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Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

**⚠️ DANGER**

indicates that death or severe personal injury will result if proper precautions are not taken.

**⚠️ WARNING**

indicates that death or severe personal injury may result if proper precautions are not taken.

**⚠️ CAUTION**

indicates that minor personal injury can result if proper precautions are not taken.

**NOTICE**

indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by personnel qualified for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

**⚠️ WARNING**

Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.
Preface

SINUMERIK documentation

The SINUMERIK documentation is organized into the following categories:

● General documentation/catalogs
● User documentation
● Manufacturer/service documentation

Additional information

You can find information on the following topics at the following address (https://support.industry.siemens.com/cs/de/en/view/108464614):

● Ordering documentation/overview of documentation
● Additional links to download documents
● Using documentation online (find and search in manuals/information)

If you have any questions regarding the technical documentation (e.g. suggestions, corrections), please send an e-mail to the following address (mailto:docu.motioncontrol@siemens.com).

mySupport/Documentation

At the following address (https://support.industry.siemens.com/My/ww/en/documentation), you can find information on how to create your own individual documentation based on Siemens' content, and adapt it for your own machine documentation.

Training

At the following address (http://www.siemens.com/sitrain), you can find information about SITRAIN (Siemens training on products, systems and solutions for automation and drives).

FAQs


SINUMERIK

You can find information about SINUMERIK at the following address (http://www.siemens.com/sinumerik).
Target group

This documentation is intended for planners, installers, configuration engineers, technicians and decision-makers

Benefits

The System Manual imparts knowledge of the properties and functions of new operating possibilities of the SINUMERIK Operate software on multitouch panels in widescreen format. The manual provides the target group with an overview of the options to achieve optimum solutions for operating concepts.

Standard scope

This documentation describes the functionality of the standard scope. Extensions or changes made by the machine manufacturer are documented by the machine manufacturer.

Other functions not described in this documentation might be executable in the control. However, no claim can be made regarding the availability of these functions when the equipment is first supplied or in the event of servicing.

Furthermore, for the sake of clarity, this documentation does not contain all detailed information about all types of the product and cannot cover every conceivable case of installation, operation or maintenance.

Technical Support

Country-specific telephone numbers for technical support are provided in the Internet at the following address (https://support.industry.siemens.com/sc/ww/en/sc/2090) in the "Contact" area.
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1.1 General safety instructions

**WARNING**

**Danger to life if the safety instructions and residual risks are not observed**

If the safety instructions and residual risks in the associated hardware documentation are not observed, accidents involving severe injuries or death can occur.

- Observe the safety instructions given in the hardware documentation.
- Consider the residual risks for the risk evaluation.

**WARNING**

**Malfunctions of the machine as a result of incorrect or changed parameter settings**

As a result of incorrect or changed parameterization, machines can malfunction, which in turn can lead to injuries or death.

- Protect the parameterization (parameter assignments) against unauthorized access.
- Handle possible malfunctions by taking suitable measures, e.g. emergency stop or emergency off.

1.2 Warranty and liability for application examples

The application examples are not binding and do not claim to be complete regarding configuration, equipment or any eventuality which may arise. The application examples do not represent specific customer solutions, but are only intended to provide support for typical tasks. You are responsible for the proper operation of the described products. These application examples do not relieve you of your responsibility for safe handling when using, installing, operating and maintaining the equipment.
Industrial security

Note

Industrial security

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 only represent one component of such a concept.

The customer is responsible for preventing unauthorized access to its plants, systems, machines and networks. Systems, machines and components should only be connected to the enterprise network or the internet if and to the extent necessary and with appropriate security measures (e.g. use of firewalls and network segmentation) in place.

Additionally, Siemens’ guidance on appropriate security measures should be taken into account. For more information about industrial security, please visit:

Industrial security ([http://www.siemens.com/industrialsecurity](http://www.siemens.com/industrialsecurity)).

Siemens’ products and solutions undergo continuous development to make them more secure. Siemens strongly recommends to apply product updates as soon as available and to always use the latest product versions. Use of product versions that are no longer supported, and failure to apply 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:

Industrial security ([http://www.siemens.com/industrialsecurity](http://www.siemens.com/industrialsecurity)).

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**WARNING**

Unsafe operating states resulting from software manipulation

Software manipulations (e.g. viruses, trojans, malware or worms) can cause unsafe operating states in your system that may lead to death, serious injury, and property damage.

- Keep the software up to date.
- Incorporate the automation and drive components into a holistic, state-of-the-art industrial security concept for the installation or machine.
- Make sure that you include all installed products into the holistic industrial security concept.
- Protect files stored on exchangeable storage media from malicious software by with suitable protection measures, e.g. virus scanners.
Modern machine operation

2.1 Introduction

Trends in the field of machine tools

Industrie 4.0 and increasing digitalization are affecting more and more processes and work sequences in modern factories. This starts with the product design and goes as far as CNC operation.

The appearance and design of the machine play an equally important role as the intuitive operability of the user interface.

Ever larger screens with ever higher resolutions offer room for individual, flexible user interface designs and for integrating third-party applications.

In the meantime, the everyday use of smart phones and tablets have made users very familiar and comfortable with multitouch solutions. Nowadays, they expect a comparable level of operating convenience in the operation of CNC in their working environment.

SmartOperation - intelligent CNC operation

SmartOperation for the SINUMERIK 840D sl is the response to the requests for easy and intuitive operation, flexibility and individualization in the display, and control of the machines.

This manual gives you an overview of the possibilities of optimizing the operating concept on the machine with SINUMERIK Operate and SINUMERIK Create MyHMI /WinCC. With it, the following objectives are reached:

- Time savings, e.g. through intuitive and faster operation
- Productivity, e.g. carrying out operations in parallel with the simultaneous display of important information from various operating areas, as well as monitoring the machine and its status
- Efficiency and cost savings, e.g. by replacing hardware buttons with software buttons
2.2 Content of the "Smart machine tool operation" manual

This manual provides information about the following topics:

- **SINUMERIK Operate with "SINUMERIK Operate Generation 2" user interface**
  - User-friendly multitouch operation
  - Touch operation
  - Intuitive and efficient operation with finger gestures
  - User-friendly input on virtual keyboards

- **SINUMERIK Operate on widescreen panels with sidescreen**
  Individual design of the operating concept and adaptation of it to the work sequence.
  - Widgets and pages
  - ABC keyboard and MCP keys

- **Machine OEM-specific HMI using SINUMERIK Integrate Create MyHMI / WinCC**
  Greatest possible degree of freedom in the creation of design, navigation and screen contents.
  - Portrait format/landscape format
  - Virtual keyboard and MCP keys
  - Showing the web browser, PDF files and camera
  - Machine data acquisition (central storage of variables, display of diagrams and tables, etc.)
3 Multitouch operation with SINUMERIK Operate

3.1 Overview

Widescreen-format multitouch panels are optimized for multitouch operation, e.g. the OP 015 black, on which SINUMERIK Operate is active with the "SINUMERIK Operate Generation 2" user interface.

Machine manufacturer
Activate user interface "SINUMERIK Operate Generation 2" using machine data MD9112 $MM_HMI_SKIN.

Multitouch panel

![OP 015 black multitouch panel with "SINUMERIK Operate Generation 2" user interface](image)

Figure 3-1 OP 015 black multitouch panel with "SINUMERIK Operate Generation 2" user interface

With this user interface, multitouch can be used for all operator actions. Using multitouch makes operation based on SINUMERIK Operate a lot faster.

References

Further information on the subject of "user interface" is available in the following literature:

3.2 User interface

3.2.1 Screen layout

Touch and gesture operator controls for SINUMERIK Operate with the "SINUMERIK Operate Generation 2" user interface.

1. Changing the channel
2. Cancel alarms
3. Function key block
4. Display next vertical softkey bar
5. Virtual keyboard

3.2.2 Operator controls on the "SINUMERIK Operate Generation 2" user interface

3.2.2.1 Function key block

<table>
<thead>
<tr>
<th>Operator control</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="M" /></td>
<td><strong>Switch operating area</strong></td>
</tr>
<tr>
<td></td>
<td>Tap the current operating area, and select the desired operating area from the operating area bar.</td>
</tr>
<tr>
<td><img src="image" alt="AUTO" /></td>
<td><strong>Switch operating mode</strong></td>
</tr>
<tr>
<td></td>
<td>The operating mode is only displayed. To switch the operating mode, tap the operating area and select the operating area from the vertical softkey bar.</td>
</tr>
</tbody>
</table>
### Operator control

<table>
<thead>
<tr>
<th>Operator control</th>
<th>Function</th>
</tr>
</thead>
</table>
| ![Undo icon]() | **Undo**  
Multiple changes are undone one by one.  
As soon as a change has been completed in an input field, this function is no longer available. |
| ![Restoring icon]() | **Restoring**  
Multiple changes are restored one by one.  
As soon as a change has been completed in an input field, this function is no longer available. |
| ![Virtual keyboard icon]() | **Virtual keyboard**  
Activates the virtual keyboard.  
The virtual keyboard appears automatically on the next input. |
| ![Calculator icon]() | **Calculator**  
Displays a calculator. |
| ![Online help icon]() | **Online help**  
Opens the online help. |
| ![Camera icon]() | **Camera**  
Generates a screenshot. |

### 3.2.2.2 Further operator touch controls

<table>
<thead>
<tr>
<th>Operator control</th>
<th>Function</th>
</tr>
</thead>
</table>
| ![Next horizontal softkey bar]() | Advances to the next horizontal softkey bar.  
When page 2 of the menu is called, the arrow appears on the right. |
| ![Higher-level menu]() | Advances to the higher-level menu. |
| ![Next vertical softkey bar]() | Advances to the next vertical softkey bar. |
| ![Cancel alarm symbol]() | Tapping the Cancel alarm symbol clears all queued cancel alarms. |
| ![Channel display]() | If a channel menu has been configured, it is displayed.  
Tapping the channel display in the status display switches you to the next channel. |
### 3.2.2.3 Virtual keyboard

If you have called the virtual keyboard using the function key block, then you have the option of adapting the key assignment using the switchover keys.

![Virtual Keyboard Diagram]

- **①** Shift key for uppercase and lowercase letters
- **②** Shift key for letters and special characters
- **③** Shift key for country-specific keyboard assignment
- **④** Shift key for full keyboard and numerical key block

---

### 3.3 Operating with finger gestures

#### 3.3.1 Touch-sensitive user interface

When using touch panels, wear thin gloves made of cotton or gloves for touch-sensitive glass user interfaces with capacitive touch function.

If you are using somewhat thicker gloves, then exert somewhat more pressure when using the touch panel.

#### Compatible gloves

You will operate the touch-sensitive glass user interface on the Operator panel optimally with the following gloves.

- Dermatril L
- Camatril Velours type 730
- Uvex Profas Profi ENB 20A
- Campapur Comfort Antistatic type 625
- Carex type 1505 / k (leather)
- Reusable gloves, medium, white, cotton: BM Polyco (RS order number 562-952)

#### Thicker work gloves

- Thermoplus KCL type 955
- KCL Men at Work type 301
3.3.2 Finger gestures for multi-touch operation

Tap
- Select window
- Select object (e.g. NC set)
- Activate entry field
  - Enter or overwrite value
  - Tap again to change the value

Tap with 2 fingers
- Call the shortcut menu (e.g. copy, paste)

Flick vertically with one finger
- Scroll in lists (e.g. programs, tools, zero points)
- Scroll in files (e.g. NC program)

Flick vertically with two fingers
- Page-scroll in lists (e.g. NPV)
- Page-scroll in files (e.g. NC programs)

Flick vertically with three fingers
- Scroll to the start or end of lists
- Scroll to the start or end of files
3.3 Operating with finger gestures

- **Flick horizontally with one finger**
  - Scroll in lists with many columns

- **Spread**
  - Zoom in to graphic contents (e.g. simulation, mold making view)

- **Pinch**
  - Zoom out from graphic contents (e.g. simulation, mold making view)

- **Pan with one finger**
  - Move graphic contents (e.g. simulation, mold making view)
  - Move list contents

- **Pan with two fingers**
  - Rotate graphic contents (e.g. simulation, mold making view)

- **Tap and hold**
  - Open input fields to change
  - Activate or deactivate edit mode (e.g. actual block display)
Tap and hold using 2 fingers
- Open cycles line by line to change (without input screen form)

Tap with two index fingers
- Tap with two fingers simultaneously in the lower right and left-hand corners of the panel to open the TCU menu. The menu has to be opened for service purposes.

Note
Flicking gestures with several fingers
The gestures only function reliably if you hold the fingers sufficiently far apart. The fingers should be at least 1 cm apart.
Multitouch operation with SINUMERIK Operate

3.3 Operating with finger gestures
4.1 Overview

Widescreen format panels offer the option of using the additional area for displaying additional elements next to the SINUMERIK Operate screen for obtaining information faster and for faster operation. This sidescreen must be activated. To do this, a navigation bar is displayed.

You can display the following elements above the navigation bar:

- **Displaying (widgets)**
  - Space-saving: The contents of widgets can be scrolled horizontally and vertically
  - Clearly structured: The widgets can be minimized
  - Informative: All information always at a glance

- **Virtual keys (pages)**
  - ABC keyboard
  - MCP keys
    - Saves mechanical keys and additional keyboards, and allows individual adaptations

Requirements

- A widescreen format multitouch panel (e.g. OP 015 black) is required to display widgets and pages.
- It is only possible to activate and configure a sidescreen when using the "SINUMERIK Operate Generation 2" user interface.
- Licenses for SINUMERIK Operate with sidescreen (Page 33)

References

For information on activating the sidescreen and to configure the virtual keys, refer to the following literature:


4.2 Sidescreen with standard windows

**Machine manufacturer**

You activate the sidescreen using machine data MD9114 $MM_SIDESCREEN.

When the sidescreen is activated, a navigation bar is shown on the left-hand side of the user interface.
This navigation bar can be used to switch directly to the desired operating area, and to show and hide the sidescreen.

### Navigation bar

<table>
<thead>
<tr>
<th>Operator control</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Machinery" /></td>
<td>Opens the &quot;Machinery&quot; operating area.</td>
</tr>
<tr>
<td><img src="image" alt="Tool list" /></td>
<td>Opens the tool list in the &quot;Parameter&quot; operating area.</td>
</tr>
<tr>
<td><img src="image" alt="Work offset" /></td>
<td>Opens the &quot;Work offset&quot; window in the &quot;Parameter&quot; operating area.</td>
</tr>
<tr>
<td><img src="image" alt="Program" /></td>
<td>Opens the &quot;Program&quot; operating area.</td>
</tr>
<tr>
<td><img src="image" alt="Program manager" /></td>
<td>Opens the &quot;Program manager&quot; operating area.</td>
</tr>
<tr>
<td><img src="image" alt="Diagnostics" /></td>
<td>Opens the &quot;Diagnostics&quot; operating area.</td>
</tr>
<tr>
<td><img src="image" alt="Commissioning" /></td>
<td>Opens the &quot;Commissioning&quot; operating area.</td>
</tr>
</tbody>
</table>
### 4.3 Standard widgets

#### Open sidescreen
- Tap the arrow on the navigation bar to show the sidescreen.
- The standard widgets are displayed in minimized form as the header line.

#### Navigating in sidescreen
- To scroll through the list of widgets, swipe vertically with 1 finger.
  - OR -
- To return to the end or to the beginning of the list of widgets, swipe vertically with 3 fingers.
Standard widgets

Alarms
The widget contains all the alarms in the alarm list. The alarm number and description are displayed for every alarm.
Up to 3 alarms are displayed. Vertical scrolling is possible if multiple alarms are pending.
An acknowledgment symbol indicates how the alarm is acknowledged or canceled.

Axle load
The widget shows the load on all axles in a bar chart.
Up to 6 axes are displayed. Vertical scrolling is possible if multiple axes are present.

Tool
The widget contains the geometry and wear data for the active tool.
The following information is additionally displayed depending on the machine configuration:
- EC: Active location-dependent offset - setting up offset
- SC: Active location-dependent offset - additive offset
- TOFF: Programmed tool length offset in WCS coordinates, and programmed tool radius offset
- Override: Value of the overridden movements that were made in the individual tool directions

Open widgets
- To open a widget, tap the header line of the widget.

4.4 Sidescreen with pages for the ABC keyboard and/or machine control panel
Not only standard widgets but also pages with ABC keyboards and machine control panels can be configured in the sidescreen of a multitouch panel.
Configure ABC keyboard and MCP

If you configured ABC keyboard and MCP keys, then the navigation bar is extended for the sidescreen:

<table>
<thead>
<tr>
<th>Operator control</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Keyboard Icon]</td>
<td>Display of standard widgets in the sidescreen</td>
</tr>
<tr>
<td>![Keyboard Icon]</td>
<td>Display of an ABC keyboard on the sidescreen</td>
</tr>
<tr>
<td>![MCP Icon]</td>
<td>Display of a machine control panel on the sidescreen</td>
</tr>
</tbody>
</table>

4.5 Example 1: ABC keyboard in the sidescreen

① ABC keyboard  
② Key to display the keyboard
4.6 Example 2: Machine control panel in the sidescreen

1. Machine control panel
2. Key to display the machine control panel
5.1 Overview

The integration of SINUMERIK Operate in a WinCC interface combines the advantages of SINUMERIK Operate with the capabilities of the WinCC runtime:

- Intuitive CNC operation with SINUMERIK Operate
- The user interface can be simply individualized using SINUMERIK Integrate Create MyHMI / WinCC

Advantages of SINUMERIK Operate

- The familiar user interface shortens training times for users
- User-friendly operation of the multitouch panel with gestures.

Possibilities of WinCC

- Virtual MCP
  Can be designed and individualized as required
- Clearly structured menu-based operation
  Creation of modern user guidance through touch technology and thus direct access to information
- Further design possibilities for the clearly structured operation
  Switchover via tabs, and/or use of popup and slide-in windows
Virtual keyboard
Efficient input through central keyboard for all input elements.

Document display
Access to digital documents (e.g. manuals, drawings in PDF format)

Intranet/Internet access:
Connection to web-based services via browser control (e.g. web-based order management).

Additional functions
- Message system (system and user-defined messages)
- User administration
- Archiving (e.g. process values, variables)

Prerequisites
- Licenses for SINUMERIK Operate with basic application (Page 33)

References
For information on configuration please refer to the following literature:

5.2 WinCC – the easy and flexible way to create machine OEM-specific operating concepts

Using the SIMATIC WinCC (TIA Portal) engineering system, you can simply and conveniently configure operating solutions for a machine OEM-specific operating concept.

The WinCC (TIA Portal) engineering software allows the configuration of all HMI applications – from the simplest operating solutions up to complex applications.

Another advantage is the interaction with STEP7 in the TIA Portal that, for example, makes multiple inputs unnecessary and guarantees consistent data management. To achieve this, the PLC must also be configured with STEP 7 (TIA Portal) – or using a proxy.
WinCC (TIA Portal) facilitates easier, more efficient configuration:

- **Innovative configuration interface based on the latest software technologies**
  - The common engineering in the TIA Portal leads to standardization of common functions including the display on the screen. This makes it easier, for example, to operate the editors and leads to intuitive, efficient work.
  - You can reuse what you have already learnt in order to optimize the work and avoid errors.

- **Extensive library concept for freely definable objects and picture blocks**
  - The extensive picture blocks and libraries supplied allow high-quality operating screens to be created quickly and easily.
  - Object properties can be flexibly modified and individualized using dialogs and scripts.
  - Proven blocks are stored in user libraries. This saves engineering time and avoids errors.

- **Intelligent tools for graphic configuration and mass data processing**
  - Wizards are available to assist you with the configuration.

---

**Note**

**Configuration with Step7 Classic**

A proxy device can be configured if it is necessary for technical or system-specific reasons to continue creating the PLC program with STEP7 Classic.
5.3 Creating machine OEM-specific operating concepts

Integrating SINUMERIK Operate in the user interface

Integrating SINUMERIK Operate provides some decisive advantages when implementing an efficient operating concept:

- Familiar operator interface for operating the control
- Access to SINUMERIK Operate in the overall operating concept
- Additional information in addition to SINUMERIK Operate

1. SINUMERIK Operate
2. Virtual keyboard
3. Virtual machine control panel
4. Tab to switch over between views
Integrating image elements and objects

- SINUMERIK Operate can be integrated into the overall screen as a picture element.
- On different WinCC screens, you have the option of using SINUMERIK Operate in different sizes (one resolution per WinCC screen).
- You have the option of using the widest range of graphic objects from image blocks and libraries, which are supplied, for visualization (e.g. part program view, buttons, input fields, gauges).

Virtual keyboard and machine control panel

The operation of SINUMERIK Operate can be enhanced, e.g. through additional virtual keyboards or virtual machine control panels.

This achieves a reduction in the number of conventional machine control panels and a more flexible design.

Accessing SINUMERIK 840D sl data

Connecting WinCC to SINUMERIK 840D sl allows you to access all PLC and NC data.

- Access to NC variables, GUD variables, machine and setting data
- NC alarms, DB2 alarms
- PI services

Using program instance services, you can execute permanently defined operations on the NC.

Additional information is provided in the SINUMERIK Integrate Create MyHMI /WinCC V14 SP1 Configuration Manual (https://support.industry.siemens.com/cs/document/109748594).

Display digital documents

- Access to digital documents (e.g. manuals and drawings in PDF format).

Using a configurable PDF reader, PDFs that are stored on the IPC or are in the network can be accessed.

The required information is quickly found with a full-text search. You can transfer content, and therefore speed up operation, with copy & paste.

Integrate camera image

A camera image can be integrated without an additional display device.

- The camera image allows remote processes to be observed and difficult to access areas to be monitored.
- Machine states can be documented and stored in this way.

Web browser

Connection to web-based services (e.g. web-based order management).
Pop-up and slide-in images

Content can be shown dynamically using pop-up and slide-in images.

- Pop-up images are suitable, e.g. for context-related displays or setting individual parameters.
- Slide-in images are suitable, e.g. for making status information available on the HMI with one tap.

Scripts

Scripts allow you to individually design objects.


SIMATIC SmartServer and SmartClient concept

A smart client in the WinCC user interface of the machine tool allows a connection to be established to a PC/office PC that can be remotely accessed. To do this, a smart server is required on the target PC. This allows applications to be integrated, for example CAD software, without having to run this application directly on the machine.

Creation of your own tools (controls)

You have the option of developing your own controls, which then allow you to further individualize your operating concept.

5.4 Examples of the design for OEM-specific operating concepts.

5.4.1 Example 1 - Integration of SINUMERIK Operate into a WinCC interface with navigation keys

This example is characterized by role-specific and thematically structured navigation:

- Administrative tasks
- Simple integration and representation of information about external contents (documentation, camera, web contents)
- Service and maintenance
Operating concept with role-specific navigation

5.4.2 Example 2 - Integration of SINUMERIK Operate into a WinCC interface with PDF Viewer

This example demonstrates electronic production by directly accessing machine documentation.

- Representation of the setup plan parallel to the tool loading
- Copy & paste from the PDF directly into the tool list
Parallel display of information directly on the machine

5.4 Examples of the design for OEM-specific operating concepts.
## A.1 Prerequisites

### licenses

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<th>Designation</th>
<th>Article number</th>
<th>Meaning</th>
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<tr>
<td>SINUMERIK Operate /PC</td>
<td>6FC5800-0AP87-0YB0</td>
<td>License for operating SINUMERIK Operate on one PC</td>
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<tr>
<td>SINUMERIK Operate /PCU</td>
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<tr>
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<tr>
<td>SINUMERIK Operate /universal client</td>
<td>6FC5800-0AS87-0YB0</td>
<td>License for operating SINUMERIK Operate on the NCU for universal clients</td>
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<tr>
<td>SINUMERIK Operate with basic application</td>
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<tr>
<td>WinCC Advanced V14 SP1</td>
<td>6AV2102-0AA04-0AA5</td>
<td>HMI engineering software in the TIA Portal on DVD; Floating License; prerequisite for SINUMERIK INTEGRATE Create MyHMI /WinCC V14</td>
</tr>
<tr>
<td>SINUMERIK INTEGRATE Create MyHMI /WinCC V14 SP1</td>
<td>6FC5861-3YC44-0YA0</td>
<td>WinCC expansion for SINUMERIK 840D sl on DVD*; incl. single license</td>
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<tr>
<td>Runtime options for a basic application running on a Simatic IPC</td>
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<td>SINUMERIK user interface; prerequisite for SINUMERIK INTEGRATE Run MyHMI /WinCC</td>
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<tr>
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<td>6FC5800-0AP61-0YB0</td>
<td>License for operating WinCC Advanced RT in SINUMERIK 840D sl</td>
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### Note: Windows Embedded can only be used with SIMATIC IPCs that have been appropriately released.

You can find additional information in the release for sale and delivery SINUMERIK Create MyHMI/WinCC V14 SP1 ([https://support.industry.siemens.com/cs/ww/de/view/109748182](https://support.industry.siemens.com/cs/ww/de/view/109748182)).
References

You can find additional information in the following reference:

### A.2 Documentation overview SINUMERIK 840D sl

#### General documentation

- **Advertising brochure**
- **Catalog NC 62**
- **Catalog PM 21**
- **System ManualCtrl-Energy**

#### User documentation

- **Operating Manual**
  - Universal
  - Turning
  - Milling
  - Grinding
- **Create MyConfig**
- **Programming Manual**
  - Fundamentals
  - Job Planning
  - Measuring Cycles
- **Programming Manual**
  - ISO Turning
  - ISO Milling
- **Diagnostics Manual, Alarms**

#### Manufacturer/Service documentation

- **Equipment Manual**
  - NCU
  - Operator components and networking
  - AD14
- **System Manual Guidelines for machine configuration**
- **Commissioning Manual**
  - CNC, NCK, PLC, Drive
  - Base software and operating software
- **Lists Manual**
  - Machine data
  - Interface signals
  - Variables

#### Manufacturer/Service documentation

- **Function Manual**
  - Basic functions
  - Extended Functions
  - Special Functions
  - Synchronized Actions
  - ISO Dialects
- **Function Manual**
  - Tool management
- **Function Manual**
  - Safety Integrated
- **Configuration Manual**
  - EMC installation guideline
  - Industrial security

#### Info / Training

- **Training documentation**
  - Simple milling with ShopMill
  - Simple turning with ShopTurn
- **Tool and Mold Making Manual**

#### Electronic documentation

- **DOConCD**
- **Industry Online Support (SiOS)**
- **Industry Mall**
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