

The background image shows a man in a light blue shirt from the side, looking at a tablet. He is in a factory or industrial setting. Overlaid on the image are various futuristic digital elements: a large clock face, a '24/7' icon with a circular arrow, a 'NEWS' section with a person icon, a 'Home' button, and a network diagram with three people icons. The overall theme is industrial digitalization and online support.

SIEMENS

Ingenuity for life

HMI Template Suite

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

WinCC Comfort V15.1, WinCC Advanced V15.1

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

Siemens
Industry
Online
Support



Legal information

Use of application examples

Application examples illustrate the solution of automation tasks through an interaction of several components in the form of text, graphics and/or software modules. The application examples are a free service by Siemens AG and/or a subsidiary of Siemens AG ("Siemens"). They are non-binding and make no claim to completeness or functionality regarding configuration and equipment. The application examples merely offer help with typical tasks; they do not constitute customer-specific solutions. You yourself are responsible for the proper and safe operation of the products in accordance with applicable regulations and must also check the function of the respective application example and customize it for your system.

Siemens grants you the non-exclusive, non-sublicensable and non-transferable right to have the application examples used by technically trained personnel. Any change to the application examples is your responsibility. Sharing the application examples with third parties or copying the application examples or excerpts thereof is permitted only in combination with your own products. The application examples are not required to undergo the customary tests and quality inspections of a chargeable product; they may have functional and performance defects as well as errors. It is your responsibility to use them in such a manner that any malfunctions that may occur do not result in property damage or injury to persons.

Disclaimer of liability

Siemens shall not assume any liability, for any legal reason whatsoever, including, without limitation, liability for the usability, availability, completeness and freedom from defects of the application examples as well as for related information, configuration and performance data and any damage caused thereby. This shall not apply in cases of mandatory liability, for example under the German Product Liability Act, or in cases of intent, gross negligence, or culpable loss of life, bodily injury or damage to health, non-compliance with a guarantee, fraudulent non-disclosure of a defect, or culpable breach of material contractual obligations. Claims for damages arising from a breach of material contractual obligations shall however be limited to the foreseeable damage typical of the type of agreement, unless liability arises from intent or gross negligence or is based on loss of life, bodily injury or damage to health. The foregoing provisions do not imply any change in the burden of proof to your detriment. You shall indemnify Siemens against existing or future claims of third parties in this connection except where Siemens is mandatorily liable.

By using the application examples you acknowledge that Siemens cannot be held liable for any damage beyond the liability provisions described.

Other information

Siemens reserves the right to make changes to the application examples at any time without notice. In case of discrepancies between the suggestions in the application examples and other Siemens publications such as catalogs, the content of the other documentation shall have precedence.

The Siemens terms of use (<https://support.industry.siemens.com>) shall also apply.

Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the Internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place. For additional information on industrial security measures that may be implemented, please visit <https://www.siemens.com/industrialsecurity>.

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed at: <https://www.siemens.com/industrialsecurity>.

Table of contents

Legal information	2
1 Introduction	4
1.1 Overview.....	4
1.2 Principle of operation.....	4
1.3 Components used	5
1.4 Structure of the library	6
1.5 Differences in functionality between WinCC Comfort and Basic operating devices	9
1.6 Color and design concept.....	10
1.6.1 Concept	10
1.6.2 Colors	11
1.7 HMI Template Design.....	12
1.8 Overview of Layouts.....	12
1.8.1 Navigation level in detail.....	13
1.8.2 Operating philosophy	15
1.9 Elements of the HMI template	16
1.9.1 Title bar.....	16
1.9.2 Status bar	16
1.9.3 Option Panel.....	17
1.9.4 Main Window	19
1.9.5 Buttons and Icons.....	20
1.9.6 Texts and IO fields	21
1.9.7 Rectangles	23
2 Library elements	24
2.1 Picture objects.....	24
2.1.1 Checkbox	25
2.1.2 Radio button	25
2.1.3 Page Indicator	26
2.1.4 Process Indicator.....	26
2.1.5 Switch	27
2.1.6 Value Stepper.....	27
2.1.7 ContentBoard	28
2.2 HMI screens	29
2.2.1 Dashboards	30
2.2.2 MachineModules	31
2.2.3 Wizard	32
2.2.4 Notifications	32
2.2.5 Function Panel	33
2.2.6 Further example images ("Mixed Examples")	34
3 Commissioning	35
3.1 Notes on configuration	37
3.2 Configuration Examples	38
4 Appendix	39
4.1 Service and Support.....	39
4.2 Links and Literature	40
4.3 Change documentation	40

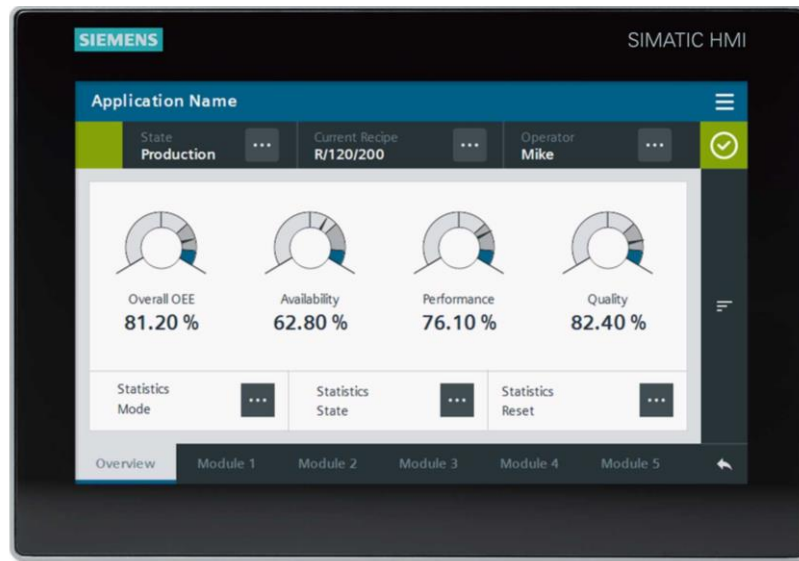
1 Introduction

1.1 Overview

Plants and machines are becoming more and more complex and the demands placed on the operator 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 using the "HMI Template Suite"



Layout and design are designed for smooth operation, transparency and expandability. 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 operating 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, as well as saving time during configuration.

1.3 Components used

This application example was created with these hardware and software components:

Table 1-1

Components	Quantity	Article number	Note
SIMATIC HMI TP900 Comfort	1	6AV2124-0JC01-0AX0	Alternatively, you can also use panels from between 7 to 15 inches in size.
SIMATIC HMI KTP 900 Basic	1	6AV2123-2JB03-0AX0	Alternatively, you can also use panels from between 7 to 15 inches in size.
WinCC Comfort V15.1	1	6AV2101-0AA05-0AA5	Engineering in TIA Portal.
WinCC Basic V15.1	1	6AV2100-0AA05-0AA5	Engineering in TIA Portal.

This application example consists of the following components:

Table 1-2

Components	File name	Note
HMI Template Suite Library	91174767_LhmiTemplateSuite_V15_1.zip	The library can be downloaded under Contribution ID 91174767
Documentation	91174767_HMI Template Suite V2_de.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 prefabricated 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 your operating device. Use the preconfigured operating device stored in the library under "00 - Device" folder.

Note

To integrate HMI objects into your own operating device, make sure to use the HMI style "HMITemplateSuite" in your operating device.

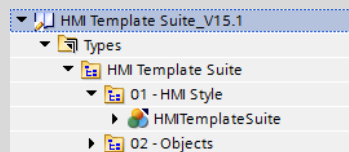
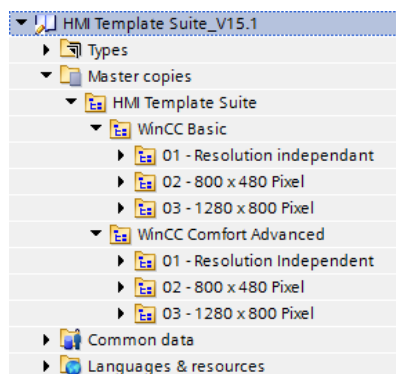


Figure 1-2



You can access the following content:

Prepared HMI operator panel

The 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 navigation levels

Note

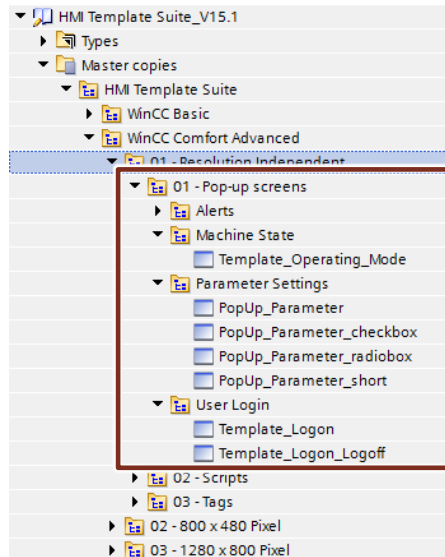
The operator devices are stored in Subfolder "00 - Device" of the library.

You can create your visualization on this basis and extend it using the other objects in the library.

Preconfigured pop-up screens

The pop-up screens are used to display alarms or to change parameters in the machine.

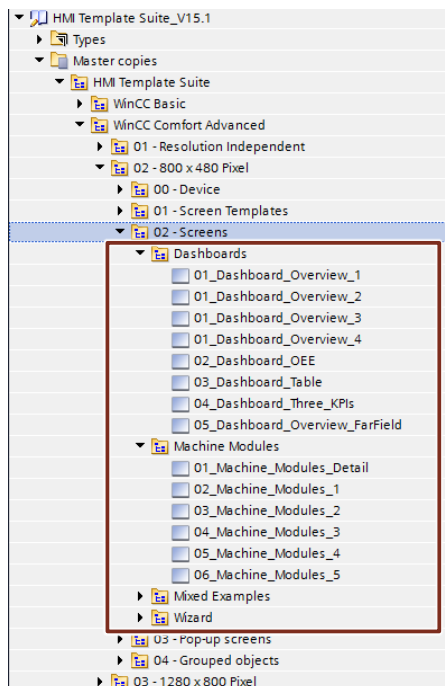
Figure 1-3 Pop-up screens



Preconfigured HMI images

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

Figure 1-4 HMI Screens

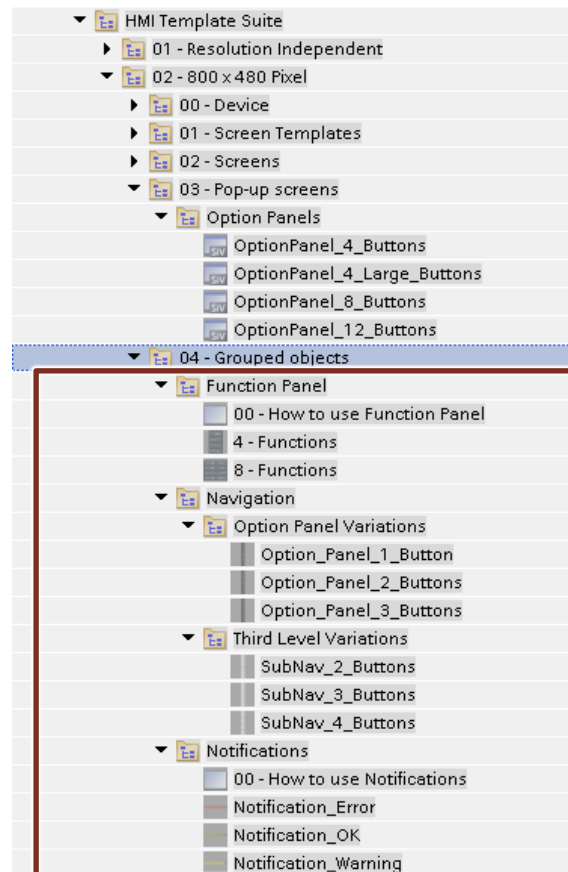


Preconfigured navigation and control panels

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

Note You find the navigation and control Panels in subfolder "04 Grouped objects". They are sorted by resolution.

Figure 1-5 Navigation and Control objects



1.5 Differences in functionality between WinCC Comfort and Basic operating devices

The concept is designed and optimized for the functionalities of WinCC Comfort operating devices. 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 Template Suite for the individual WinCC systems are described in the following section.

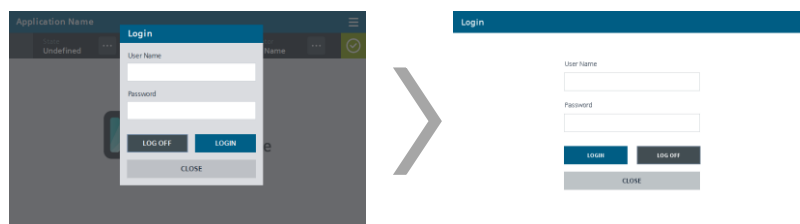
Colors

Compared to SIMATIC HMI Comfort or Mobile Panels, SIMATIC HMI Basic Panels provide a limited color space. The colors used in the library are automatically converted to the next possible color in the "Basic" RGB color space. This may lead to slight color discrepancies compared to WinCC Comfort Panels.

Pop-up screens

If a pop-up image 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 image only with the "Close" button after it has been entered. Usability is therefore comparable to that of pop-up images. When the operator clicks on the "Close" button, the last active image with the navigation bars is displayed again.

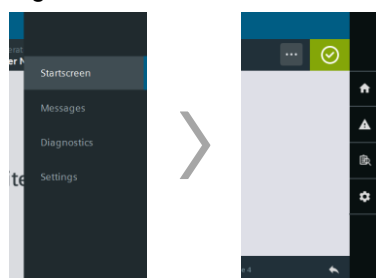
Figure 1-6



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 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 section [2.1](#) are available as HMI types. HMI Types are not supported in WinCC Basic. The objects can therefore not be used in WinCC Basic.

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 MainWindow, 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. By placing the operator panel in the center and starkly contrasting the other objects at the edge of the screen, the actual contents stand out.

HMI styles

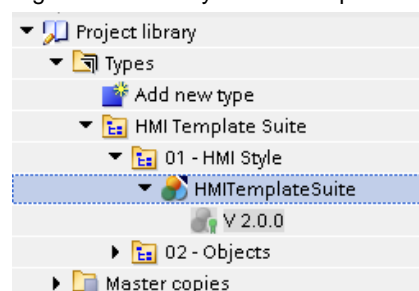
Using the HMI styles ensures a uniform design for the TIA Portal project.

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.






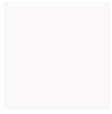
Figure 1-8 HMI Style "HMITemplateSuite"



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


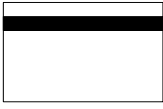



1.7 HMI Template Design

This section covers the design and concept of the "HMI Template Suite". The prefabricated operator panel already contains the layout, navigation, 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 navigational levels

	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 status 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		3rd level navigation: Additional level for dividing the control system, optional

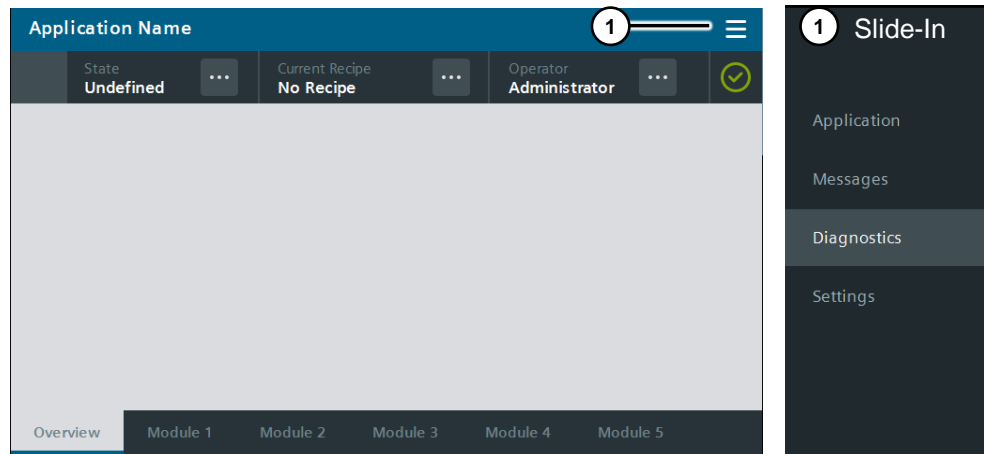
Note

A further navigation level is possible via a "Tab" view.
Configuration details for this navigation level can be found in chapter [1.8.1](#).

1.8.1 Navigation level 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 the "Settings", you can edit aspects such as the display language or the brightness of the operator panel.

Configuration

The first menu level is already included in the preconfigured operating device.

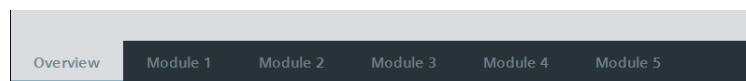
Note

Please note the differences for WinCC Basic operator interfaces, 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

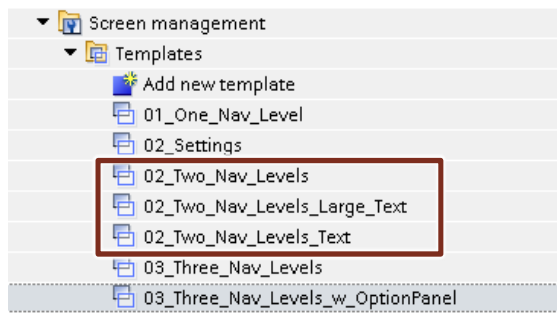


You can switch between the individual HMI screens of a plant module using the navigation bar.

Configuration

The second navigation level is contained in the HMI Templates "Two_Nav_Levels*". In these templates you can project page calls and adapt the text.

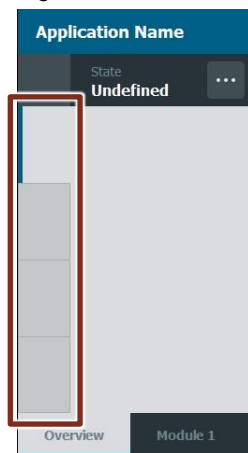
Figure 1-11 HMI Templates, second navigation level



Third level of 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 navigation level

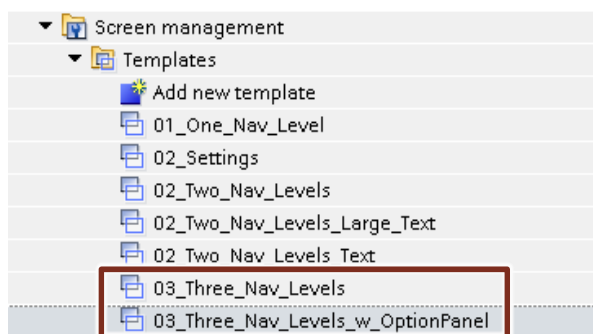


The navigation bar is designed for icons, as text-based navigation takes up too much space on smaller operator panels, and does not allow enough room for plant configuration.

Configuration

The third navigation level 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 navigation level

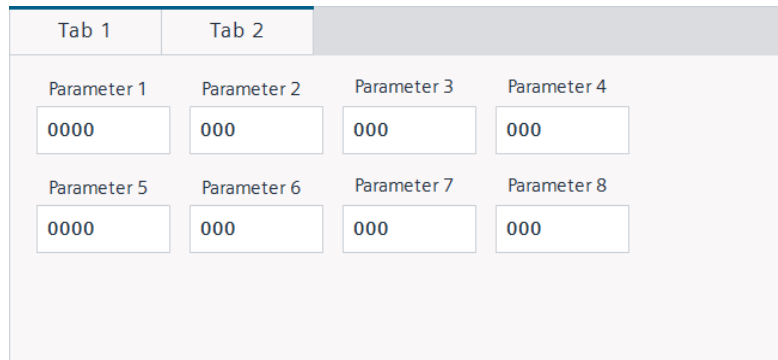


Fourth level navigation (optional)

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

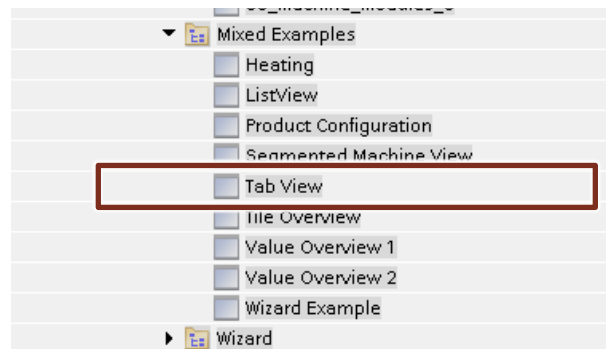


Configuration:

A "Tab" view is already stored in the library as an "example screen".

With the different tabs you can set a variable 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 button on the right-hand side. Accent colors are used for the "Title Bar".

Figure 1-16 Title bar with call for 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 plant,
- the prescription currently being processed
- and 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 of the right square of the "Status bar" visualizes a change of the diagnostic status of the plant.

A color change of the left square visualizes the current operating status of the plant.

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 status issues.

Depending on the condition of each machine (variable: CurrentMachineState) and error state (variable: 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, plant stoppage



CurrentMachineState = 4; DiagState=1

1.9.3 Option Panel

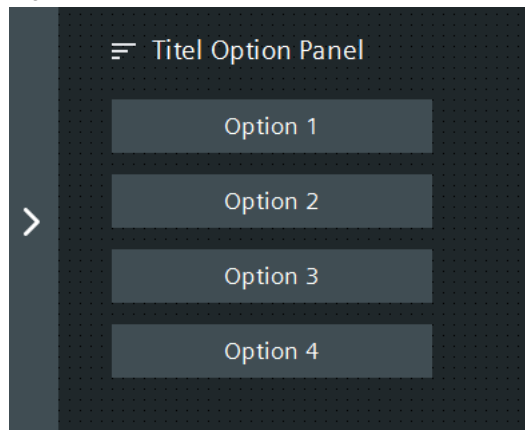
The "Option Panel" can be displayed on the **right side of the screen**.

The following actions should be called in the Panel option:

- Functions/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

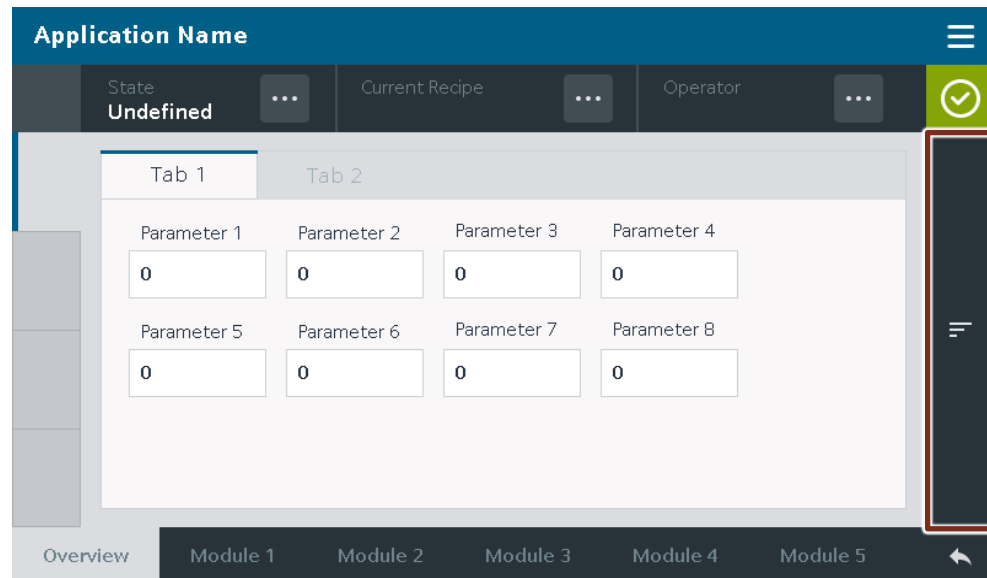


Call for Panel option on the right side of the screen:

The button on the right side of the screen opens the actual Option Panel (see [Figure 1-21](#))

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

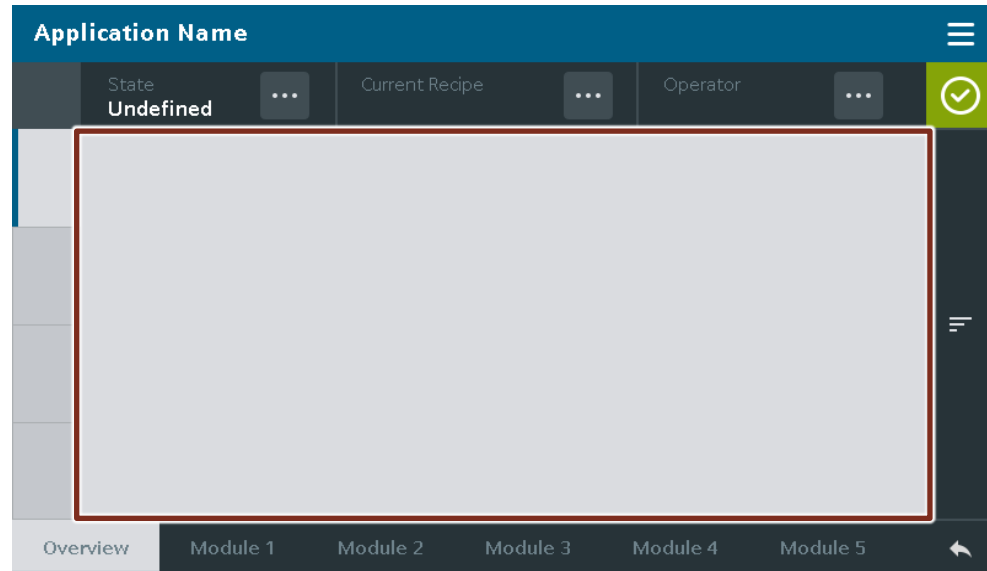
Figure 1-22 Example "List view" screen with call of the Option Panel on the right side



1.9.4 Main Window

The screen edges of the operating device 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 operating panel.

Figure 1-23 Main Window of your Visualization



This area is the area upon which the operator focusses; here, you can project your HMI objects to control your machine.

This centrally positioned section covers an area of 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.

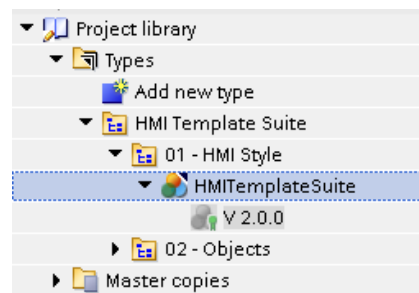
1.9.5 Buttons and Icons

Using HMI styles ensures that the same element design is used consistently for each operator action.

You can customize styles globally via the "StyleEditor". The changes are applied immediately to the entire project.

These and other defined buttons, texts and other elements can be found in the HMI Style "HMITemplateSuite V2.x.x" in the project library:

Figure 1-24 HMI Style "HMITemplateSuite"



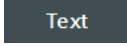




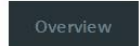

Size



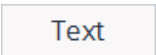
A minimum size of 40x40px has been defined for the HMI Template Suite. This ensures that all buttons can be operated conveniently and easily via the touch screen.

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"		Standard button for normal operator actions such as triggering a function or opening a pop-up screen
"Cancel_Abort_Close"		Button for canceling actions or closing pop-up windows. ->no effect on the machine
"Delete"		Button for actions performing a delete activity. ->Critical actions
"Execute_Action"		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"		Navigation button for the "SubNavigation" bar. Display of inactive status (unpressed).
"SubNavigation_Active"		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"		Button for the "Tab bar", unpressed state
"ScreenTab_Active"		Button for the "Tab bar", pressed state

1.9.6 Texts and IO fields

To ensure a uniform and clean typeface on the operator interfaces, 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.

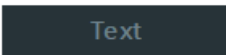
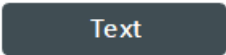

Size




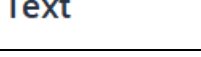




Present the texts in such a way that the operators can recognize them quickly and reliably.

The font size used depends on the distance between the operator and the configured operating device.

Appearance of texts

Table 1-7 Overview of the defined text templates




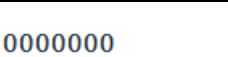
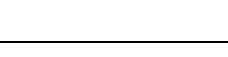
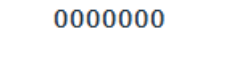
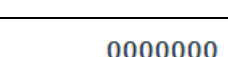

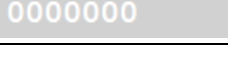
Style name	Appearance	Use / Place of use
Standard style	Text	Standard object, free use
"Regular (center)"	Text	Standard object, free use
"Regular (right)"	Text	Standard object, free use
"SubHeadline"	Text	Header. Only used in pop-up screens
"SubHeadline center"	Text	Header. Only used in pop-up screens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

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

Appearance 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 Fields

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

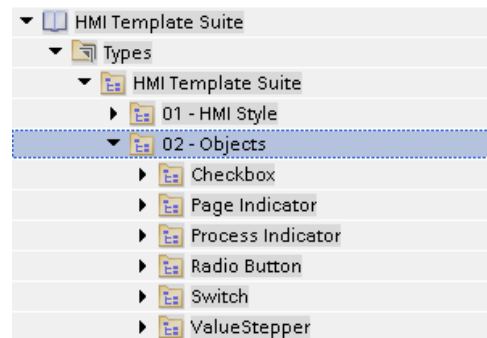
2 Library elements

2.1 Picture objects

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

The following additional image objects can be found in the library below:
"Type > 02_Objects":

Figure 2-1 Image object in the library



Note

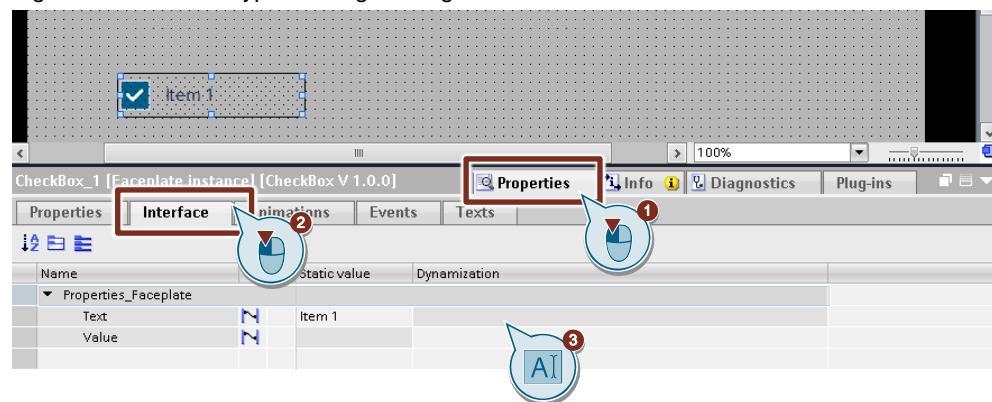
In the "Type Editor" you can globally adapt the existing objects for your project. Types can be dragged and dropped into a HMI image and linked together.

The Faceplates types are available for WinCC Comfort or 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 Interface Types in Engineering



2.1.1 Checkbox

Use a checkbox 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 the "Radio Buttons".

Figure 2-3 Checkbox in Engineering



Interface Type

Table 2-1

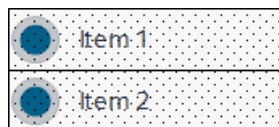
Interface	Function
"Text"	Interconnect a static text (Display text for the buttons)
"Value"	Connect to an HMI variable (Bool). When the element is clicked, the HMI variable changes to True.

2.1.2 Radio button

Use the radio buttons to select one or more elements from a list.

If you want to be able to select multiple options, use a checkbox.

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 variable (Int). The variable 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 display 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 display.

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 variable (Int). If the variable = "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 and with a white tick.

Figure 2-6 "Process Indicator" in Engineering



Interface Type

Table 2-4

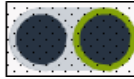
Interface	Function
"Step1" "Step2" "Step3" ...	Connect one HMI variable for each step. As soon as the HMI variable = "1", the corresponding step is colored blue and marked with a white tick.

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

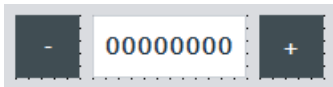
Table 2-5

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

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

2.1.7 ContentBoard

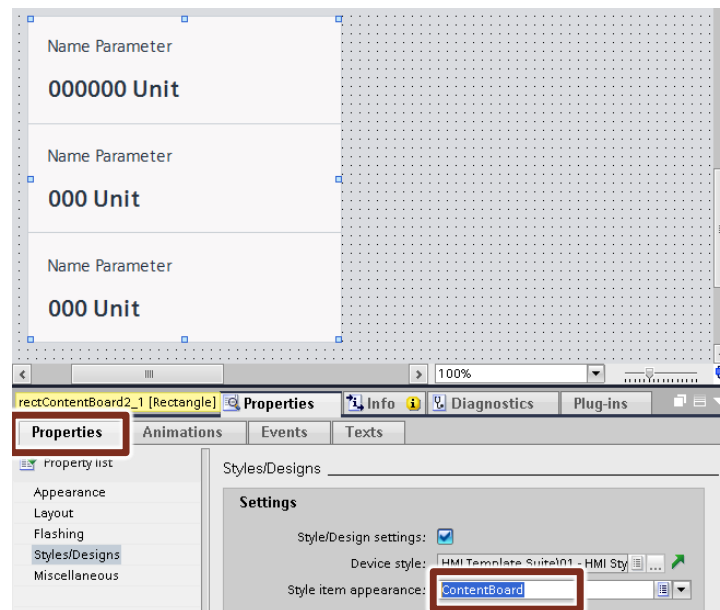
The "ContentBoard" is a purely visual tool for grouping and structuring HMI elements on a screen.

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 image and assign the HMI style "ContentBoard" to the rectangle.

Figure 2-9 Sample Engineering "ContentBoard"

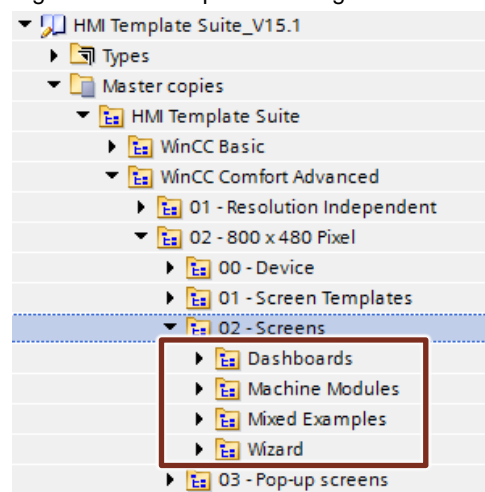


2.2 HMI screens

In the library, you will find ready-designed HMI images for various applications. These templates should support you in creating your own HMI operating device. The following types of templates are at your disposal:

- Dashboards
- Machine overviews
- Wizards
- Notifications
- Function panel
- Further example screens

Figure 2-10 Example HMI Images



Note

The images serve as a template for your visualization. You still have to interconnect the objects so that the objects can display values.

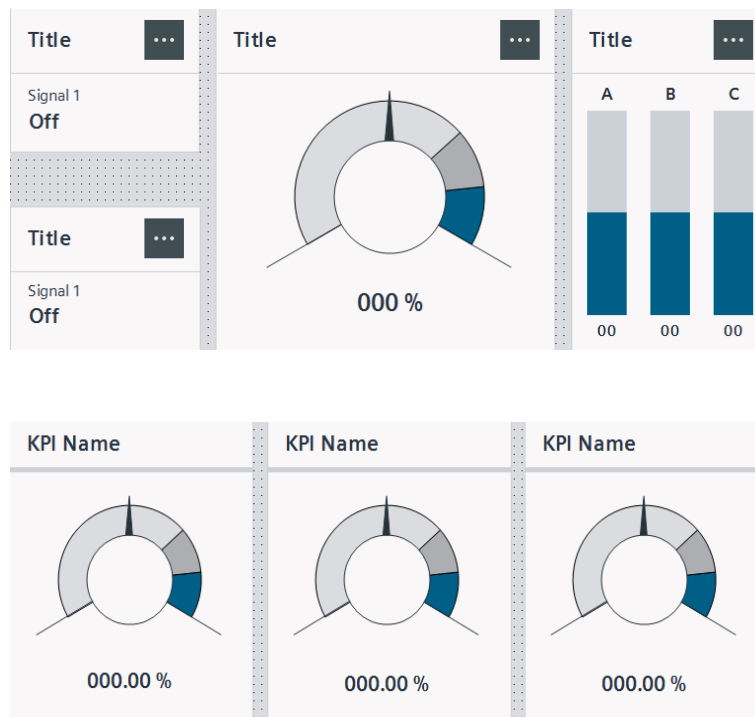
2.2.1 Dashboards

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

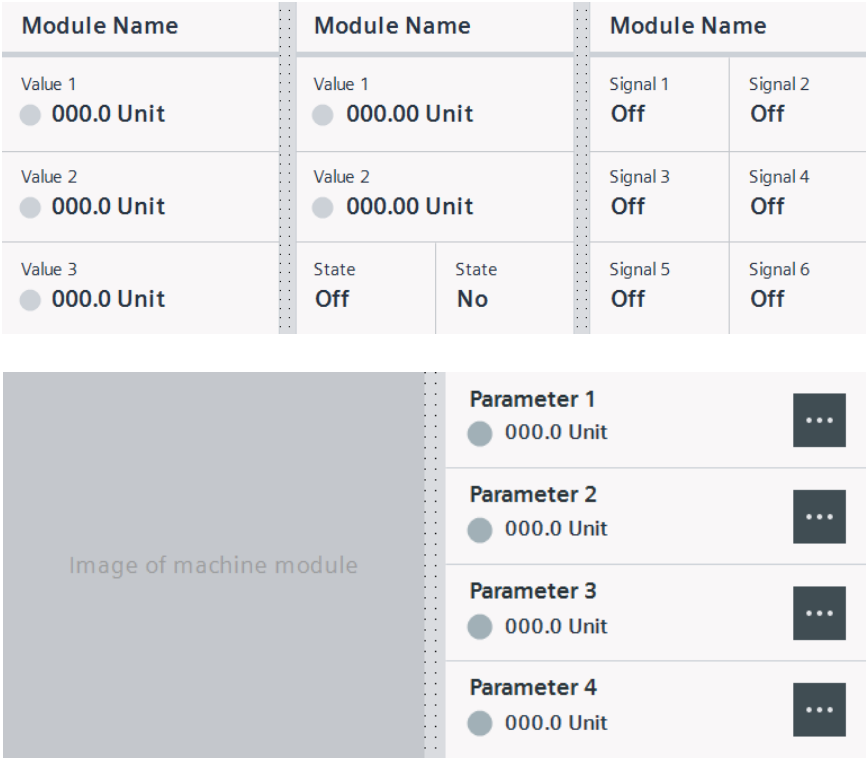


2.2.2 MachineModules

The machine module overviews allow 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 Machine module - Overview



2.2.3 Wizard

Use

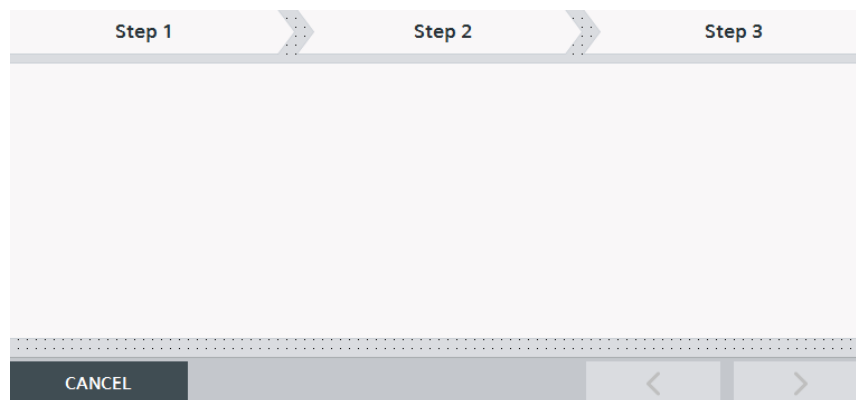
Use a "Wizard" to guide the operator through some steps in a predefined order.

The wizard should always appear on the complete image.

This allows the operator to concentrate fully on the current step. The new settings should only be applied to the configuration when the operator has completed all of the steps.

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

Figure 2-13 Example Machine module - Overview

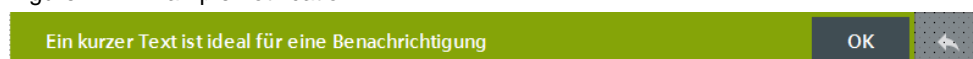


2.2.4 Notifications

Use

Notifications should only appear at the bottom of the screen. If you are in the second navigation level, the notification should overlap 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



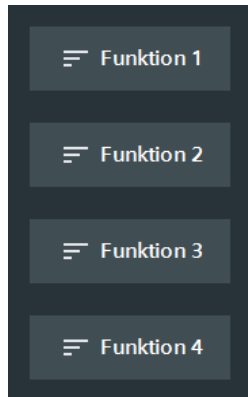
2.2.5 Function Panel

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 should always be 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

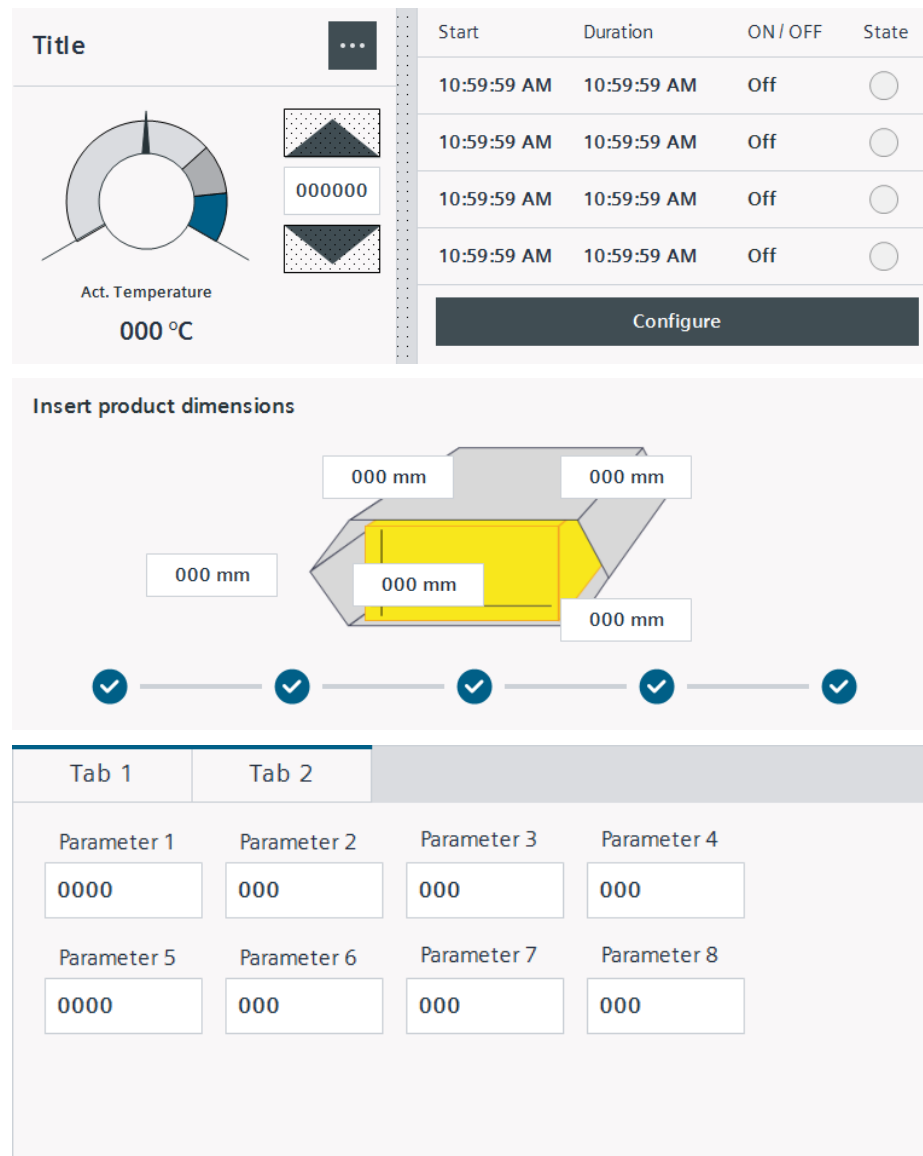


2.2.6 Further example images ("Mixed Examples")

Further 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 Commissioning

Requirements

Before you start the configuration of your HMI operator panel, you should develop a complete design concept with concrete visualization ideas.

Note

If you have not yet developed a design concept and require further information:

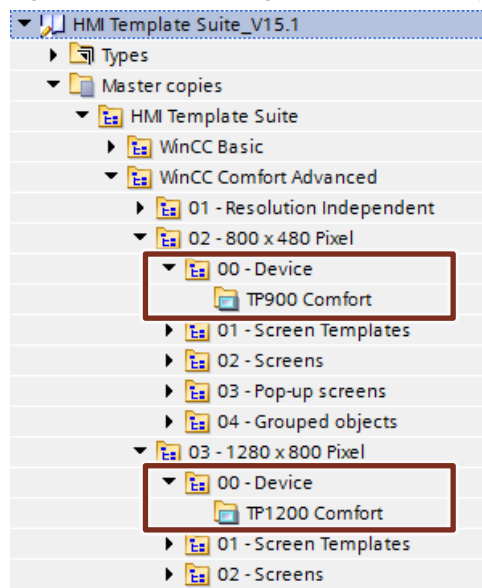
The HMI Design Masterclass gives you an introduction to the topic of HMI design in 7 x 10min video units.

Link to the Masterclass: <https://www.siemens.com/hmi-design-masterclass>

Integrating an operating 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.
3. Drag and drop an HMI operating panel of your choice into your project.

Figure 3-1 HMI operating panels in the library

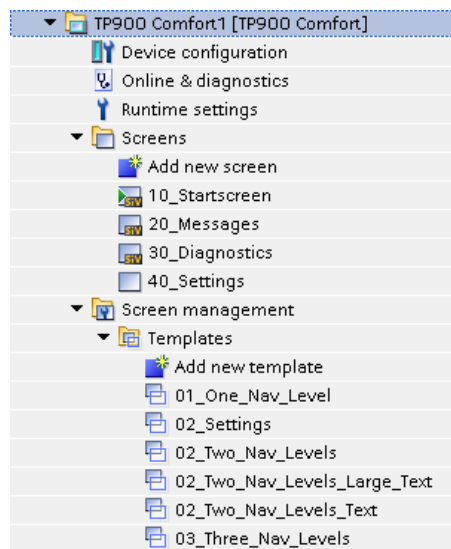


Note:

The operator panels are sorted by resolution.

The operating philosophy (navigation bars, HMI style, templates) is already integrated for you in this operating panel.

Figure 3-2 HMI operating panel view in project navigation



Note:

Since the operating panel is already configured, you can test it immediately with the simulation or load it into a real operator panel. All you have to do is change the IP address.

The runtime starts with the HMI image "10_Startscreen".

Use additional image objects

Now use the other image objects and HMI images from the library and assemble your visualization step by step.

3.1 Notes on configuration

The TIA Portal provides various setting options that help you to implement a uniform HMI design.

You can define a grid to which the HMI objects are automatically aligned. If you move an HMI object with the mouse or change its size, the objects automatically orient themselves according to the defined grid.

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

Procedure

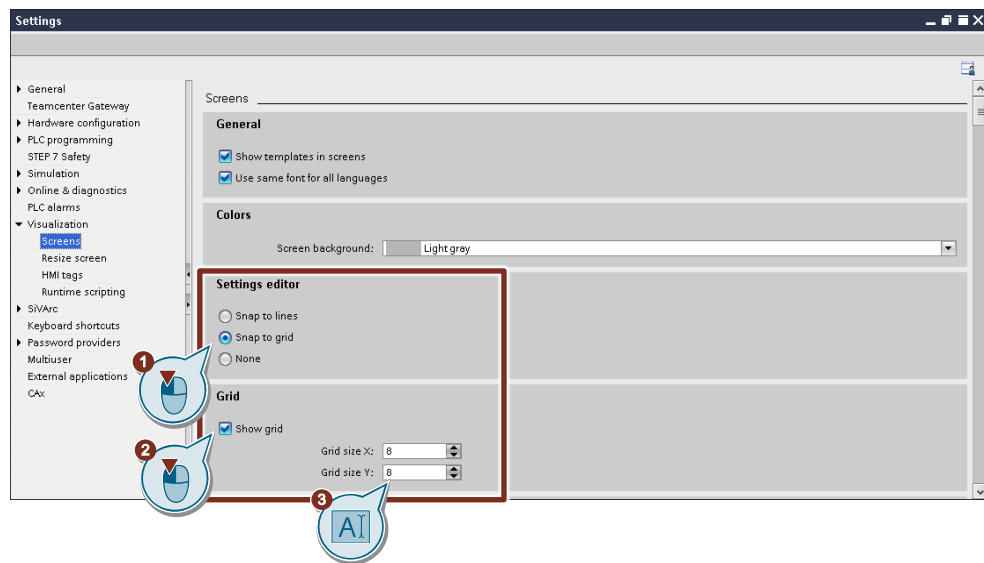
1. Open the TIA Portal "Settings". Select the entry "Visualization".
2. Under "Settings Editor", set the entry "Snap to grid".
3. In the "Grid" category, select the "Show grid" entry.
4. Enter the value "8" as "Grid size".

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 3-3 Grid settings in TIA Portal



3.2 Configuration Examples

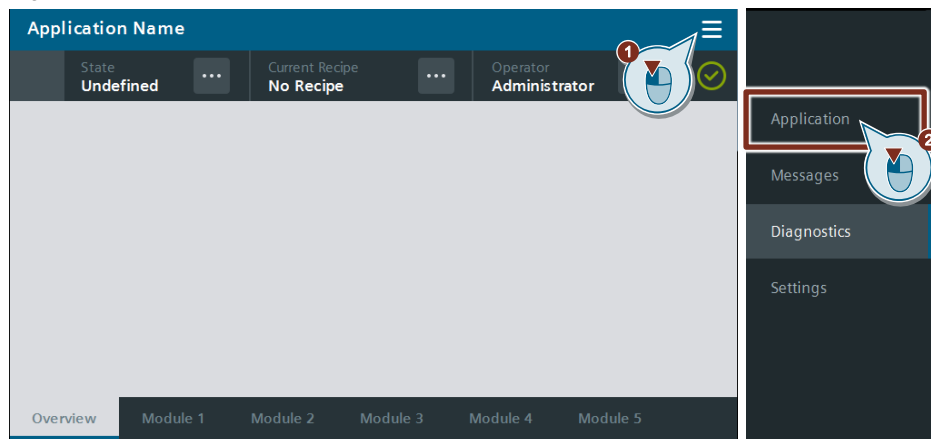
This chapter shows the basic operation of the "HMI Template Suite". In this application example, the operating concept is supplied without an "Application". Configure your own visualization of your plant, which you can call up with the "Application" button.

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 notification and diagnosis window, as well as a settings page.
2. Click on the first "Application" button to start your visualization.

Figure 3-4 Operation first menu level

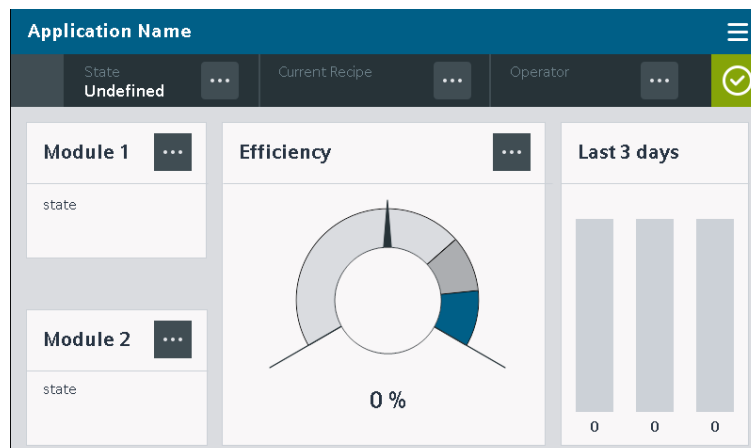


Overview of using dashboards

A dashboard is recommended for the start page:

here, you can see at a glance the current efficiency and the efficiency over the last 3 days. On the left you can see 2 modules. The [...] button takes you from the dashboard to the module overview.

Figure 3-5 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>

Technical Support

The Technical Support of Siemens Industry provides you fast and competent support regarding all technical queries with numerous tailor-made offers – ranging from basic support to individual support contracts. Please send queries to Technical Support via Web form:

www.siemens.com/industry/supportrequest

SITRAIN – Training for Industry

We support you with our globally available training courses for industry with practical experience, innovative learning methods and a concept that's tailored to the customer's specific needs.

For more information on our offered trainings and courses, as well as their locations and dates, refer to our web page:

www.siemens.com/sitrain

Service offer

Our range of services includes the following:

- Plant data services
- 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:

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:

support.industry.siemens.com/cs/ww/de/sc/2067

4.2 Links and Literature

Table 4-1

No.	Topic
\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.com/hmi-design-masterclass
\4\	Link to the HMI Template Suite-Page https://www.siemens.com/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	Adding WinCC Basic operating devices.