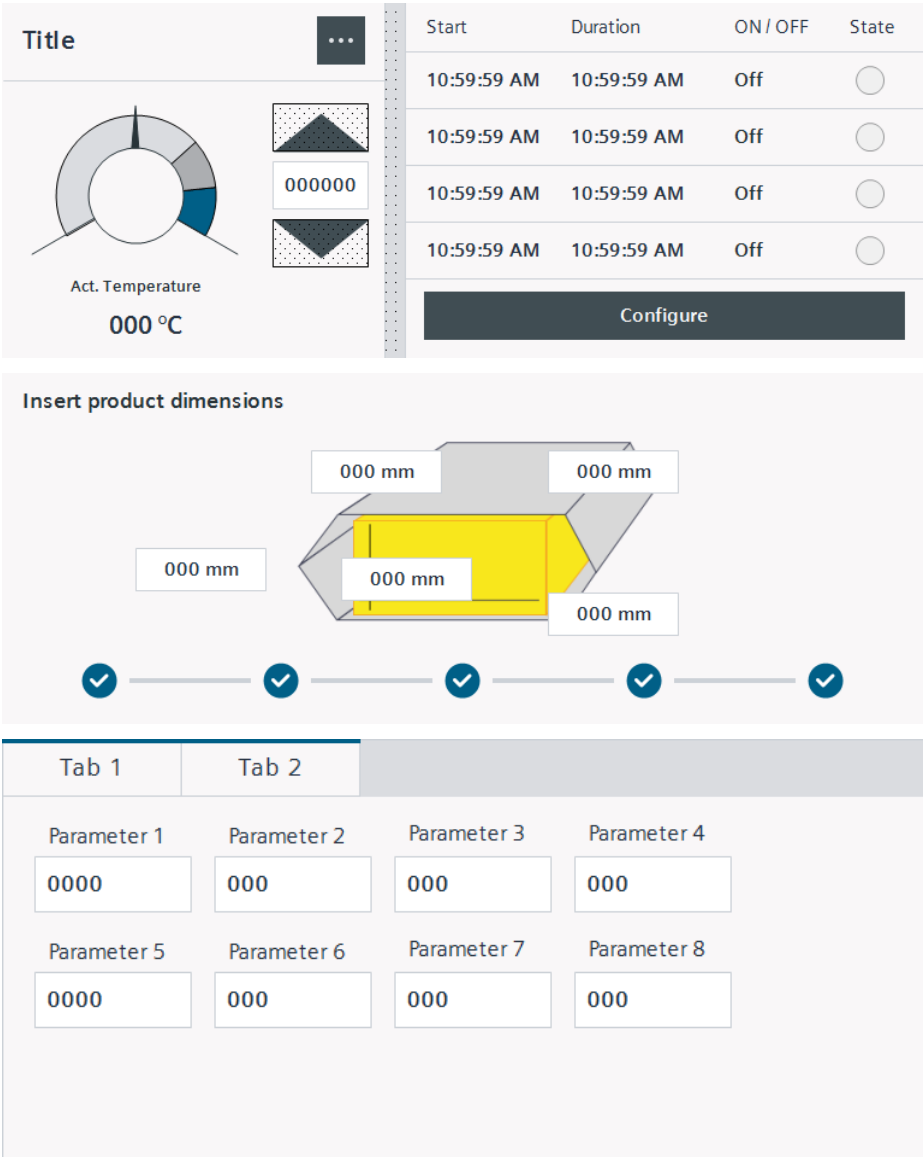
3 Notes on Configuration

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 "HMI Design Masterclass".
	The "HMI Design Masterclass" gives you an introduction to the topic of HMI design in 7 x 10min video units.
	Link to the Masterclass: https://www.siemens.de/hmi-design-masterclass

Integrating an Operator Panel

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 on the icon to open a library (3).
   The "Open Global Library" window opens.

Figure 3-1
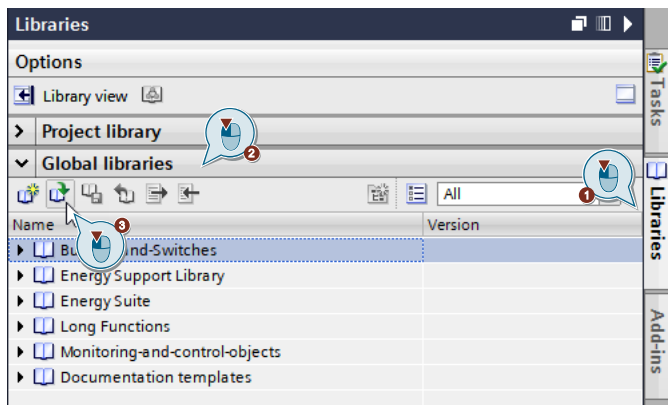
6. In the window, navigate to the file folder where the library file is located (1).

7. If you want to ensure that the existing library file is not accidentally edited, ensure that the check box "Open write protection" is checked (2). Then click on the "Open" button (3).

Figure 3-2
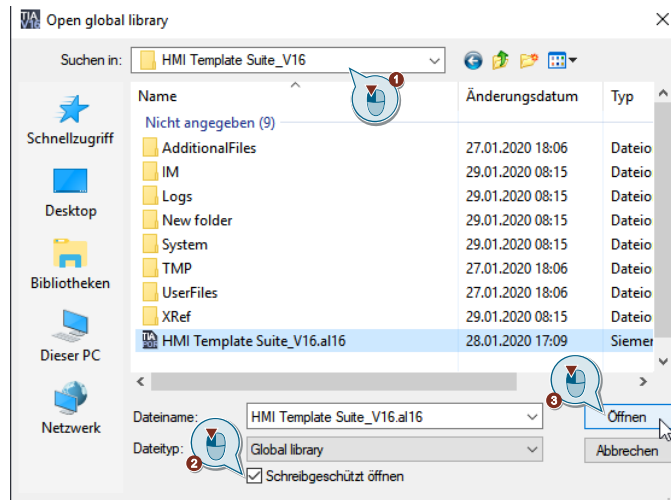
8. View of the open library file (1).
From here you can navigate to the screen objects or the fully configured HMI Operator Panels.
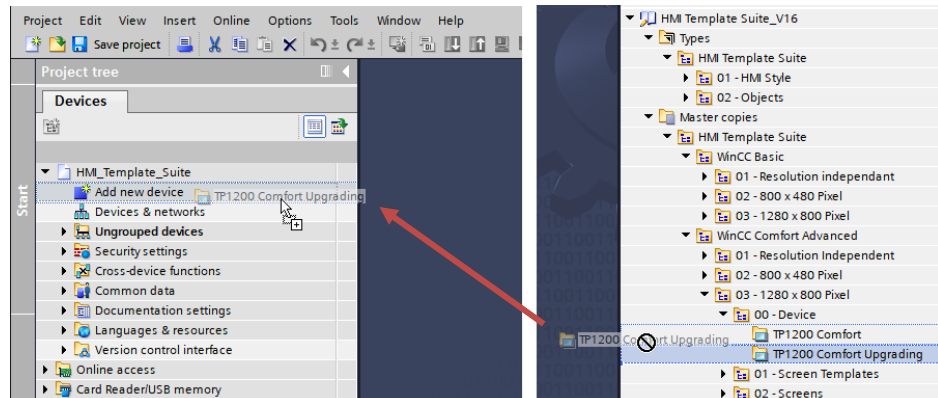
Figure 3-3
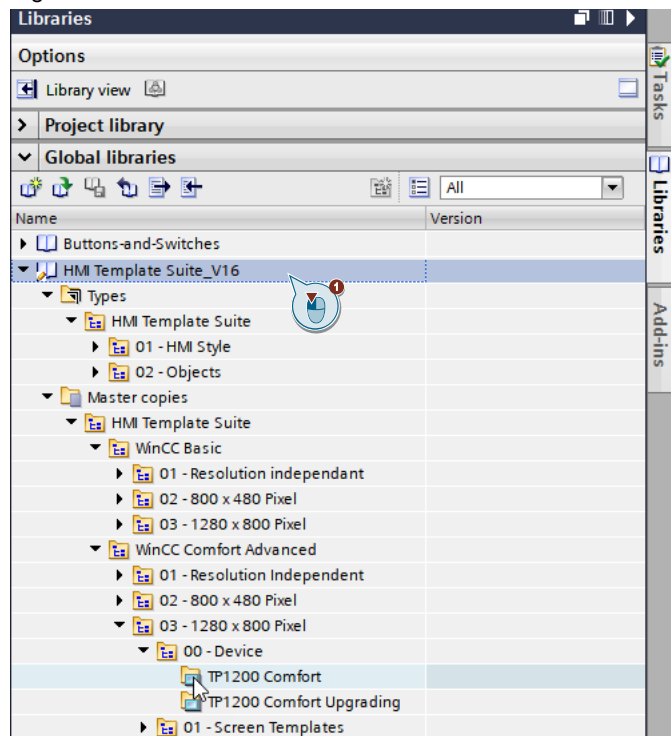
9. Once you have selected the appropriate object, drag & drop the object into the project directory. In this case, the fully configured "TP1200 Comfort" is added to the project directory using
"Add new device".

Note:
The Operator Panels are sorted by resolution in the "00 – Device" folder. The operating principles (navigation bars, HMI style, templates) are already integrated for you in these Operator Panels.

Figure 3-4

10. View of the added "TP1200 Comfort". The Operator Panel is now fully configured. You can test it immediately with the runtime simulation or load it into a real Operator Panel. Adjust the IP address to match your configuration. The runtime starts with the HMI screen "10_Startscreen".

Figure 3-5
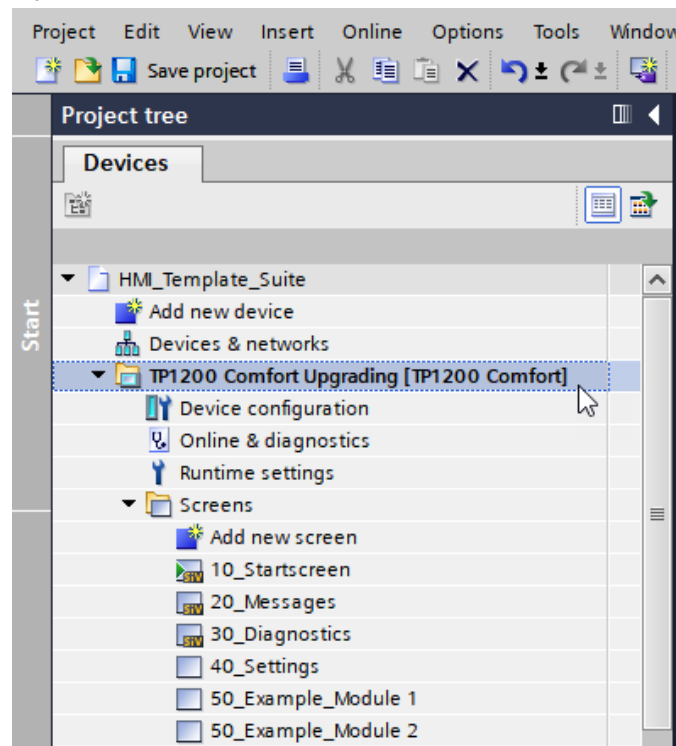
Using additional screen objects

Now use the other screen objects and HMI screens from the library and assemble your visualization step by step.

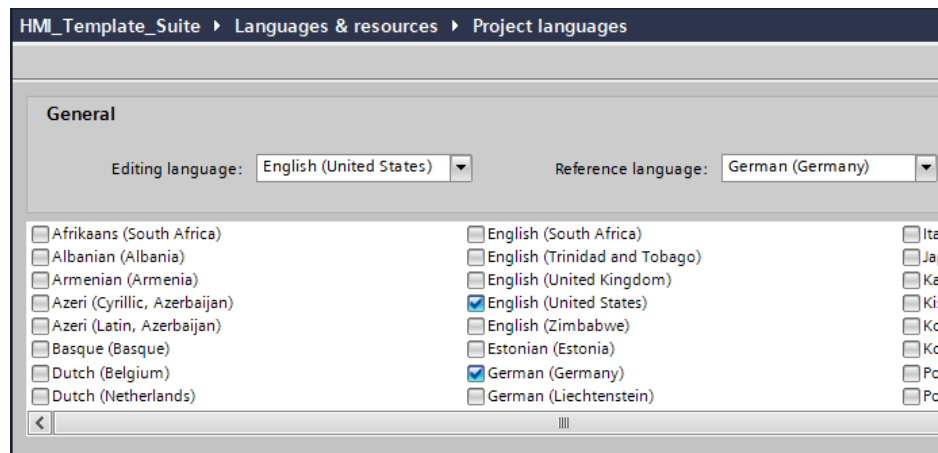# 3.1 Setting the Language

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

- German (Germany)
- English (United States)

To display the project texts correctly, the previously mentioned languages must be enabled.
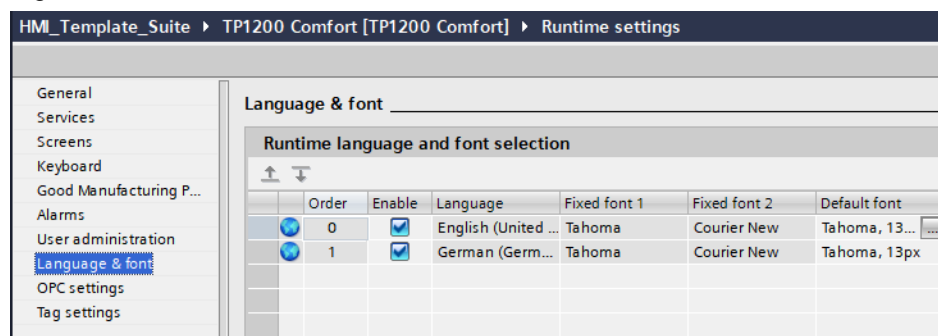
- "Project navigation > Languages & resources > Project languages"
  Figure 3-6

- "Project navigation > Configuration > Runtime settings"
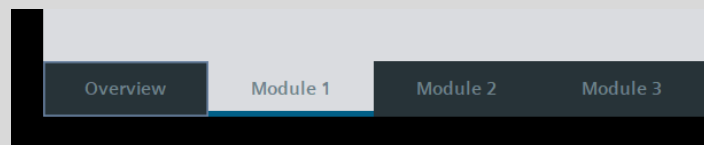 Figure 3-7

3.2 Working with Template Screens

The library contains "template screens" that you can assign to individual screens. (In a template, you configure objects that are displayed in all screens that are based on this template).

In the "02_Two_Nav_Levels" template screen, for example, buttons are configured at the bottom edge of the screen. To use these buttons to call up a screen, for example, proceed as follows.

Note Runtime screen:
To show the operator which screen is active, the corresponding button for calling up the screen is displayed in a different color

Showing/hiding layers

You can show or hide the buttons via layers "3" or "4" in the properties of the template screen. This simplifies subsequent editing of the button.

Figure 3-8
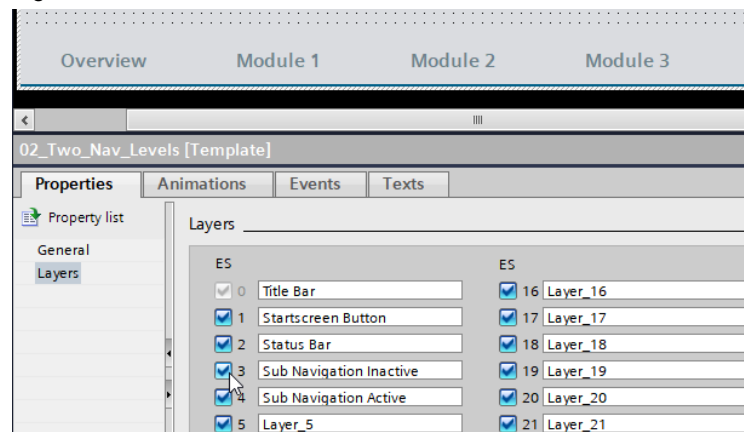
Editing a button ("Module 1" example)

- Levels 3 and 4 enabled.
  The "light gray" button can now be edited.

- System functions used
  "Animations > Display > Visibility".

Figure 3-9

- Level 3 activated, level 4 deactivated:
  The "dark gray" button can now be edited.

- System function used.
  "Events > Click > ActivateScreen"
  (This function is used to call up the assigned screen)

Figure 3-10

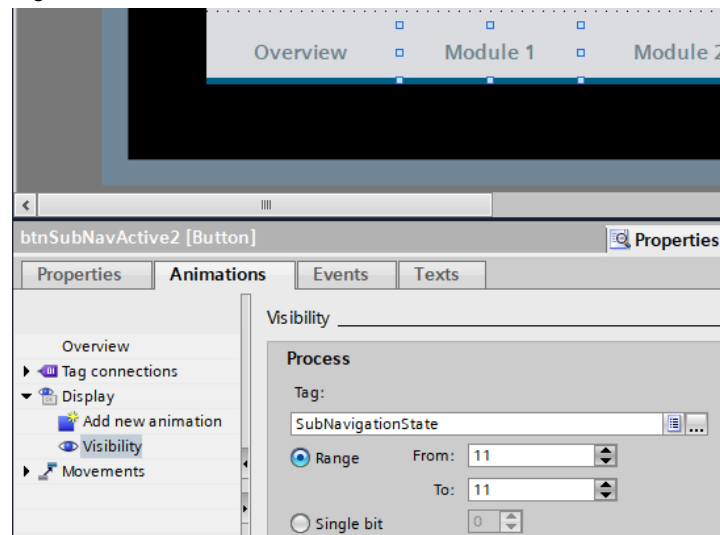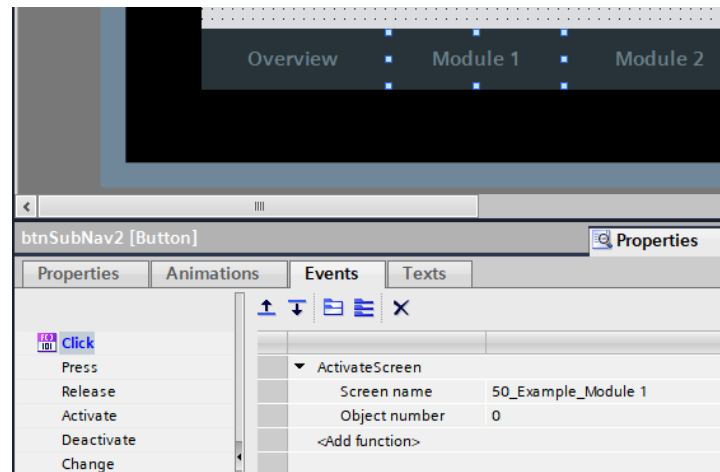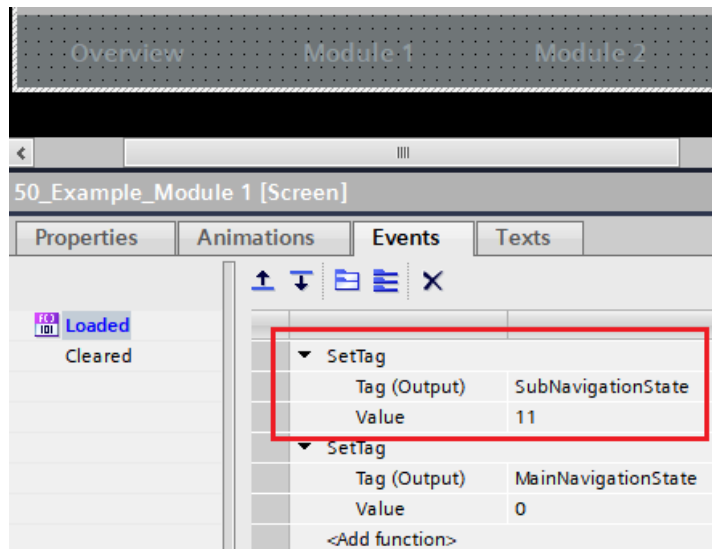**"50_Example_Module 1" process screen**

- System functions used.
  "Events > Loaded > SetTag".
  (The parameter is used to display the "light gray button" in the runtime. See).

Figure 3-11

Note:

Ensure that you always assign the correct value to the "SubNavigationState" tag (in this example, the value "11").

3.3 Aligning Objects

TIA Portal offers you settings options that help you implement a uniform HMI design.

You can define a grid to which the HMI objects are automatically aligned.
When you move or resize an HMI object with the mouse, the object automatically orients itself to the defined grid.

This makes it easier to align the objects on the screen.

Procedure

1. Open the TIA Portal "Settings". Select the entry "Visualization".
2. Set the "Snap to grid" entry in the "Settings editor" (1).
3. Select the "Show grid" entry in the "Grid" category (2).
4. Enter the value "8" for the "Grid size" (3).

Note	When configuring the "HMI Template Suite", a grid size of "8" was used, so that the distances and sizes of the objects are automatically multiplied by "8". For a uniform appearance, set the grid size to "8" pixels.

Figure 3-12 Grid settings in the TIA Portal
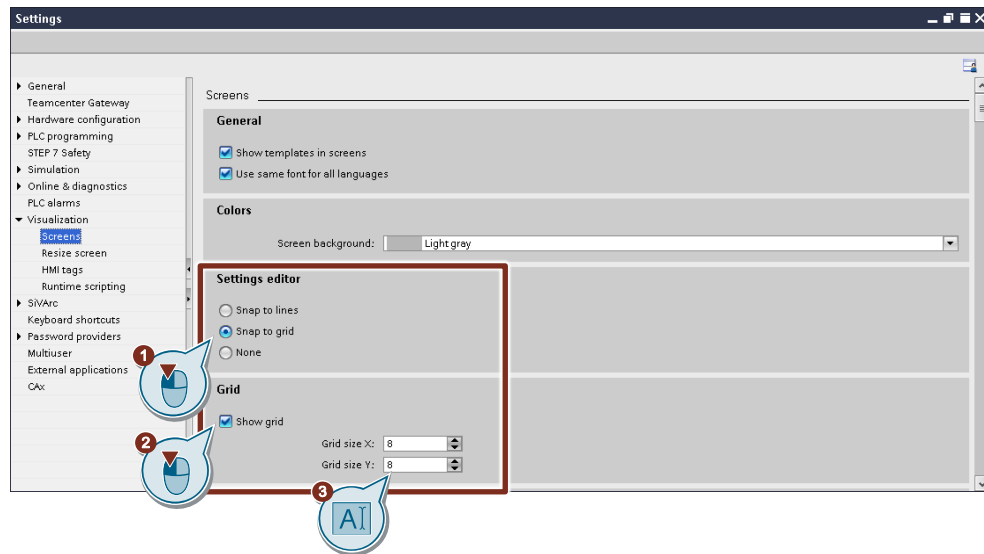
3.4 Example of Machine Operation

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.

We have an example of how the operation of your machine can look.

First menu level

1. Click on the button at the top 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 on the first "Application" button to start your visualization.

   Figure 3-13
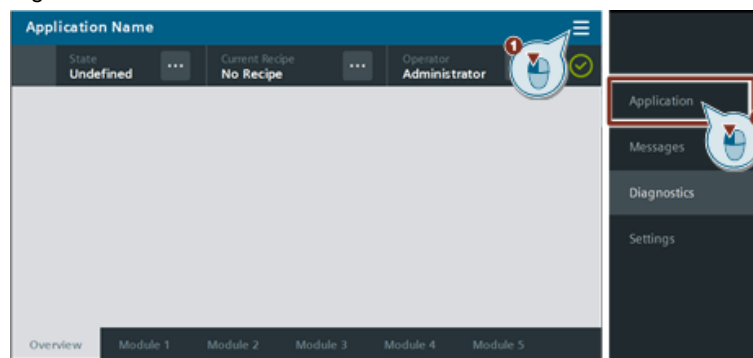
Overview of using Dashboards

A Dashboard is recommended for the start page.

With this screen, you can see the current efficiency and the efficiency over the last 3 days at a glance.

On the left you can see 2 modules. The [...] button takes you from the Dashboard to the module overview.

Figure 3-14 Dashboard visualization

4 Appendix

4.1 Service and support

Industry Online Support

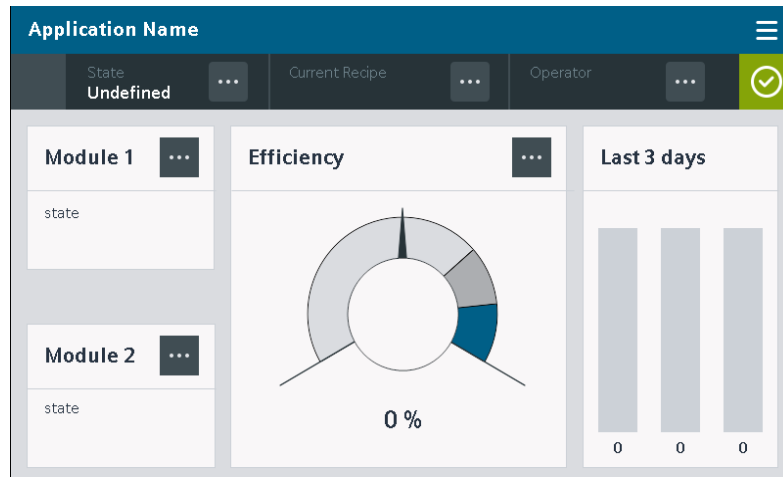Do you have any questions or need assistance?

Siemens Industry Online Support offers round the clock access to our entire service and support know-how and portfolio.

The Industry Online Support is the central address for information about our products, solutions and services.

Product information, manuals, downloads, FAQs, application examples and videos – all information is accessible with just a few mouse clicks:
https://support.industry.siemens.com

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www.siemens.com/industry/supportrequest

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- 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

4.2 Links and literature

Table 4-1

No.	Subject
\1\	Siemens Industry Online Support https://support.industry.siemens.com
\2\	Link to the article page of the Application Example https://support.industry.siemens.com/cs/ww/en/view/91174767
\3\	Link to the HMI Design Masterclass Video series https://www.siemens.de/hmi-design-masterclass
\4\	Link to the HMI Template Suite page https://www.siemens.de/hmi-template-suite

4.3 Change documentation

Table 4-2

Version	Date	Change
V1.0	04/2018	First version
V2.0	11/2018	New design objects and templates as well as documentation update HMI Style V2.0.0
V2.1	03/2019	Expansion with WinCC Basic Operator Panels.
V3.0	03/2020	Adaptation for V16