



Human Machine Interface is changing...







Increase of production data

The amount of data generated annually will increase by five times until 2025. (175 Zettabyte)

Increasing number of devices and systems to connect

Gartner IT forecasts that the number of IoT devices will reach 25 billion by 2021

Upcoming user interaction scenarios

Expected sales of virtual reality equipment by 2022: 26.7 million devices (0.8 million in 2018)



If you want to master this change you have to deal with...

Web Technology

Scalability Manufacturing IT Collaboration Object orientation

SVG Device independency Openness Plant Intelligence Everywhere Access

Engineering Automation One Engineering Data Backbone HTML5

On Premise IT-Integration Edge computing Connectivity Usability

Digitalization Cloud Connectivity



These topics define the requirements for the HMI systems of the next decade.



We meet these requirements with the new WinCC Unified system!



- Native Web TechnologyHTML5, SVG, JavaScript
- Device independent
- Object oriented HMI



- One Engineering
- Unified Comfort Panels
- WinCC Unified PC
- Collaboration





- On Premise
- Unified @Cloud
- Unified @Edge
- MindSphere Apps



- Basis for Digitalization
- Plant Intelligence
- Integration Platform for everything north of the PLC
- **Openness**

SIMATIC WinCC Unified System V16 – Overview



Platform

Unified Comfort Panels, PC





Common engineering for all platforms

Software

SIMATIC WinCC Unified in TIA Portal V16





SIMATIC HMI Unified Comfort Panels Seeing what matters- in a brilliant way



New generation High-End Operator Panels from 7 to 22 Inch



Feature / Function

- Durable glass front with capacitive multitouch technology
- Expand the standard functionality with apps
- Significantly increased hardware performance and system limits
- Protected operating system and encrypted communication technologies
- Visualization powered by SIMATIC WinCC Unified

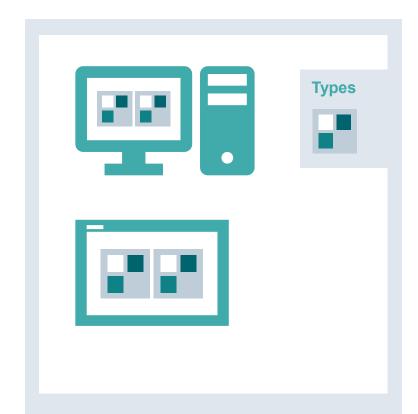
Benefit

- Maximum usability through enhanced legibility and brilliant colors
- Implement project-specific requirements easily
- Implement applications with a larger quantity structure
- High level of IT security to protect the system against cyber attacks
- Latest technology for today's and tomorrow's requirements to HMI systems

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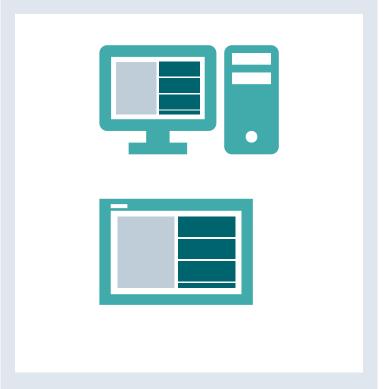
SIMATIC WinCC Unified – One common HMI platform





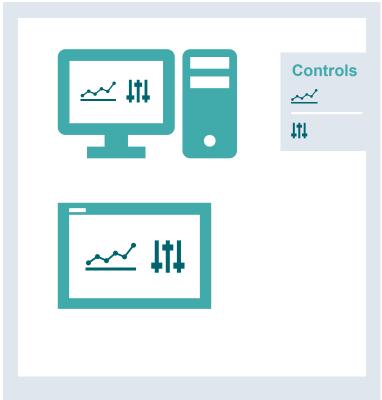
Faceplates

Use the same faceplates for Panel- and PC Systems.



Screen structure

Consistent structuring of screens with picture windows.



Controls

Common UI Controls for Panels an PC to ensure the best Usability.

SIEMENS Ingenuity for life SIMATIC WinCC Unified PC **Unrestricted © Siemens 2020** siemens.com/wincc-unified-system

SIMATIC WinCC Unified PC – Highlights



Scalability from panel to control center

One common software platform for all devices



Modern User Interface based on web technologies

Flexible access with any modern web browser



Advanced scripting based on JavaScript

Powerful and platform independent scripting language



Automate engineering tasks with TIA Portal Openness

Create, validate and reuse WinCC Unified components automatically



Technological hierarchy for object oriented engineering

Define plant assets once and reuse them by instances



Calendar and Performance Insight Option

Manage working times and get production insights based on individual KPI calculation



Easy collaboration of WinCC Unified systems

Setup of distributed configurations. Predefined as well as on the fly access



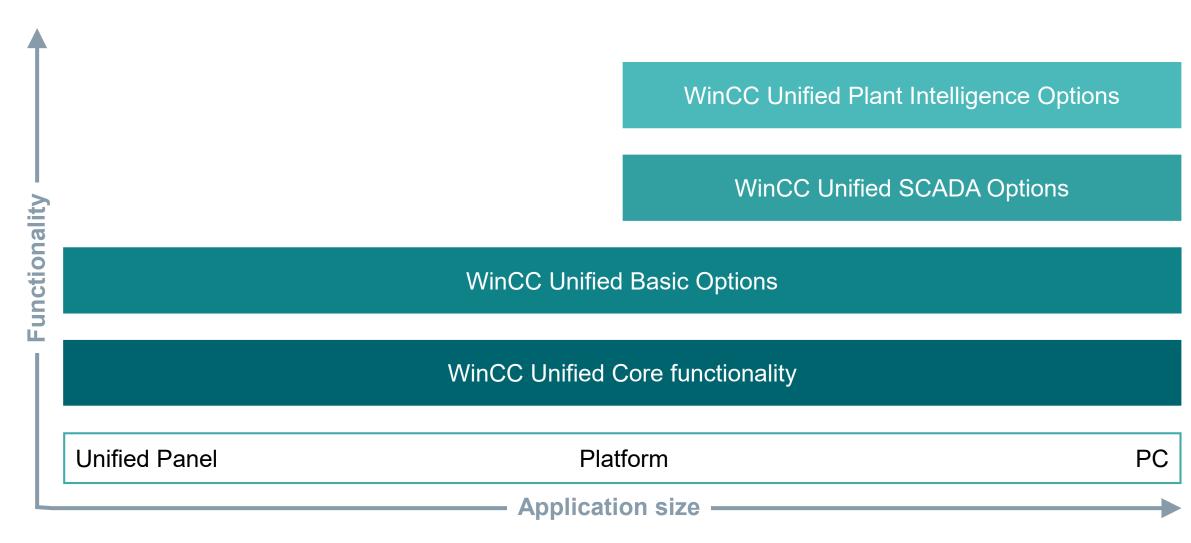
Use WinCC Unified as Integration Platform

Integrate IT-Tools into one user interface and exchange data via interfaces



Scalable from Panel to SCADA solution Seamless functionality and usability





WinCC Unified V16 Core functionality



Core functionality	Description	Unified Comfort Panels	Unified PC Runtime
User Interface	Scalable for all devices	/	~
Connectivity	Connecting automation and IT via standard interfaces	/	~
Alarming	Know what's happening at your facility	✓	~
Reporting	Reporting functionality (based on Microsoft Excel)	×	1
Scripting	Extensive scripting possibilities for Runtime	~	~
Openness Engineering	Shorten Time to Market using automated engineering	~	~
Openness Runtime	Expand runtime functionality and serve as integration platform	/	~
Technological Hierarchy	Modular and standardized machine and plant concepts	×	~
User Administration	Local user management and access control	✓	✓

¹ Automated reports optional



WinCC Unified – Modern User Interface



A great experience. No matter where you are!



Based on Web Technologies

Like HTML5, SVG and JavaScript. Lightweight user interface with all the possibilities you're used to.

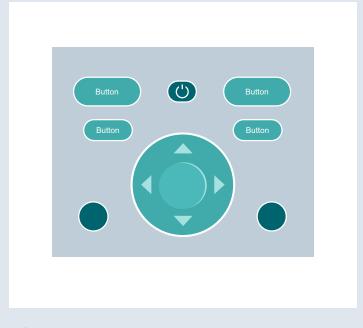


Access from Everywhere

With any modern web browser.

No need for installing extra plugins –

Also on mobile devices.



Customize and Animate

Use Dynamic SVGs or Custom Web Controls to make your HMI stand out.

WinCC Unified – Scripting – Advanced scripting with the power of JavaScript



```
export function Funtion (parameter1, parameter2){
  let tag1 = Tags('MyTag1');
  tag1.Write(123);

let tag2 = Tags('MyTag');
  tag1.Write(123);

if (tag1 > 1
    UI.RootWind
    HMIRutntime
  } else {
    HMIRuntime
  }
}
```

JavaScript is a widely spread and easy to learn scripting language

- One scripting language for all platforms (Panel and PC Systems)
- Use the entire object oriented JavaScript scope for handling data, objects, classes, inheritance
- Predefined Code Snippets for common tasks available in TIA Portal
- Integrated debugging functionality
- Local scripts for e.g., screen dynamics, events and scheduled tasks. Support of global script functions
- Direct access to WinCC Unified JavaScript object model e.g., access to file-system or databases

WinCC Unified V16 Access from Everywhere



Operating Overtons (Olivert) Decommended Browner	
System (Client)	Recommended Browser
Microsoft Windows	 Google Chrome (Test focus) Mozilla Firefox, Microsoft Edge
Android	Google Chrome (Test focus)FirefoxEdge
iOS, Mac	 Safari (Test focus) Google Chrome Firefox Edge

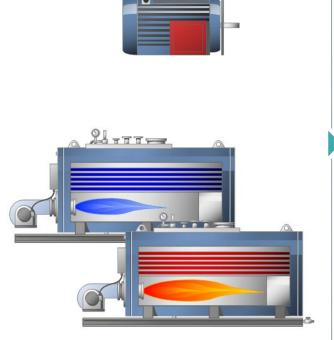


WinCC Unified V16 – User Interface Customize and Animate









Scalable Vector Graphics (SVG) for all resolutions without loss of quality

- Animate (dynamic) SVG files according to the process state
- Ready to use industry library with static and dynamic SVGs

WinCC Unified V16 Overview Controls



Unified Comfort Panels		Unified PC Runtime	
✓	Screen Window	✓	
~	Faceplate Container	~	
~	Web Control	~	
~	Alarm Control	~	
~	Trend Control	~	
*	Process Control	~	
*	Trend Companion	~	
*	Function Trend Contro	l	
×	Media Player	~	
🗸 Available 🦎 In work			

WinCC Unified – TIA Portal Openness



Higher engineering quality in less time



Configurator

Build your machine configurator with a .net programming language and build a UI that fits your needs.

TIA Portal

Get access to existing assets or create them automatically from scratch via the Openness API.

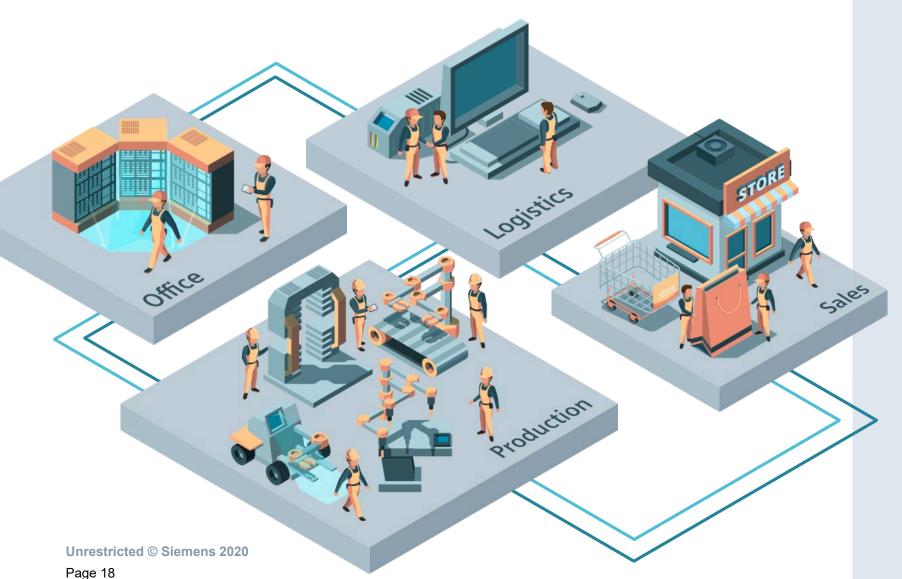
Projects

Create individual project configurations within seconds. Reduce risk and save time.

Engineering automation is the power booster for your workflow

WinCC Unified as integration platform – Connect and integrate 3rd party tools





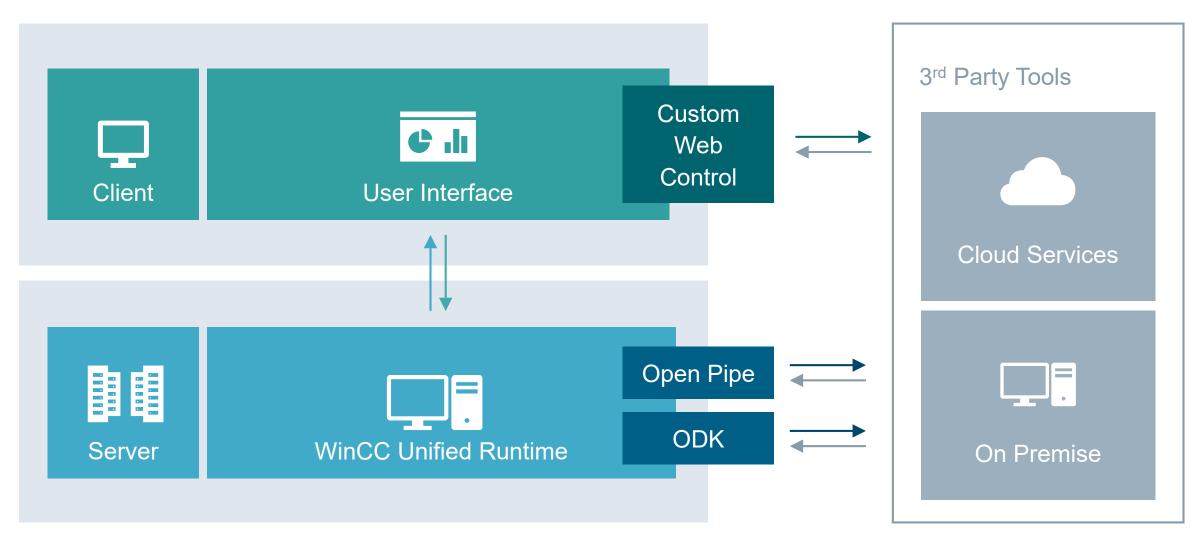
Different departments use different software system

Digitalization requires seamless data flow

Open interfaces are required for all systems

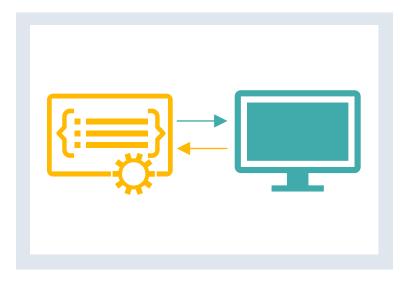
WinCC Unified – Integration platform – Connect and integrate 3rd party tools

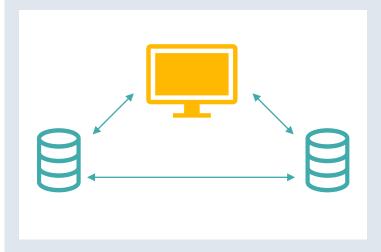




WinCC Unified – Integration platform – Examples









Open PipeData Interface

Server sided data interface for online tags and alarms.

Independent from programming language. Can be used to connect several software tools to WinCC Unified.

Runtime Openness Data Interface

Server sided data interface for online and historical tags and alarms with .net or C++ programming.

Exchange huge amounts of data with Databases or IT systems.

Custom Web Control Container for Web Content

Add custom UI controls (e.g. 3D Viewer) or visualize and exchange data of 3rd party services (e.g. weather data). Can be used to get access to sensors of mobile clients (e.g. camera, GPS)

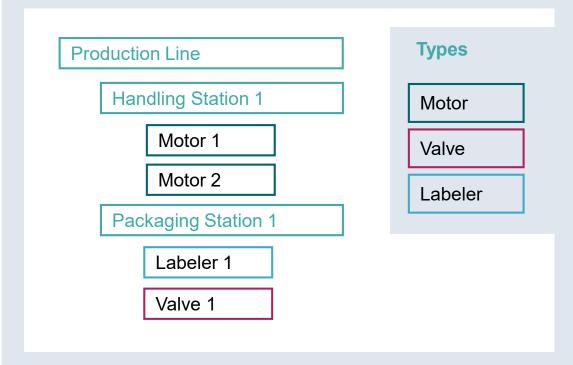
ODK vs. OpenPIPEWhat are the differences?



Unified Comfort Panel ★ PC ✓		Unified Comfort Panel ✓ PC ✓	
Open Developer Kit (ODK)		OpenPIPE	
Extensive runtime object mod	Type	Lightweight interface	
Large quantiti	s Data quantity	Low to medium	
Hi	h Data throughput	Low to medium	
C#/C	+ Programming languages	Language independent e.g.: C#, C++, JavaScript, PowerShell,	
Online and Logging Tags, Archives, Alarm Users, Technological Hierarchy plant object		Online Tags, Alarms (read only)	

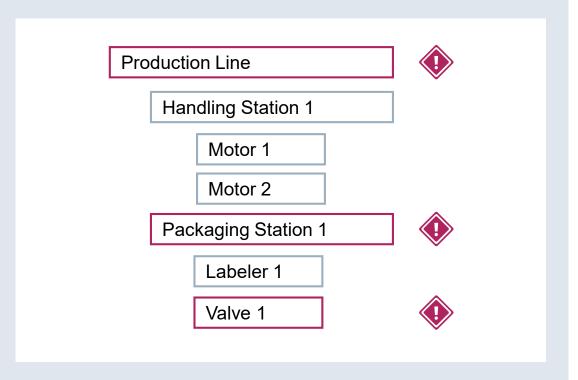
WinCC Unified – Technological Hierarchy – Define plant assets once and reuse them by instances





Object oriented engineering approach

Create a technological structure of your plant and build plant assets based on objects that can be updated centrally.



Hierarchically structured operation

Use the technological hierarchy to navigate through all of you plant assets. Get a quick overview of system status based on a hierarchical alarm structure.

WinCC Unified V16 Basic Options



Basic Options	Description	Unified Comfort Panels	Unified PC Runtime
File-based Logging	Local data logging for small to medium applications	(Logging Tags included)	(Logging Tags optional)
Parameter Control	Consistent handling and operation of machine or production parameters	(included)	✓
Collaboration	Establish distributed configurations	*	~
Clients	Flexible web-based, remote Monitoring and Operation	*	~
Audit	Documentation and validation according to legal requirements e.g., 21 CFR Part 11	×	×

WinCC Unified V16 SCADA Options



SCADA Options	Description	Unified Comfort Panels	Unified PC Runtime
Database Option	Performant, large-scale and long-term managed logging	×	~
Redundancy	Increased availability	×	*
Central Logging	Central long-term database logging	×	×

WinCC Unified V16 Plant Intelligence Options



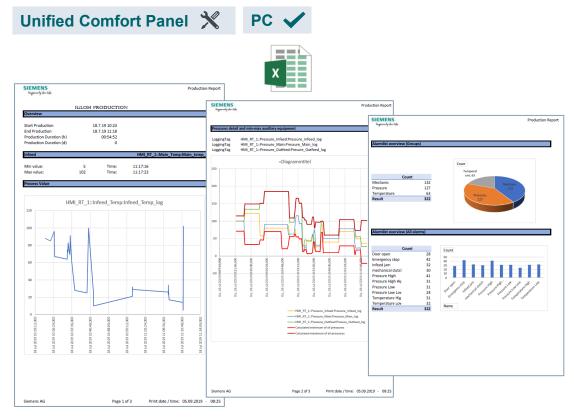
Plant Intelligence		Unified	Unified
Options	Description	Comfort Panels	PC Runtime
Calendar	Calendar-based administration of events and schedules	×	~
Performance Insight	Visualization and analysis of asset performance with KPIs and time/state model	×	~

Plant Intelligence Options	Description	Unified Comfort Panels	Unified PC Runtime
Sequence Execution	Flexible arrangement of automatic steps within the production process including manual interaction	×	*
Line Coordination	Coordination and synchronization of machines/ units via recipe-controlled procedures	×	~



WinCC Unified – Reporting Flexible reporting based on Office tools





Flexible assignment and planning of report execution at runtime. Consistent documentation of production data for all levels of production (product or quality report)

Create fully customized report templates with a tool you already know – Microsoft Excel¹

On Demand Generation – Trigger a report manually whenever you need it

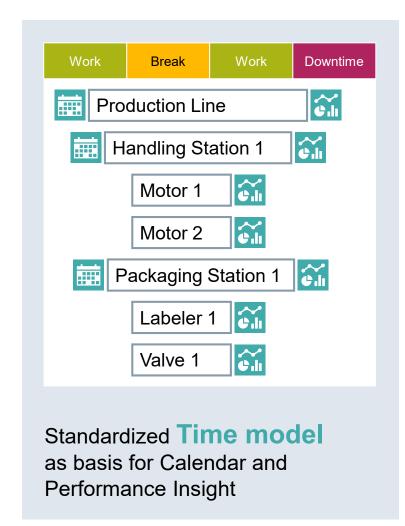
Automated generation – Time-scheduled or event-triggered reports – fully automatic (optional)



¹ Please note the system requirements

SIMATIC WinCC Unified – Plant Intelligence - Calendar & Performance Insight









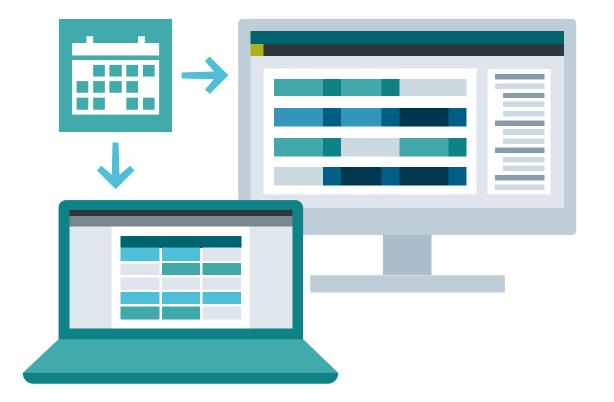
calculating individual KPIs

Calendar

Schedule activities for the production

WinCC Unified – Calendar Option

Plan your production shifts





Schedule activities for the production

- Based on the technological hierarchy
- Define working time of machines and systems
- Create standard templates for regular production days and shifts.
- Planning the execution of activities relative to a timeline, for example, machine
 - start 30 minutes before early shift (ramp-up time)

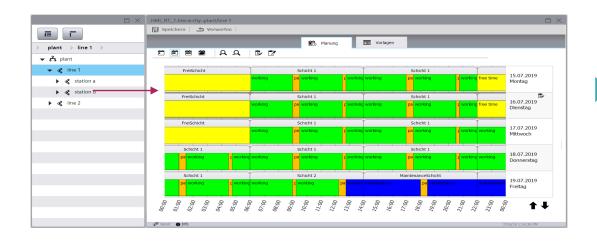
WinCC Unified V16 – Plant Intelligence options Calendar





User interface in the screen

Plant View Control using the Calendar Control



Scheduling of shifts

for machines, plants and lines in the technological hierarchy

Management of working time and tasks based on templates

Planning the production process and events in relation to operating times, e.g. definition of shifts

Reduced engineering effort

through modular and standardized objectoriented concepts

WinCC Unified – Performance Insight Option

Get value out of your data





Production insights based on individual KPI calculations

- Global definition of KPI formulas according to ISO22400
- Object oriented KPI engineering based on technological hierarchy
- Comprehensive set of WinCC controls for the display of KPIs
- Downtime analysis
- Calculation of the performance of machines / lines
 / plants according to context (e.g. shift, order, etc.)
- Creating an Excel-based report

WinCC Unified V16 – Performance Insight Controls





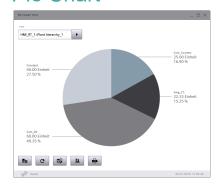




Bar Chart



Pie Chart



Gantt Chart



Display of KPIs and operands and their analysis

as bar or pie chart e.g.

- production operand
- piece counter "good parts"
- KPI (quality)

Combined/multiline display of

machine status with duration and frequency analysis e.g. Downtime analysis of machines

Page 31 SIMATIC WinCC Unified System

WinCC Unified – Collaboration – Making collaboration more flexible



Exchange process data between WinCC Unified systems

- Every machine can provide different types of data to other WinCC Unified systems
- Share screens, tags, archives and alarms
- Access to data of other Unified platforms during Runtime



Combine production data from several machines for supervision

- Setup of distributed configurations for lines and plants
- Increases the flexibility and simplifies the connection of different machines to one unified system
- Connect systems while commissioning or later

Functional overview



WinCC	
Unified PC	16

V16		> V16
Native Web Client	•	3 rd Party Communication
SVG graphics (static and dynamic)	•	Profibus Communication
Controls with significantly increased functionality	•	Native Client
File-based Archiving or Database logging	•	Audit/GMP
Picture window technology	•	RFID Autentication
Advanced Scripting	•	Two-hand operation & Multitouch
Dynamization of objects	•	Multi-monitor
Open Pipe and ODK (Open Development Kit)	•	Central User Management
Custom Web Controls	•	System diagnosis control
Technological Hierarchy	•	Redundancy
Collaboration (1st step - screens)	•	OPC UA HA/AC (Client)
Calendar Option	•	Monitoring Client (License)
Performance Insight Option	•	Central database archiving
Line Coordination System (LCS)	•	Central reporting server
	•	Collaboration (2 nd step – tags, archives)
	•	Sequence Execution System (SES)
	•	And more



Get Started



SIMATIC WinCC Unified System – Application Examples



Туре		
TIA Portal Add-In Data 2 Unified	SIOS Download	
WinCC Unified Tag Simulator	SIOS Download	
WinCC Unified Demo projects	SIOS Download	
TIA Portal Library HMI Template Suite	SIOS Download	
Getting Started Edge @ Unified Comfort Panel	Soon	
From Comfort to Unified Comfort Guideline	Soon	

SITRAIN – Digital Industry Academy

SIEMENS
Ingenuity for life

Available Q3/2020

Available Q3/2020

Basic SIMATIC WinCC Unified & Unified Comfort Panels

Description

Learn how to create TIA Portal projects for Unified Comfort Panels and how to use them optimally.

Short title
TIA-UWCCM

SITRAIN personal 3 days classroom training

SIMATIC WinCC Unified Scripting (JavaScript)

Description

Advanced

Learn to optimally use JavaScript in SIMATIC WinCC Unified without previous programming knowledge.

Short title TIA-UWCCJA

SITRAIN access

~3 hours web-based training

Advanced SIMATIC WinCC Unified for PC systems

Description

Learn how to use the functionalities and options especially available for PC Systems with WinCC Unified.

Short title
TIA-UWCCPC

SITRAIN personal

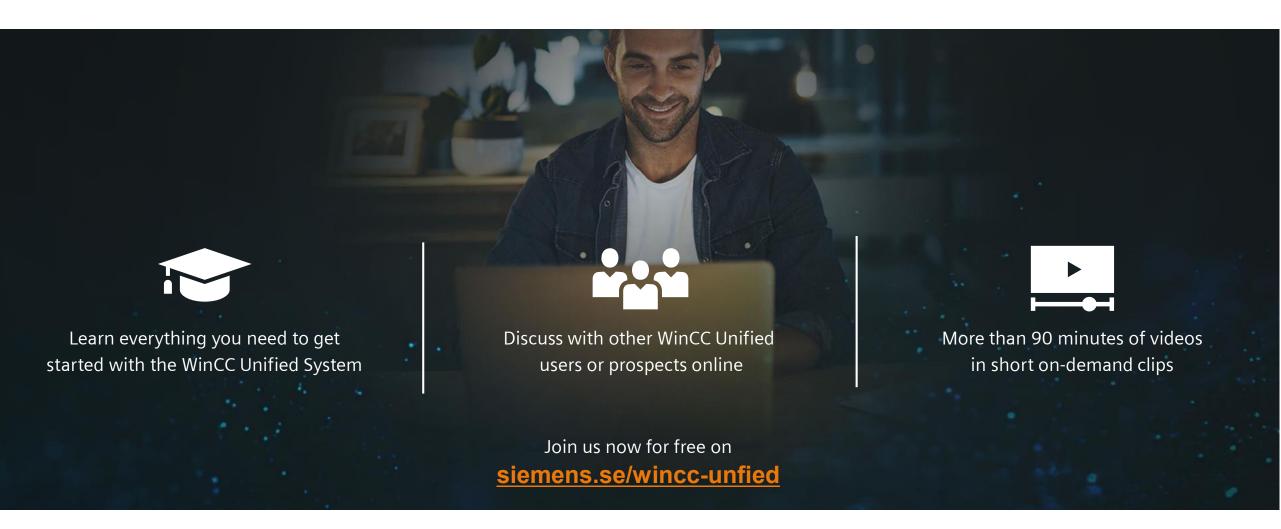
2 days classroom training

www.siemens.com/SITRAIN

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WinCC Unified Community – Join us now for free!







Ordering Information

SIMATIC WinCC Unified V16 License Compatibility Engineering - Existing customers



WinCC (TIA Portal)	V16			WinCC Unified (TI	A Portal) V16
Engineering System valid for	Comfort Panels	WinCC RT Adv.	WinCC RT Prof.	Unified Comfort Panels	Unified PC Runtime
WinCC Prof. (max)	~	✓	(max.)	✓	(100k)
WinCC Prof. (4k)	~	/	(4k)	✓	(10k)
WinCC Prof.(512)	/	/	(512)	~	(10k)
WinCC Advanced	~	/	×	~	(10k)
WinCC Comfort	~	×	×	~	×

Existing customers with WinCC (TIA Portal):

The license of WinCC (TIA Portal) is also valid for engineering using WinCC Unified (TIA Portal).

SIMATIC WinCC Unified V16 Engineering – Ordering information



WinCC Unified Engineering	Package (DVD)	Online Software Delivery (OSD)
WinCC Unified Comfort ES	6AV2151-0XB01-6AA5	6AV2151-0XB01-6LA5
WinCC Unified PC (10k) ES	6AV2153-2FB01-6AA5	6AV2153-2FB01-6LA5
WinCC Unified PC (100k) ES	6AV2153-2GB01-6AA5	6AV2153-2GB01-6LA5
WinCC Unified PC (Max) ES	6AV2153-0XB01-6AA5	6AV2153-0XB01-6LA5
WinCC Unified PC (1k) ES Trial	6AV2153-2EB01-6AA7	Download via SIOS

The complete list for WinCC Unified (Engineering and Runtime) can be found in the product announcement here

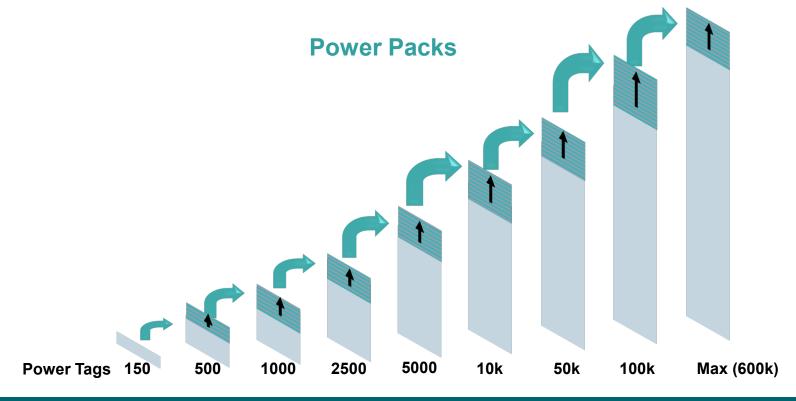
https://support.industry.siemens.com/cs/ww/en/view/109771724

SIMATIC WinCC Unified V16 - PC Runtime Licensing concept



WinCC Unified offers Base Packages with different number of Power Tags.

The PowerPacks are used to expand the number of Power Tags, without effecting the overall price.



Each WinCC Unified PC Runtime includes 2 Clients for local HMI and remote access. SimaticNET must be licensed extra, for more than 10 S7-connections.

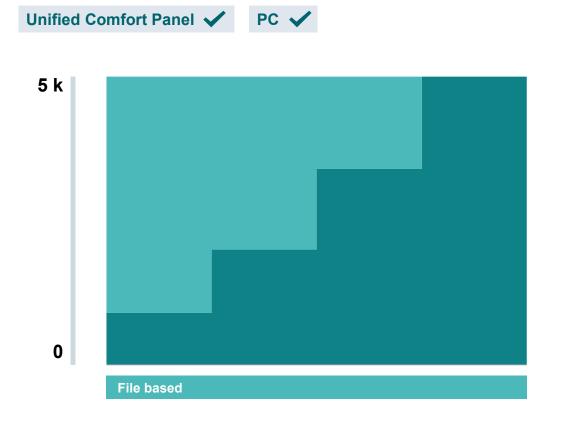
SIMATIC WinCC Unified V16 Ordering Information - PC Runtime



WinCC Unified PC RT System Base Packages	Package (DVD)	Online Software Delivery (OSD)
WinCC Unified PC (150) RT	6AV2154-3DB01-6AA0	6AV2154-3DB01-6LA0
WinCC Unified PC (500) RT	6AV2154-1EB01-6AA0	6AV2154-1EB01-6LA0
WinCC Unified PC (1k) RT	6AV2154-2EB01-6AA0	6AV2154-2EB01-6LA0
WinCC Unified PC (2,5k) RT	6AV2154-2MB01-6AA0	6AV2154-2MB01-6LA0
WinCC Unified PC (5k) RT	6AV2154-1FB01-6AA0	6AV2154-1FB01-6LA0
WinCC Unified PC (10k) RT	6AV2154-2FB01-6AA0	6AV2154-2FB01-6LA0
WinCC Unified PC (50k) RT	6AV2154-1GB01-6AA0	6AV2154-1GB01-6LA0
WinCC Unified PC (100k) RT	6AV2154-2GB01-6AA0	6AV2154-2GB01-6LA0
WinCC Unified Max RT (max.)	6AV2154-0XB01-6AA0	6AV2154-0XB01-6LA0

SIMATIC WinCC Unified – Logging Tags **Licensing concept – "file-based"**





Unified Comfort Panels

File-based Logging up to 5,000 Logging Tags (included)

Unified PC Systems

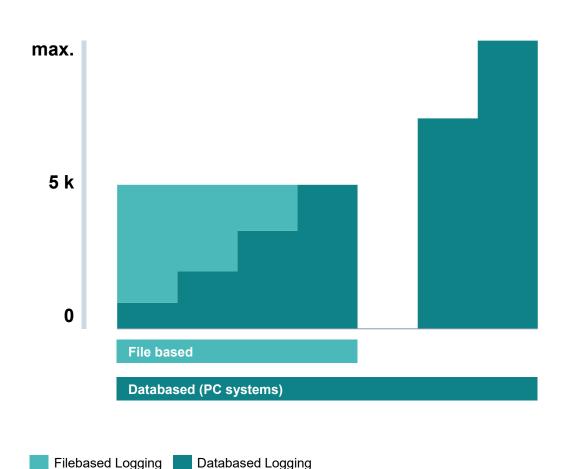
- File-based Logging up to 5,000 Logging Tags
- Licenses for Logging Tags: 100; 500; 1,000; 5,000 (countable)

Possibility to change to Databased Logging for growing requirements

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SIMATIC WinCC Unified – Logging Tags Licensing concept





Unified PC Systems

Configure the logging system according to your requirements

- Databased Logging (optional), scalable up to the maximum number of Power Tags
- Licenses for Logging Tags:
 100; 500; 1,000; 5,000 (countable)

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SIMATIC WinCC Unified V16 - PC Options Ordering Information – Logging Tags



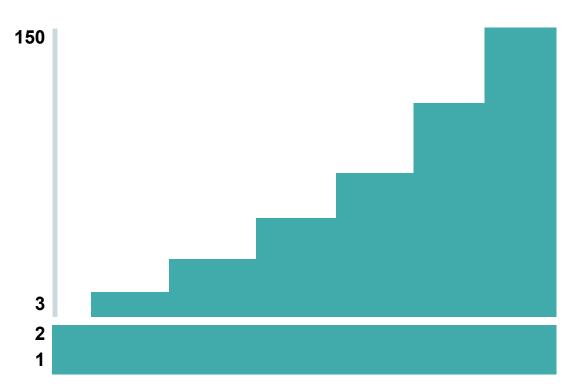
WinCC Unified Logging ¹	Package (DVD)	Online Software Delivery (OSD)
WinCC Unified Logging Tags (100)	6AV2157-2DA00-0AB0	6AV2157-2DA00-0LB0
WinCC Unified Logging Tags (500)	6AV2157-1EA00-0AB0	6AV2157-1EA00-0LB0
WinCC Unified Logging Tags (1000)	6AV2157-2EA00-0AB0	6AV2157-2EA00-0LB0
WinCC Unified Logging Tags (5000)	6AV2157-1FA00-0AB0	6AV2157-1FA00-0LB0
WinCC Unified Logging Tags (10.000)	6AV2157-2FA00-0AB0	6AV2157-2FA00-0LB0
WinCC Unified Logging Tags (30.000)	6AV2157-6FA00-0AB0	6AV2157-2FA00-0LB0

¹ independent of WinCC Unified version

The total number of Logging Tags can be increased (countable) upon demand. Logging Tags are valid for file-based and databased (Database Option) logging.

SIMATIC WinCC Unified – Clients License concept





Client licenses are pooled at the WinCC PC Runtime station

Unified PC Systems – Configure client access according to your requirements

- Two Clients are included at every WinCC Unified Runtime (one of them is normally used for local visualization)
- Flexible remote access for any number of users (concurrent access)
- Grow on demand increase number of Clients by 1, 3, 10, 30, 100 (countable)

SIMATIC WinCC Unified V16 - PC Options Ordering Information - Clients



WinCC Unified Clients ¹	Package (DVD)	Online Software Delivery (OSD)
WinCC Unified Client Operate (1)	6AV2157-1JW00-0AB0	6AV2157-1JW00-0LB0
WinCC Unified Client Operate (3)	6AV2157-3JW00-0AB0	6AV2157-3JW00-0LB0
WinCC Unified Client Operate (10)	6AV2157-2CW00-0AB0	6AV2157-2CW00-0LB0
WinCC Unified Client Operate (30)	6AV2157-6CW00-0AB0	6AV2157-6CW00-0LB0
WinCC Unified Client Operate (100)	6AV2157-2DW00-0AB0	6AV2157-2DW00-0LB0

¹ independent of WinCC Unified version

The maximum number of concurrent Clients can be increased (countable) upon demand.

SIMATIC WinCC Unified V16 – PC Options Ordering Information



WinCC Unified Options (PC)	Package (DVD)	Online Software Delivery (OSD)
WinCC Unified Parameter Control (PC)	6AV2157-0BP01-6AB0	6AV2157-0BP01-6LB0
WinCC Unified Collaboration (PC)	6AV2157-0BR01-6AB0	6AV2157-0BR01-6LB0
WinCC Unified Report Execution	6AV2157-0BQ01-6AB0	6AV2157-0BQ01-6LB0
WinCC Unified SCADA Options (PC)	Package (DVD)	Online Software Delivery (OSD)
WinCC Unified Database Option	6AV2154-0BS01-6AA0	6AV2154-0BS01-6LA0

SIMATIC WinCC Unified – Promotion Packages



Available until 31/12/2020

WinCC Unified PC (1k) RT

- WinCC Unified PC (1k) RT
- Parameter Control (PC)
- Logging Tags (100)
- Report Execution

6AV2155-2ES01-6AL0

WinCC Unified PC (10k) RT

- WinCC Unified PC (10k) RT
- Parameter Control (PC)
- Logging Tags (1000)
- Report Execution

6AV2155-2FS01-6AL0

WinCC Unified PC (50k) RT

- WinCC Unified PC (50k) RT
- Parameter Control (PC)
- Logging Tags (1000)
- Report Execution
- Database Option
- Client Operate (1)

6AV2155-1GS01-6AL0

~ 30% discount

Packages only available via Online Software Delivery (OSD)

SIMATIC WinCC Unified – Promotion Packages Plant Intelligence Options



Available until 31/12/2020

WinCC Unified Plant Intelligence Optionen

- Calendar Option (Basis)
- Performance Insight Option (Basis)
- Logging Tags (100)

6AV2155-0XP01-6AL0

discount

Packages only available via Online Software Delivery (OSD)

SIMATIC WinCC Unified Ordering Information - IPC Packages



SIMATIC IPC

Available for almost all SIMATIC IPCs that meet the technical requirements of SIMATIC WinCC Unified PC



SIMATIC WinCC Unified PC

WinCC Unified PC Runtime License

- → Price discount only with concurrent order of IPC and WinCC Unified software
- → Please note the technical requirements of WinCC Unified when selecting the configuration
- → Further information regarding the packages can be found in SIOS (as soon as available:) https://support.industry.siemens.com/cs/de/en/view/99860269

Functional overview

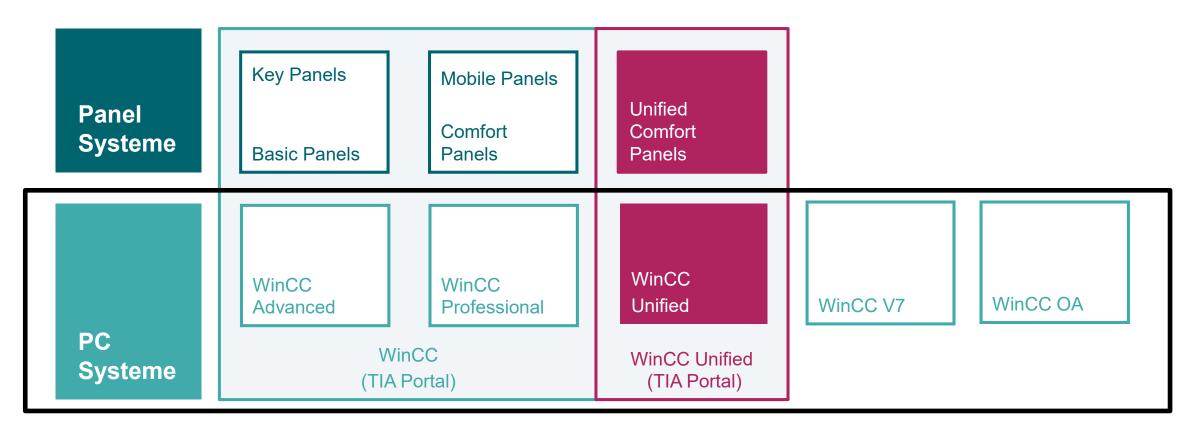
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Ingenuity for life

WinCC	
Unified PC	16

V16	> V16
Native Web Client	3 rd Party Communication
SVG graphics (static and dynamic)	Profibus Communication
Controls with significantly increased functionality	Native Client
File-based Archiving or Database logging	Audit/GMP
Picture window technology	RFID Autentication
Advanced Scripting	Two-hand operation & Multitouch
Dynamization of objects	Multi-monitor
Open Pipe and ODK (Open Development Kit)	Central User Management
Custom Web Controls	System diagnosis control
Technological Hierarchy	Redundancy
Collaboration (1st step - screens)	OPC UA HA/AC (Client)
Calendar Option	Monitoring Client (License)
Performance Insight Option	Central database archiving
Line Coordination System (LCS)	Central reporting server
	 Collaboration (2nd step – tags, archives)
	Sequence Execution System (SES)
	And more

HMI & SCADA Portfolio – Including WinCC Unified System





No replacement of current portfolio for the moment. WinCC Unified V16 running in parallel for now. In the long term, the HMI & SCADA portfolio in TIA Portal will consistently be based on WinCC Unified.

SIMATIC HMI





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siemens.se/wincc-unified