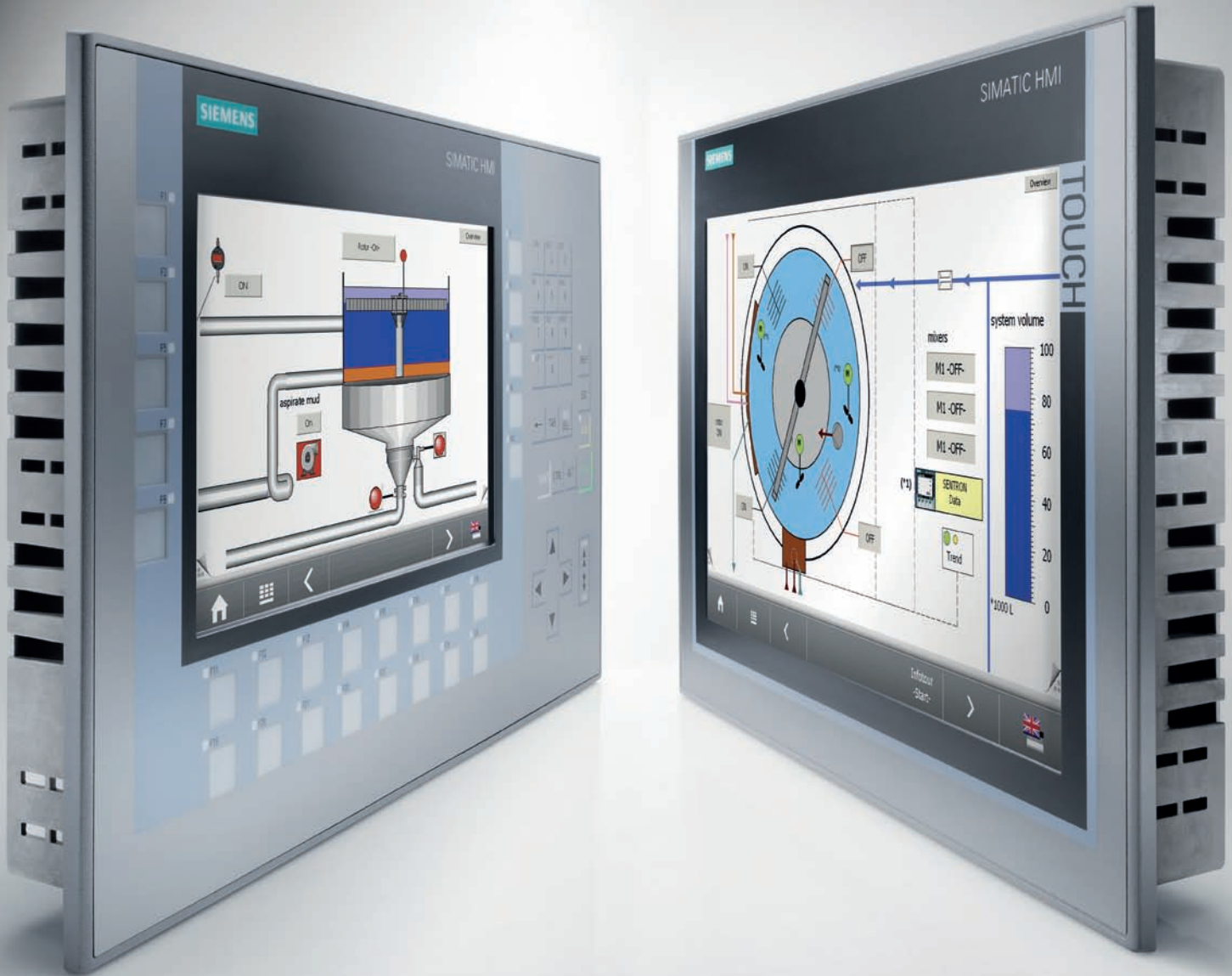# Brilliant – Intelligent – Practical

SIMATIC HMI Comfort Panels with SIMATIC WinCC Comfort in the TIA Portal

Engineered with Totally Integrated Automation Portal (TIA Portal)

The TIA Portal represents the intuitive, efficient and proven engineering framework for all automation tasks.
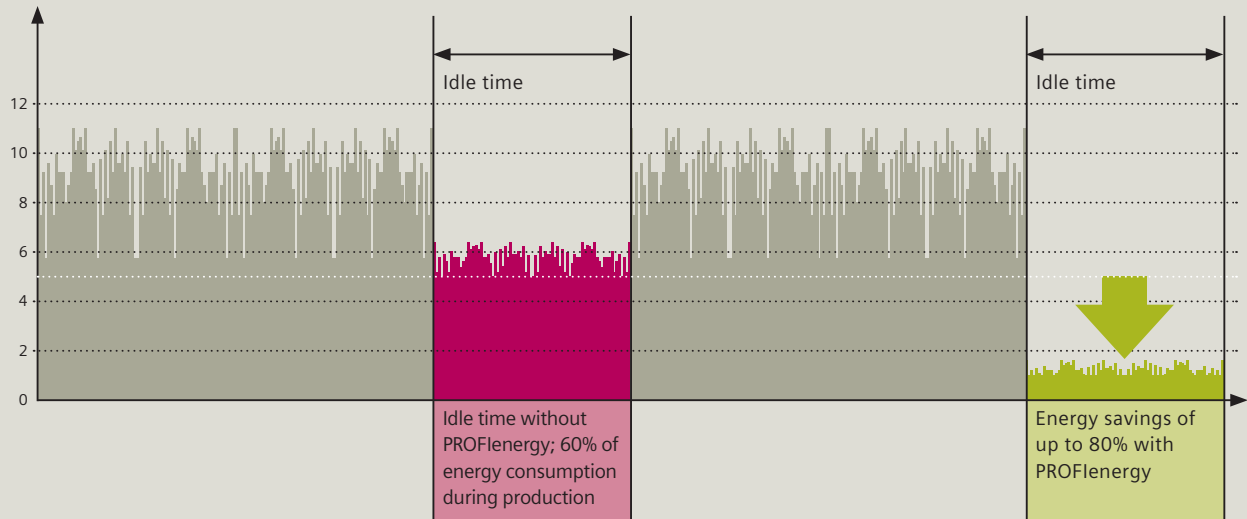
siemens.com / comfort-panels

SIMATIC HMI Comfort Panels –
the HMI family with integrated
high-end functionality

The first choice for complex applications
for operator control and monitoring, SIMATIC HMI
products are "state of the art." They are the
intelligent response to increasingly complex
processes and stringent requirements for the
operation of machines and plants.

- Integrated functionality across all display sizes
- Brilliant widescreen displays with dimmable LED backlight
- Upright portrait installation possible for all touch devices
- 100 percent data protection
- Fast application recovery in case of device damage
- Intelligent energy management with PROFIenergy

Idle time

Idle time

Idle time without PROFIenergy; 60% of energy consumption during production

Energy savings of up to 80% with PROFIenergy

Optimally utilize production breaks with PROFIenergy
PROFIenergy actively controls the current consumption of all automation components:

- Individual loads or entire production units are switched off when they are not required for the production process.
- Coordinated switching ensures a high degree of plant reliability.
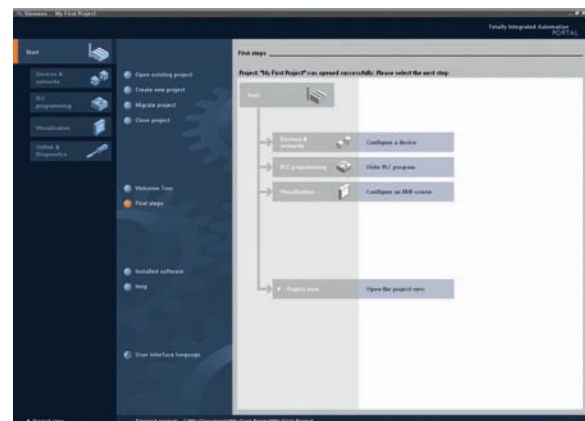- The easy integration of existing standards ensures continuous investment protection.

SIMATIC HMI Comfort Panels support PROFIenergy and also utilize any additional advantages of PROFINET, the open Ethernet standard for automation.

Totally Integrated Automation Portal – the engineering framework for all automation tasks

Intuitive, efficient, proven
The Totally Integrated Automation Portal (TIA Portal) is the innovative engineering framework that offers a uniform engineering environment for programming and configuring control, visualization and drive solutions.

The new SIMATIC HMI Comfort Panels are seamlessly integrated into the TIA Portal via SIMATIC WinCC V11. This innovative engineering framework is the key to the full performance capability of Totally Integrated Automation.

With its intuitive user interface, efficient navigation, and proven technology, the TIA Portal offers users an integrated platform for implementing automation solutions – for any sector, anywhere in the world.

3

SIMATIC HMI Comfort Panels – maximum practicality, maximum performance

Complex processes place high demands on the ruggedness and functionality of HMI devices. SIMATIC HMI Comfort Panels are state-of-the-art. They offer high performance, integrated functionality, and high quality aluminum fronts* for demanding applications. They are available in sizes from 4" to 22" – all with high-resolution and dimmable widescreen displays with LED backlight. SIMATIC HMI Comfort Panels can be optimally adapted to any application and the frameless design visually complements any machine.

* with a size of 7" or larger

1. Extremely flexible across all sizes
- Versions in sizes 4", 7", 9", 12" and 15" with touch or keys and 19" and 22" touch; the 4" touch device features additional keys.
- All touch devices can be installed upright (in portrait format) to maximize space in the plant or for special machine designs.
- Integrated high-end functionality: archives, VB scripts and various viewers for displaying plant documentation – e.g. as PDFs – and Internet pages by default.

3. Application and data protection
- Application is automatically backed up and quickly restored in case of device damage.
- Full protection against voltage failure of the complete device, the recipes and the archives in RDB format on SIMATIC HMI plug-in memory cards ensures the retention of process-relevant data in case of power failures.
- Supports plant certification in accordance with the FDA guidelines.
- Savings in hardware costs – no additional uninterruptible power supply required.
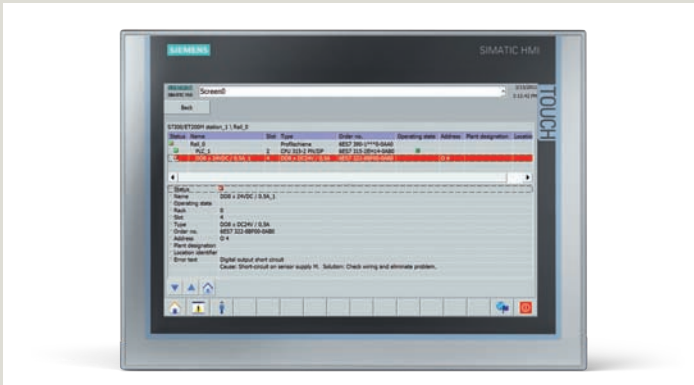

2. Brilliant displays in widescreen format
- Up to 40 percent larger visualization area than conventional displays. Complex operating screens can also be clearly displayed and divided into sections for application control and application monitoring.
- The high resolution, 16 million colors, and a wide viewing angle up to 170°, allow optimal readability and a detailed process display.
- The brightness of the LED backlight can be dimmed by up to 100 percent to adapt to the lighting conditions of the application. This saves energy and increases the service life of the display.

4. Optimum convenience, even during commissioning
- Project data, device settings and parameters are saved on the system card (SIMATIC HMI Memory Card) in the device and automatically updated during operation.
- Simple download of projects via low-cost standard cables.
- Fast commissioning – all Ethernet settings of the panel are made while configuring.
- Increased plant availability due to an innovative service concept.
- If panel data are to be transferred to another device:
  Simply insert the system card into the other device – confirm – get started.

5. Precise diagnostics made easy

- When connected to SIMATIC Controllers, diagnostic information can be read out directly via the Comfort Panel.
- Cost savings – no additional diagnostic hardware is required.
- Increased plant availability; faults can be found more quickly, leading to less downtime.

7. Can be used in many sectors and regions

- Certified according to ATEX for Ex zones 2 and 22 for use in hazardous areas*.
- Marine approval due to dimmable LED backlight*.
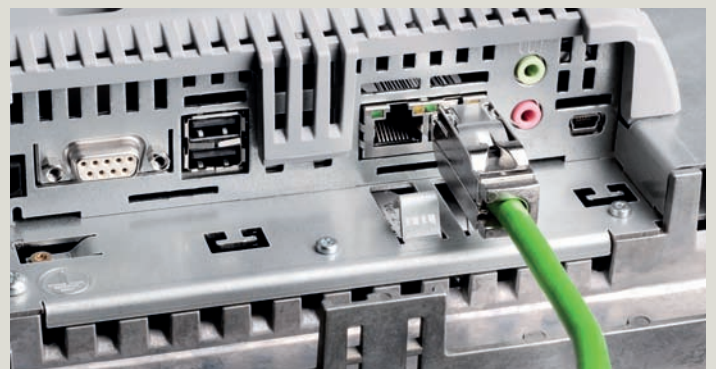
* available soon

6. Easy to operate

- Intuitive, fast entries due to familiar and easy-to-operate operator control similar to that of a mobile phone keypad.
- All function keys are equipped with LEDs. The keys that need to be pressed can be indicated to help facilitate operator guidance.
- For additional operating reliability, all of the keys provide tactile feedback when pressed. This is important, for example, when working with gloves.

8. More interfaces – less hardware costs

- Easy integration in existing system structures and networks thanks to PROFIBUS and PROFINET standard interfaces. From the 7" device upwards, two PROFINET interfaces with integrated network switch are available, from the 15" device upwards, an additional third PROFINET interface is integrated.
- Audio In/Audio Out interface for playback of sound files via the integrated Media Player.
- Easy connection of external devices such as printers, USB flash drives, mouse, or keyboard via two integrated USB host interfaces.
- Additional USB device interface for low-cost project download via standard cables.

Technical Data

	KP400 Comfort	KTP400 Comfort	TP700 Comfort	KP700 Comfort	TP900 Comfort
	4" Key	4" Touch + Key	7" Touch	7" Key	9" Touch
Display	TFT widescreen, 16 million colors, LED backlight 100% dimmable, viewing angle 170°				
Size (in inches)	4		7		9
Resolution (W x H in pixels)	480 x 272		800 x 480		
MTBF of backlight (at 25 °C in h)	80.000				
Front dimensions (in mm)	152 x 188	140 x 116	214 x 158	308 x 204	274 x 190
Control elements	Membrane keypad	Touch screen, Membrane keypad	Touch screen	Membrane keypad	Touch screen
Function keys (programmable) / system keys	8 (w. LED) / •	4 (w. LED) / •	–	24 (w. LED) / •	–
External keyboard / mouse / printer	USB / USB / USB				
Memory					
User memory	4 MByte		12 MByte		
Memory for options / recipes[2]	4 MByte / 512 KByte		12 MByte / 2 MByte		
Interfaces					
Serial / MPI / PROFIBUS DP	• [1] / • / •				
PROFINET (Ethernet)	1		2 (integrated switch)		
USB host / USB device	1 / 1		2 / 1		
Slot for CF / Multi Media / SD	– / – / 2				
Functionality (if configured with WinCC V11)					
Alarm logging (number of alarms / alarm classes)	2000 / 32 (incl. alarm buffer)		4000 / 32 (incl. alarm buffer)		
Process screens	500				
Tags	1024		2048		
Vector graphics	•				
Bar graphs / curve diagrams	• / f (t), f (x)				
Faceplates	•				
Recipes	100		300		
Archiving	10		50		
Visual Basic Scripts	50		100		
Programming device	STATUS / CONTROL, diagnostics viewer				
Connection to controller					
SIMATIC S7 / SIMATIC WinAC	• / •				
SIMATIC S5 / SIMATIC 505	– / –				
SINUMERIK / SIMOTION	– / –				
Allen Bradley / Mitsubishi	• / •				
Modicon / Omron	• / •				
Options, application					
Sm@rtServer / audit / logon	• / • / •				
OPC-Server / Internet Explorer	• / •				
Order No.					
Comfort Panel	6AV2124-1DC01-0AX0	6AV2124-2DC01-0AX0	6AV2124-0GC01-0AX0	6AV2124-1GC01-0AX0	6AV2124-0JC01-0AX0

Starter kits*) for Comfort Panels are available via the Internet: **www.usa.siemens.com / comfort-panels**

1) RS232 with adapter   2) integrated flash, expandable via memory card   *Contains SIMATIC HMI Comfort Panel, Ethernet cable 2 m, SIMATIC HMI Memory Card 2 GB, 10 cover foils (on pa
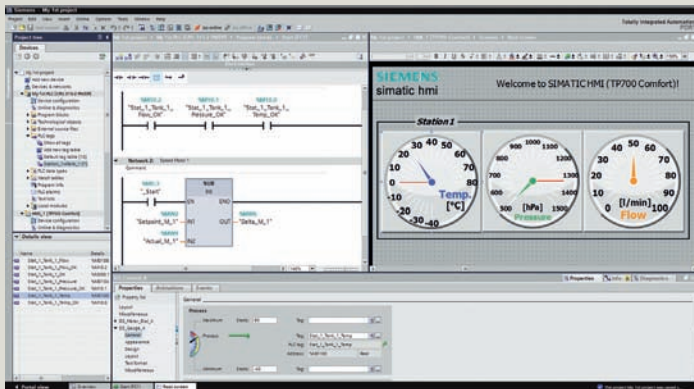
SIMATIC HMI Comfort Panels

			new!	new!	new!	new!
KP900 Comfort	TP1200 Comfort	KP1200 Comfort	TP1500 Comfort	KP1500 Comfort	TP1900 Comfort	TP2200 Comfort
9" Key	12" Touch	12" Key	15" Touch	15" Key	19" Touch	22" Touch
	12		15		19	22
	1280 x 800				1366 x 768	1920 x 1280
					50.000	30.000
362 x 230	330 x 241	454 x 289	415 x 310	483 x 310	483 x 337	560 x 380
Membrane keypad	Touch screen	Membrane keypad	Touch screen	Membrane keypad	Touch screen	Touch screen
26 (w. LED) / •	–	34 (w. LED) / •	–	36 (w. LED) / •	–	–
			24 MByte			
			24 MByte / 4MByte			
			2 (integr. switch) + 1			
			6000 / 32 (incl. alarm buffer)			
			750			
			4096			
			500			
			50			
			200			
6AV2124-1JC01-0AX0	6AV2124-0MC01-0AX0	6AV2124-1MC01-0AX0	6AV2124-0QC02-0AX0	6AV2124-1QC02-0AX0	6AV2124-0UC02-0AX0	6AV2124-0XC02-0AX0

ackages with touch panel), SIMATIC WinCC Comfort, SIMATIC HMI Manual Collection

Seamless configuration of all SIMATIC HMI devices with SIMATIC WinCC V11 in the TIA Portal

SIMATIC WinCC V11, the new HMI software in the TIA Portal, ensures maximum project efficiency and integrated engineering from all HMI Panels up to SCADA systems. The software offers ready-to-use objects, reusable faceplates and intelligent tools, and permits the implementation of multilingual projects. SIMATIC WinCC V11 in the TIA Portal is available in different levels graded according to price and performance. They are based on each other and are optimally tailored to the
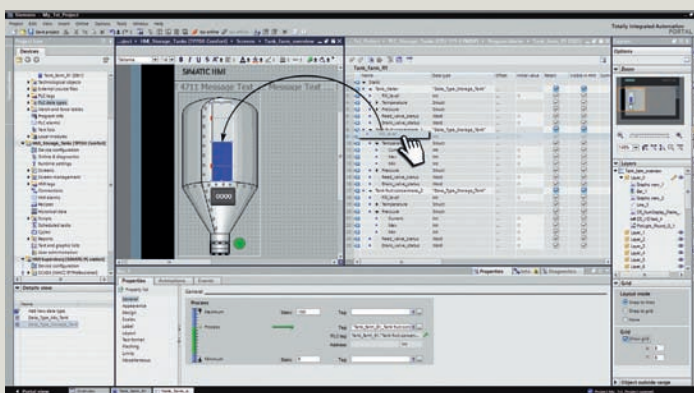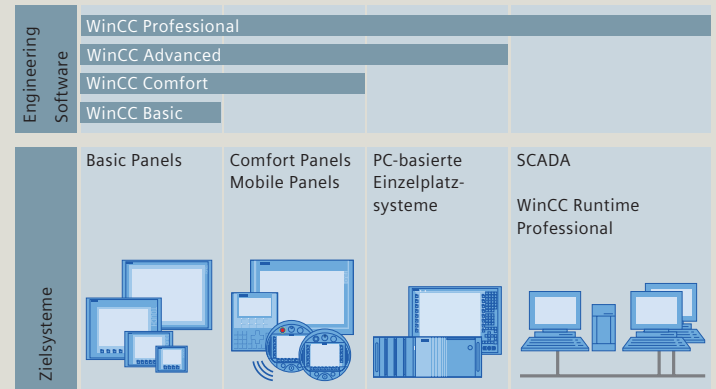

1. Optimum interaction between the controller and HMI
- Shorter familiarization time and fewer errors.
- All shared functions are displayed identically.
- Intelligent editors are context-sensitive and show only those functions that can be used: functions, properties, libraries.
- Thanks to split screen techniques, several editors can be opened at the same time so that data can be exchanged using drag & drop.
- The shared database ensures data consistency throughout the entire automation project – resulting in fewer errors and compact transparent projects.
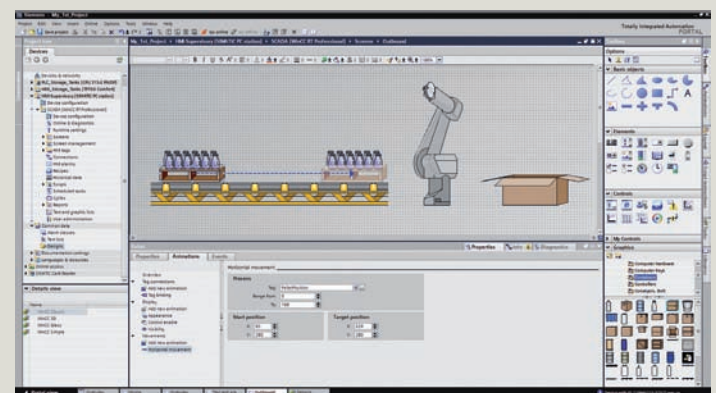

2. Scalable from Basic Panels to SCADA
- Investment protection is ensured.
- Integrated engineering of all SIMATIC HMI devices for all HMI applications.
- Scalability of the respective runtime basic system due to corresponding options such as machine-level distributed operating stations with WinCC Sm@rtServer.

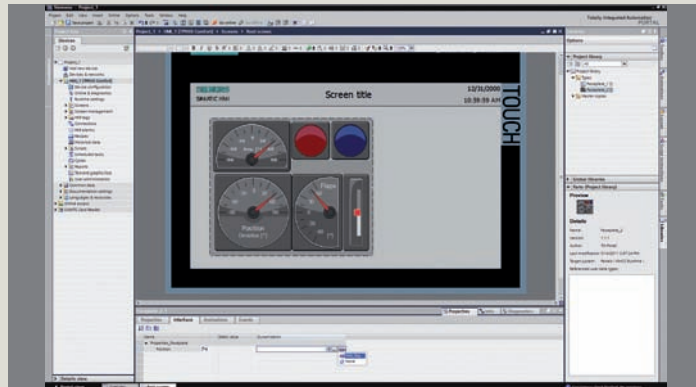
3. Intuitive user interface with maximum convenience
- The embedding of various editors in a shared working environment ensures the constant availability of all data and an easy overview of the project data.
- For engineering, a task-orientated environment focused on the current work flow is used.
- The intuitive operating concept of SIMATIC WinCC V11 is based on the familiar Windows technology and editors, which are adapted to the configuration tasks.

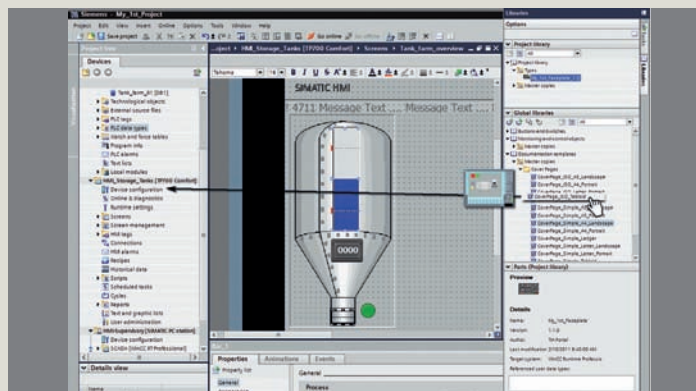## 4. Intelligent tools for efficient configuration
- Complex tasks such as the definition of paths of motion or the creation of fundamental operator prompting are simplified by means of graphical configuration.
- Table-based editors simplify the generation and processing of similar types of object, e.g. tags, texts, or messages.
- User-friendly search and replace functions enable project-wide searching for objects, centralized rewiring of tags, and the searching and replacing of texts.
- The cross-reference list provides direct access to all objects in the project.

individual HMI device classes. The higher software package always includes the configuration options of the lower package. Existing projects can thus simply continue to be used when migrating to a more powerful SIMATIC HMI device.

Existing investments are optimally protected.
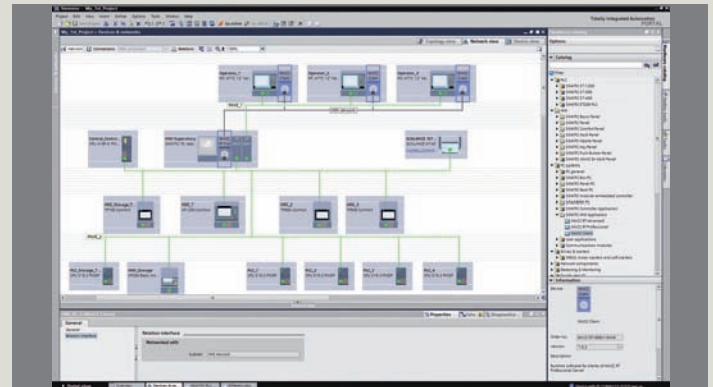

5. Reusable faceplates
- SIMATIC WinCC V11 in the TIA Portal includes many scalable and dynamic objects from which faceplates can be created and stored in a library.
- The faceplates can be reused throughout the project or for individual machines.
- Centralized modification control of the blocks ensures consistency.
- Reusability makes it possible to save on engineering and significantly increase the quality of the solution.

7. Clear configuration of devices and network topologies
- A core task in creating the application is configuring and parameterizing the hardware and networks.
- The TIA Portal supports the user with photographic quality representation and configuration of the hardware modules.
- In the network view, the user can define connections between the different automation devices as well as the configuration of clients and servers.
- Client/server applications are also configured simply and efficiently by means of the software.

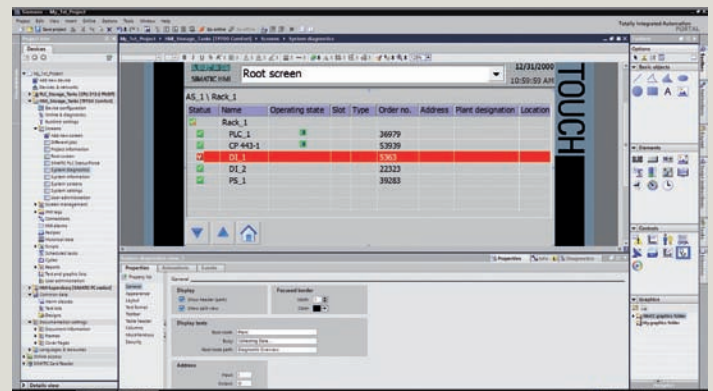## 6. Comprehensive library concept
- Supplied and proprietary program blocks and faceplates, as well as off-the-shelf modules and devices, are managed in structured libraries.
- They can be stored with their parameter settings in local or global libraries.
- This also applies to screens, tags, and alarms including their properties.
- They are available for further programming tasks or configurations.

8. Integrated system diagnostics
- System diagnostics is an integral element of the TIA Portal.
- As a block-based mechanism for detecting and signaling errors in a SIMATIC S7 automation system, it offers important benefits such as reduced engineering efforts and minimum error frequency.
- Time-consuming integration tests can be omitted.
- Users have the option of integrating new modules by simply regenerating the hardware configuration – no further programming is required.

SIMATIC WinCC in the TIA Portal – Scalable HMI

SIMATIC WinCC Engineering Software

The WinCC Engineering Software includes innovative engineering tools for the end-to-end configuration of all SIMATIC HMI devices and is available in a number of versions differentiated by price and performance. They are based on each other and are optimally tailored to the individual classes of operator panel. The larger software package always includes the configuration options of the smaller package. As of WinCC Comfort, it is possible to upgrade to the larger packages by means of PowerPacks.

The following licenses are available:

• WinCC Basic for the configuration of SIMATIC HMI Basic Panels (cannot be upgraded)
• WinCC Comfort for configuring the new Comfort Panels, Mobile Panels, x70 panels, and Multi Panels
• WinCC Advanced for the configuration of PC-based HMI single-user solutions
• WinCC Professional for process visualization and SCADA applications
(available in three variants with 512, 4096 or maximum number of PowerTags[1]))

SIMATIC WinCC Runtime Software

The runtime software is included in the SIMATIC HMI devices and offers different HMI functionalities and quantity structures depending on the hardware configuration of the device. For PC platforms, there are independent WinCC Runtime variants.
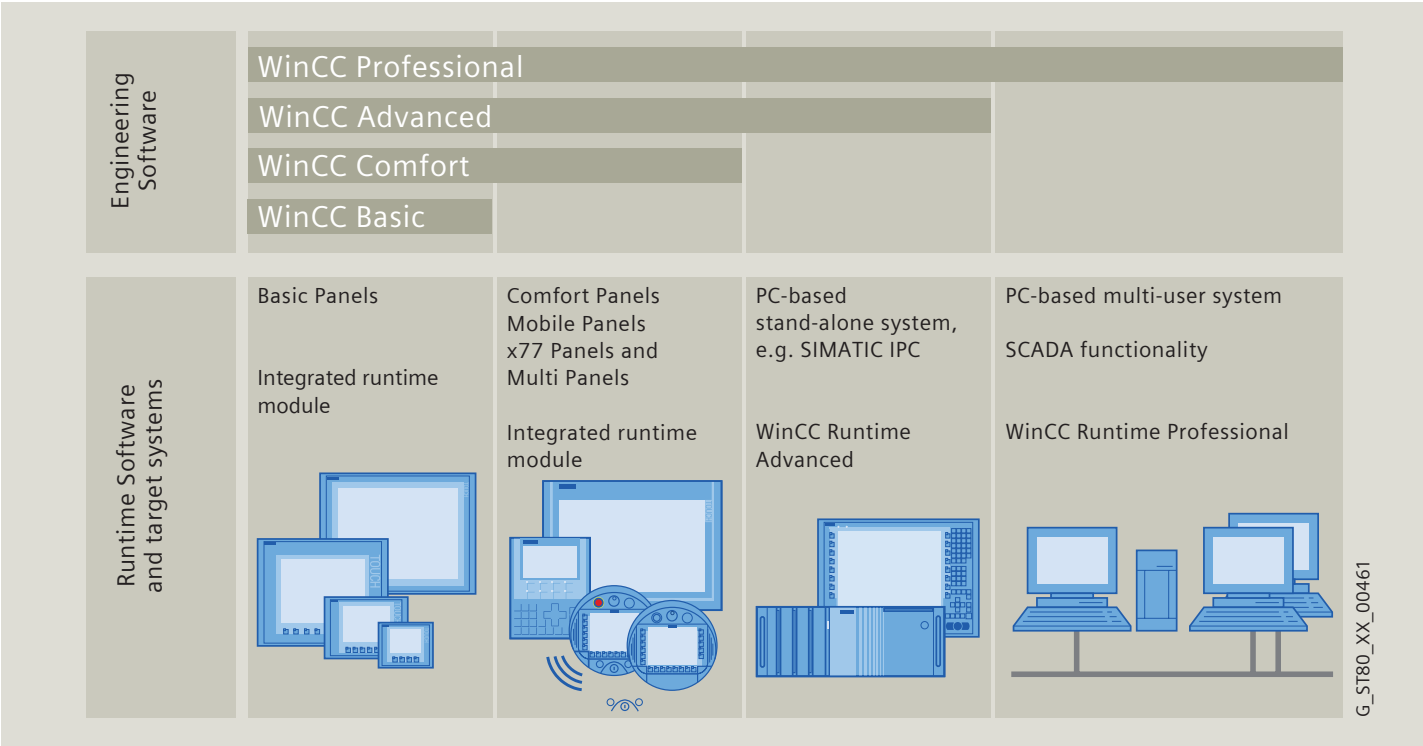
WinCC Runtime Software is available as:

• WinCC Runtime Advanced for PC-based HMI single-user solutions with 128, 512, 2K, or 4K PowerTags[1])
• WinCC Runtime Professional for Multi-User SCADA applications with 128, 512, 2K, 4K, 8K, and 64K PowerTags[1])

PowerPacks

PowerPacks give the user the option to adapt both the engineering software and the runtime packages to increasing requirements at any time. With PowerPacks the user can upgrade from WinCC Comfort to WinCC Advanced or WinCC Professional, or the number of configurable PowerTags[1]) can be further increased for WinCC Professional. PowerPacks for WinCC Runtime Advanced or WinCC Runtime Professional allow the user to increase the number of usable PowerTags[1]) of the Runtime software.

1) Only process tags that are connected to the controller or other data sources via a WinCC communication channel are designated as Power-Tags. Moreover, internal tags without process linking are available for free as additional system performance.

SIMATIC WinCC in the TIA Portal – Engineering software and target systems

10

Options

Functional or industry-specific expansions of the runtime software are available in the form of WinCC options. Some options are already integrated as standard functions in the HMI devices of various performance classes. Others can only run in combination with the corresponding Runtime basic software.

Software updates

With the Software Update Service (SUS), all released versions of your SIMATIC software are automatically delivered directly to you – i.e. all upgrades and service packs. Thus it is ensured that your software is always up-to-date.

Hardware support packages for the configuration of new SIMATIC HMI devices, as well as service packs, can be downloaded free of charge from the Internet.

The Software Update Service:

• Saves logistics costs
  Once it is ordered, the Software Update Service is automatically renewed every year.
• Reduces costs
  The service pays for itself after the first update as it costs less than an individually ordered update.
• Provides an overview of costs
  Software expenditures can be accounted for early in the budgeting process and they are easier to write off.

Purchase conditions

The Software Update Service is simply ordered like a product. An SUS is required for each installed software license. The SUS is valid for 12 months from the date of order and is automatically extended by a further year. It can be canceled three months prior to expiration. A prerequisite is the purchase of the current software version.

Operating Systems

WinCC in the TIA Portal – Engineering software	
Supported operating systems	Windows XP Professional SP3 (32 bit) Windows 7 Professional/Enterprise/Ultimate (32/64 bit) Windows 7 Professional/Enterprise/Ultimate SP1 (32/64 bit) Additionally with WinCC Basic: Windows XP Home SP3, Windows 7 Home Premium (32/64 bit) Windows 7 Home Premium SP1 (32/64 bit) Additionally with WinCC Professional: Windows Server 2003 Release 2 Standard Edition SP2 (32 bit) Windows Server 2008 Standard Edition SP2 (32 bit) Windows Server 2008 Release 2 Standard Edition (64 bit) Windows Server 2008 Release 2 Standard Edition SP1 (64 bit)

WinCC in the TIA Portal – Runtime software	
Supported operating systems	Windows XP Professional SP3 (32 bit) Windows Embedded Standard 2009 Windows 7 Professional/Enterprise/Ultimate (32/64 bit) Windows 7 Professional/Enterprise/Ultimate SP1 (32/64 bit) Windows Embedded Standard 7 (32 bit), Windows Embedded Standard 7 SP1 (32 bit), Windows Server 2003 Release 2 Standard Edition SP2 (32 bit) Windows Server 2008 Standard Edition SP2 (32 bit) Windows Server 2008 Release 2 Standard Edition (64 bit) Windows Server 2008 Release 2 Standard Edition SP1 (64 bit) Windows Embedded operating systems only on specifically released platforms (e.g. Panel PC 477), contact your Siemens representative for information.

Totally Integrated Automation Portal

The engineering framework for all automation tasks.

The Totally Integrated Automation Portal (TIA Portal) offers a uniform user interface for programming and configuring controllers, HMI and drives.

Completely new generation HMI software and hardware

With the TIA Portal HMI software WinCC V11, Siemens has turned its vision for a continuous engineering platform into a reality both for machine operation as well as SCADA process visualization. The new SIMATIC HMI Comfort Panels are seamlessly integrated within the TIA Portal for maximum usability.

Very affordable initial HMI starter packages

For every type of SIMATIC HMI comfort panel, a starter package is available.

The following components are included in the starter kit:
- 1 x SIMATIC HMI Comfort Panel
- 1 x Ethernet Cable, 2 m
- 1 x SIMATIC HMI Memory Card, 2 GB
- 10 x protective sheet (touch panel)
- 1 x SIMATIC WinCC Comfort
- 1 x SIMATIC HMI manuals on DVD

Starter package	Starter package
KTP400 Comfort	**KP400 Comfort**
6AV2181-4DB20-0AX0	6AV2181-4DB10-0AX0
TP700 Comfort	**KP700 Comfort**
6AV2181-4GB00-0AX0	6AV2181-4GB10-0AX0
TP900 Comfort	**KP900 Comfort**
6AV2181-4JB00-0AX0	6AV2181-4JB10-0AX0
TP1200 Comfort	**KP1200 Comfort**
6AV2181-4MB00-0AX0	6AV2181-4MB10-0AX0
TP1500 Comfort	**KP1500 Comfort**
6AV2181-4QB00-0AX0	6AV2181-4QB10-0AX0
TP1900 Comfort	**KP2200 Comfort**
6AV2181-4UB00-0AX0	6AV2181-4XB00-0AX0

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