

# SIMATIC WinCC Unified System



# 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  
**Device independency** SVG Openness Plant Intelligence  
Engineering Automation One Engineering Everywhere Access  
**Data Backbone** HTML5  
**On Premise** IT-Integration Edge computing Connectivity Usability  
Digitalization **Cloud Connectivity**

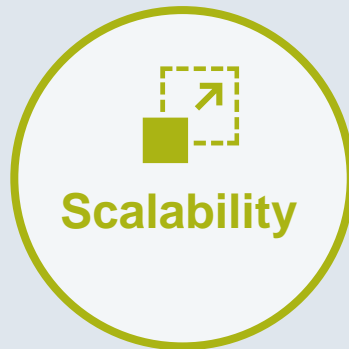
– ”

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

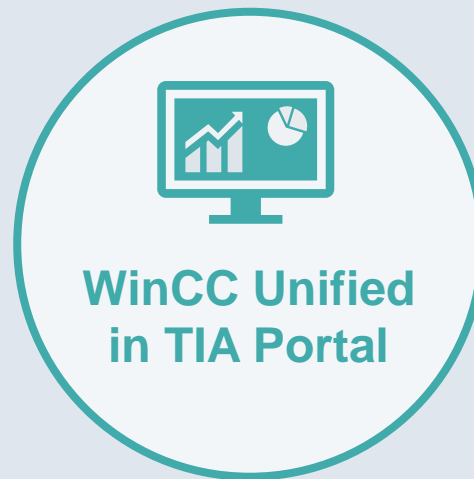
# We meet these requirements with the new WinCC Unified system!



- Native Web Technology HTML5, SVG, JavaScript
- Device independent
- Object oriented – HMI



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



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

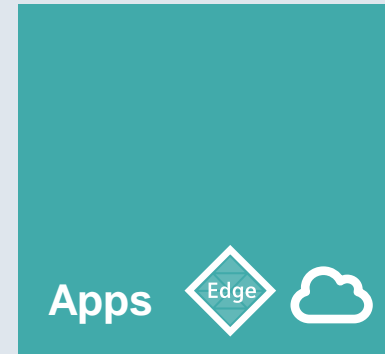


- Basis for Digitalization
- Plant Intelligence
- Integration Platform for everything north of the PLC
- Openness

# One engineering in TIA Portal to cover all use cases



WinCC  
Unified



– ”

WinCC Unified is fit for today's HMI and SCADA applications, but also ready for future scenarios in the digitization context (e.g. Augmented Reality or Edge technologies).

# 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 WinCC Unified – One common HMI platform

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## 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 and PC to ensure the best Usability.



# SIMATIC WinCC Unified



# SIMATIC WinCC Unified – 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



# SIMATIC WinCC Unified – Scalability from panel to control center



## One modern software platform for all runtime environments

- One engineering in TIA Portal
- Reuse components on all WinCC Unified platforms
- Consistent Usability for UI Controls
- Device change between all devices based on WinCC Unified

# WinCC Unified – Modern User Interface

A great experience. No matter where you are!



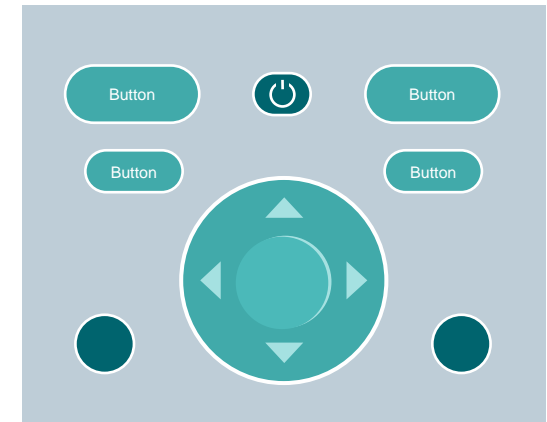
## Based on Web Technologies

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

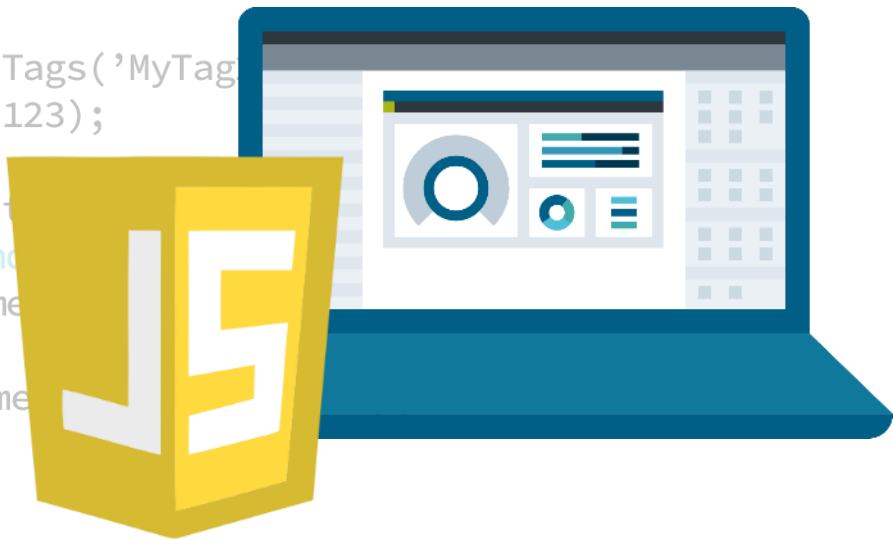
Use Dynamic SVGs or Custom  
Web Controls to make your HMI  
stand out.

# 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('MyTag2');  
    tag1.Write(123);
```

```
    if (tag1 > 100) {  
        UI.RootWindow.  
        HMIRuntime.  
    } 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



# 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

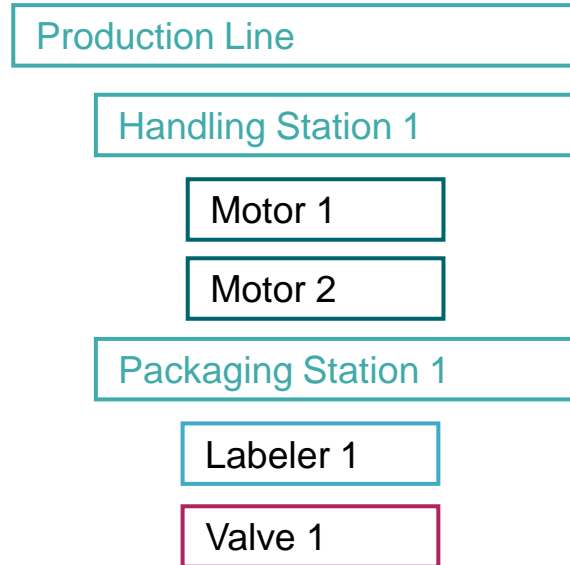
Get access to existing assets or create them automatically from scratch via the Openness API.

## Projects

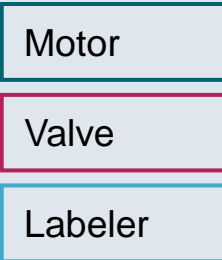
Create individual project configurations within seconds. Reduce risk and save time.

**Engineering automation is the power booster for your workflow**

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

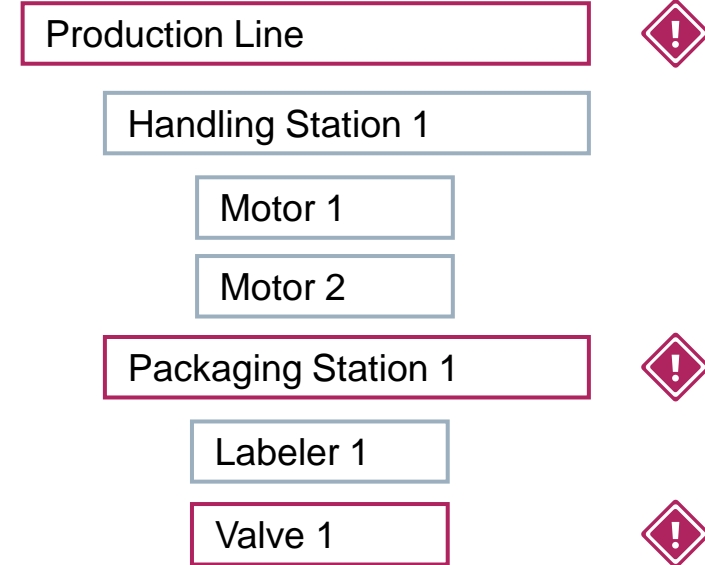


## Types



## Object oriented engineering approach

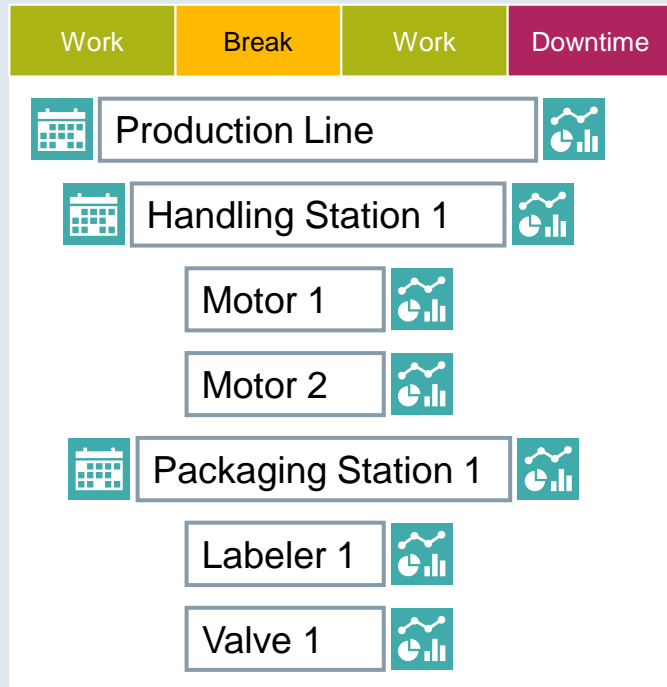
Create a technological structure of your plant and build plant assets based on objects that can be updated centrally.



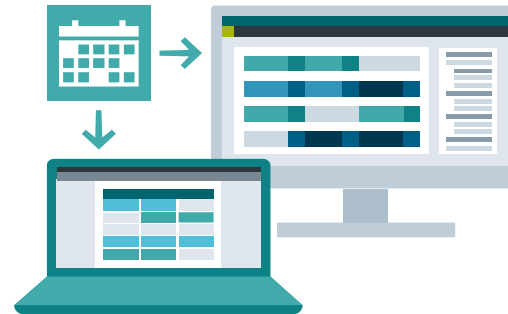
## Hierarchically structured operation

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

# SIMATIC WinCC Unified – Plant Intelligence - Calendar & Performance Insight

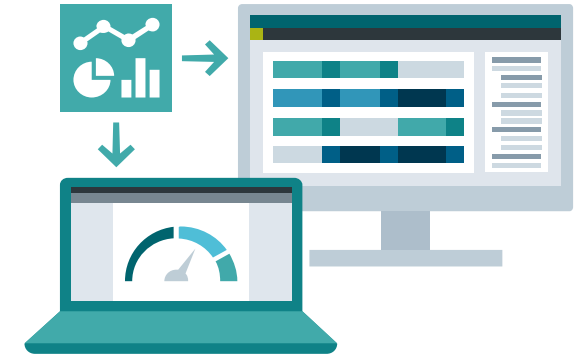


Standardized **Time model**  
as basis for Calendar and  
Performance Insight



## Calendar

Schedule activities for the  
production



## Performance Insight

Improving performance by  
calculating individual KPIs

## Plan your production shifts



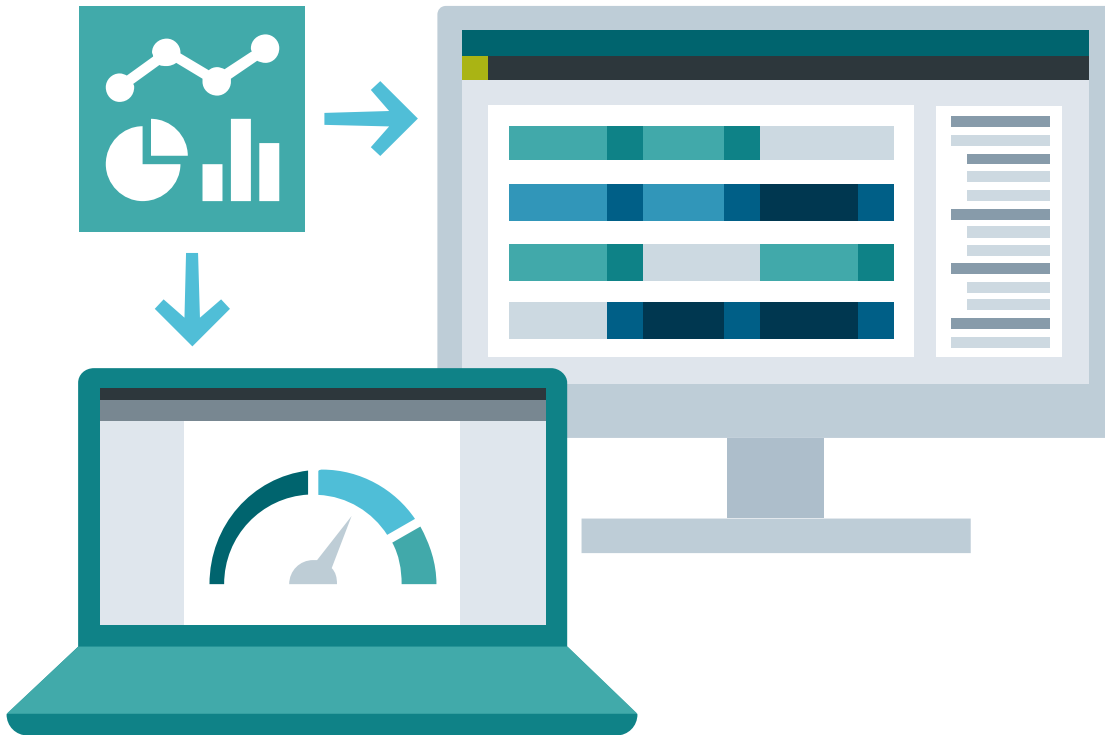
## Schedule activities for the production

- 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 – Performance Insight Option

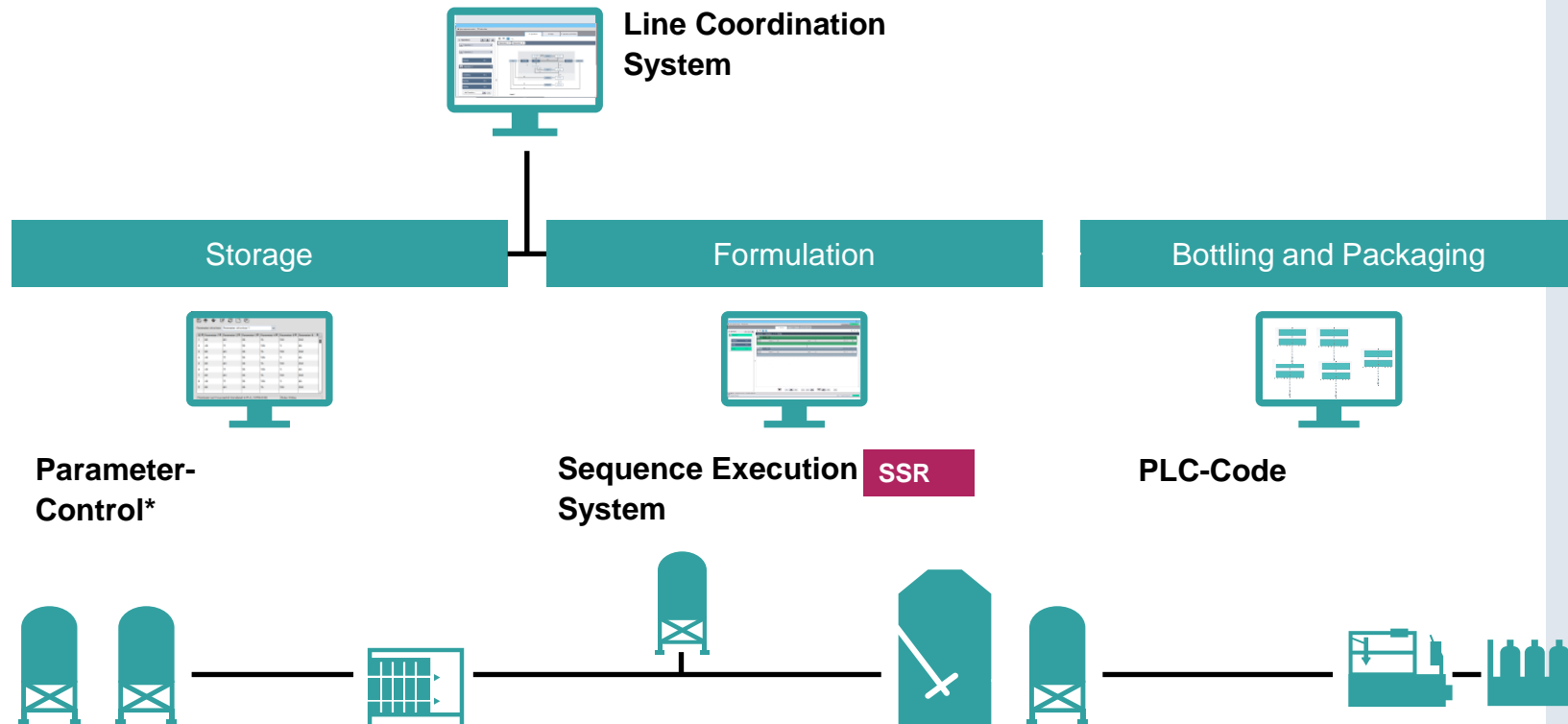
## Get value out of your data



### 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 – Sequence Execution – Line Coordination System



Orchestration of  
procedures with  
Line Coordination System

Enable changeability of  
procedures  
in the production process  
Sequence Execution System

\* Not for V16 by using Line Coordination System

# WinCC Unified – Collaboration – Making collaboration more flexible

## Exchange process data between WinCC Unified systems

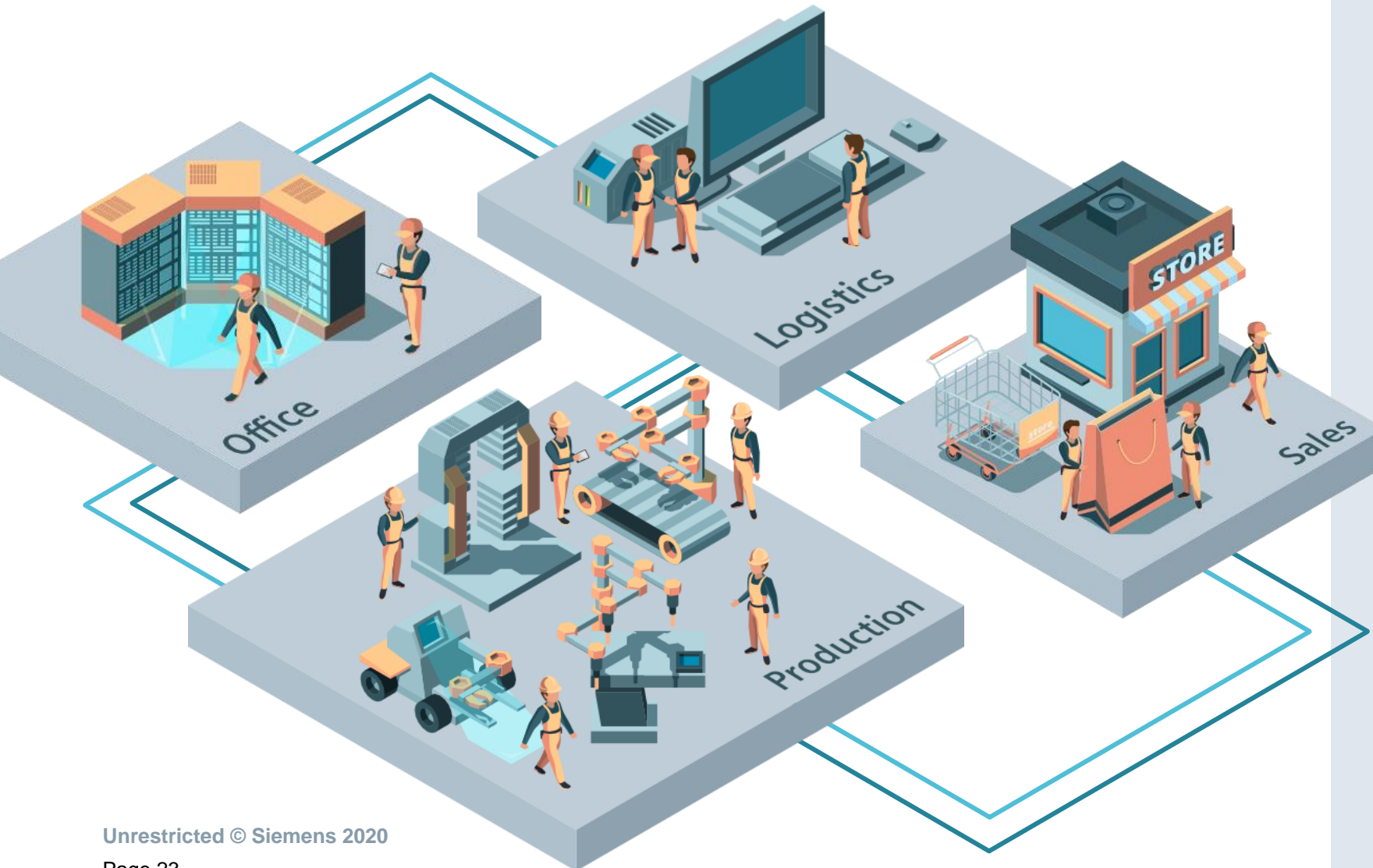
- Every machine can provide different types of data to other WinCC Unified systems
- Share screens, tags, archives and alarms
- Access to data of other Unified platforms during Runtime



## 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

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



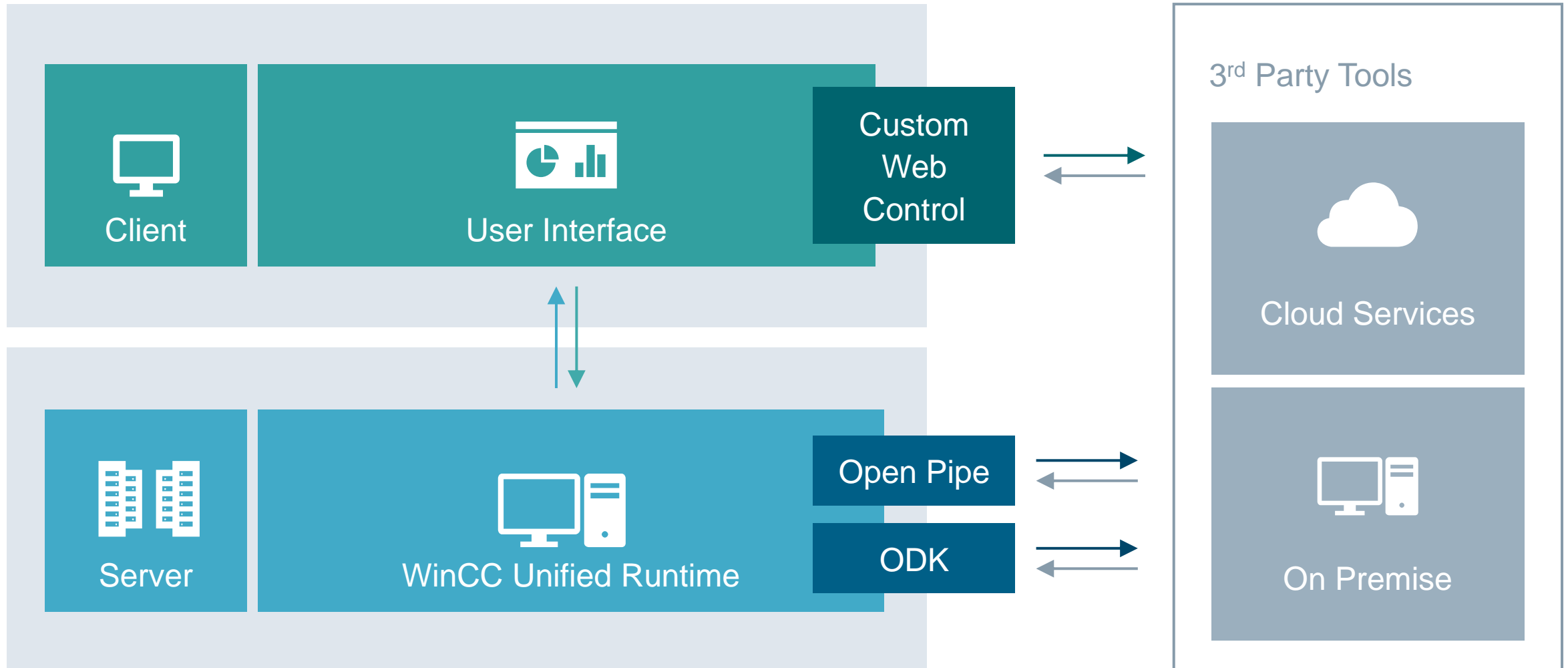
Different departments use  
different software system

Digitalization requires  
seamless data flow

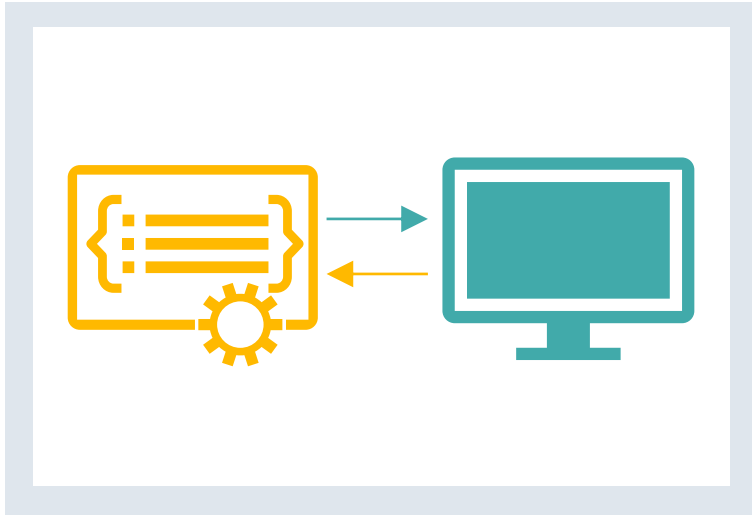
Open interfaces are required  
for all systems



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



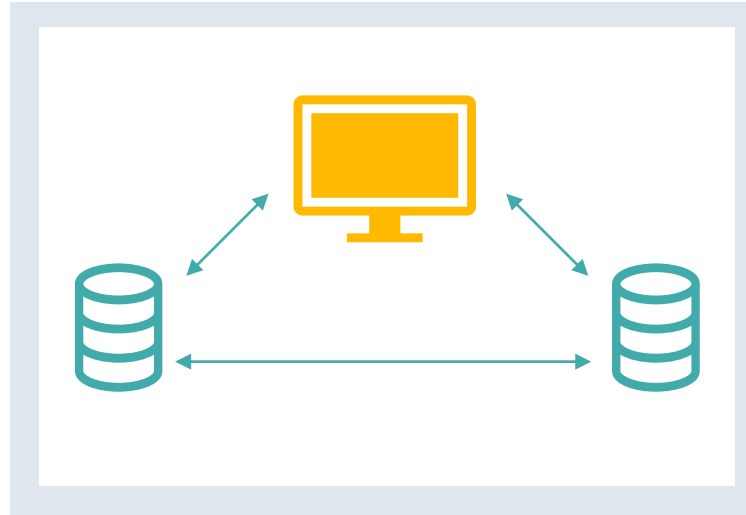
# WinCC Unified – Integration platform – Examples



## Open Pipe Data 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)

Powered  
by WinCC  
Unified

# SIMATIC HMI Unified Comfort Panels

# SIMATIC HMI Unified Comfort Panels – Highlights



## Great usability in a brilliant way

Capacitive Multitouch technology combined with bright colors and excellent readability



## Size doesn't matter

Same interfaces and functionality for all devices from 7" to 22"



## Need more? Add Apps!

Use Siemens Industrial Edge to extend standard functionality by edge apps



## The power to do more

Realize larger applications thanks to increased system limits



## Security Integrated

From access control and encrypted communication to security patches. Everything is inside



## Everything under control

Full commissioning within TIA Portal. No IT-management necessary



## Ready for the future as of today

Take full advantage of WinCC Unified with a Modern UI, openness and full scalability



## Comfort DNA remains

Well known Comfort Panel features like automatic system backup remain





# SIMATIC HMI Unified Comfort Panels – Multitouch from 7” to 22”

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# SIMATIC HMI Unified Comfort Panels – Standard- and Neutral design version

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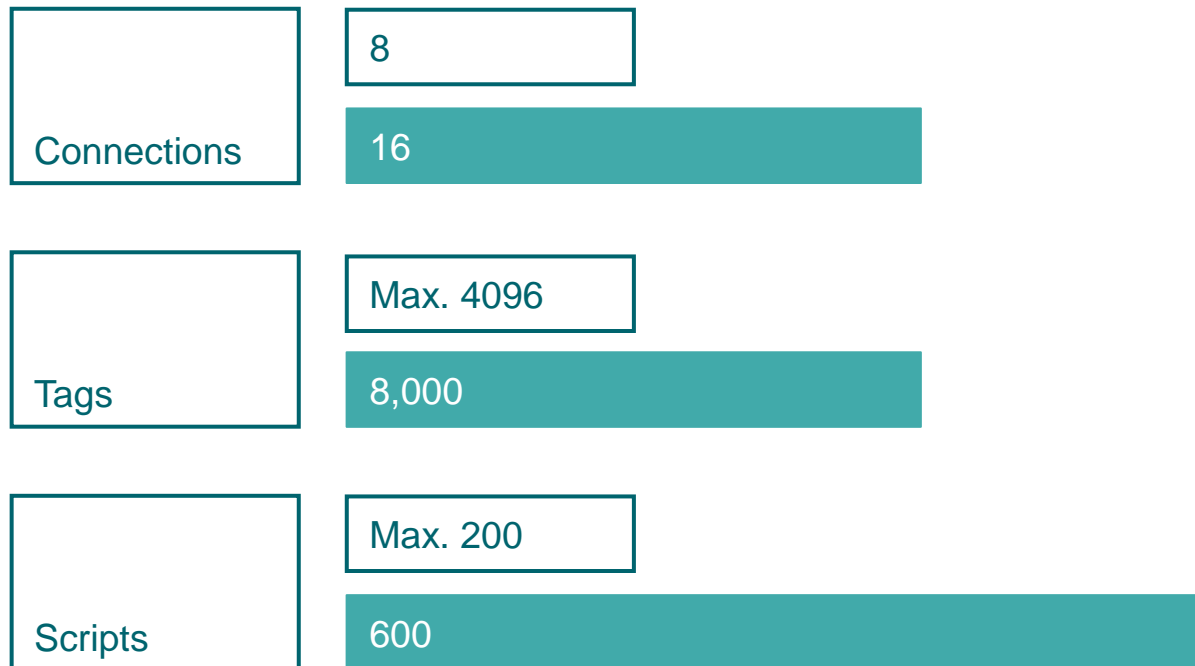


**Standard design**  
Silver frame – With Siemens branding



**Neutral design**  
Black frame – No branding

# SIMATIC HMI Unified Comfort Panel – Increased system performance



□ Comfort Panel ■ Unified Comfort Panel

Increased quantity structure  
from 7" to 22"

Doubled quantity structure  
compared to Comfort Panel

Differentiation only for  
tags and objects per screen

# SIMATIC HMI Unified Comfort Panels – Get work done!

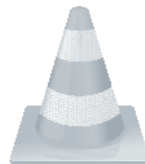


## Ready to use system applications

Work in documents, view instruction videos or get access to web-based systems with the preinstalled applications on every Unified Comfort Panel.

## Preinstalled system applications

<b>Browser</b>	Google Chrome
<b>Media Player</b>	VLC Media Player
<b>Office</b>	Libre Office
<b>PDF Viewer</b>	Okular



# SIMATIC HMI Unified Comfort Panels – Need more? Add apps!

## Unified Comfort Panel

Application Requirements

Alarming, Logging, Connectivity, Recipes, Multitouch

Standard Requirements

App

App

App

Data Analytics, Reporting, 3<sup>rd</sup> party service

Application specific requirements

What used to be possible only with separate hardware or an open PC platform.  
Is now also possible on an embedded platform that is easier to maintain. Everything in one device.

# SIMATIC HMI Unified Comfort Panels – Need more? Add apps!

**SIEMENS**  
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## Expand the standard functionality with Edge Apps on all Unified Comfort Panels

Siemens or others can provide applications  
Access to WinCC Unified Online Tags using the  
OpenPipe interface

- **Device Managed Edge**  
Apps can be managed directly on the device
- **Centrally Managed Edge**  
Apps can be managed centrally  
with the Industrial Edge Management System

# SIMATIC HMI Unified Comfort Panel – Siemens Industrial Edge integration

**Step 2**

## Device Managed Edge

Locally on device

- Installation and Uninstallation of Edge Apps on the device
- Update of Edge Apps
- Start and Stop of Edge Apps
- Diagnostic information of all currently running edge apps
- Remote access via webserver or Control Panel of device



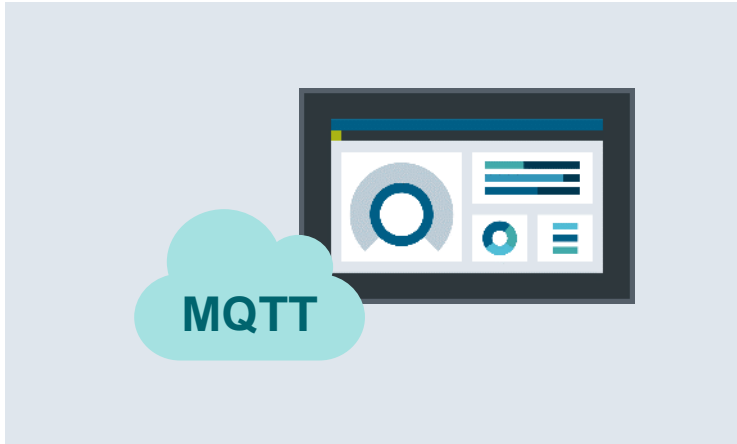
## Centrally Managed Edge

On-Premises / On-Cloud / On-MindSphere

- On- and Offboarding of devices
- Diagnostic information
- Version management of Edge Apps
- Installation and Uninstallation of Edge Apps (Remote)
- Start and Stop of Edge Apps (Remote)
- Diagnosis of Edge Apps (Remote)
- Deploying of Edge Apps based on customized device-groups
- Deploying of Security Patches

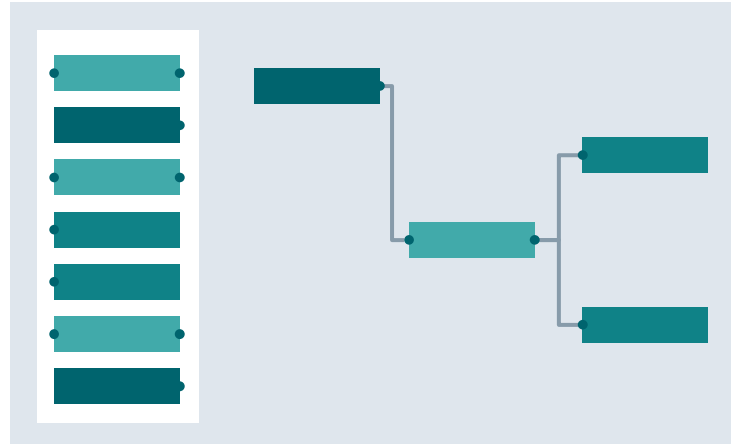


# SIMATIC HMI Unified Comfort Panels – Edge App Examples



## MQTT App Cloud Connection

MQTT is the most common protocol for the connection of automation equipment to cloud based systems like MindSphere.



## SIMATIC Flow Creator Data processing made easy

Define your data flow and create rules, KPIs or trigger actions, if threshold values are exceeded or a special event happens.



## SIMATIC Notifier Mobile Notification

Transform the Unified Comfort Panel into a messaging service. Manage and send mobile notifications directly to your Smartphone or Smartwatch.

# Device-Managed Edge Licensing – Unified Comfort Panel

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Free



## Demo, Test and Development

- Siemens Industrial Edge is part of every Unified Comfort Panel by default
- Simply activate the Edge functionality in the Control Panel
- No need for a separate software package

Unrestricted © Siemens 2020

~\$450




## Productive Usage

- As soon as the device is in productive usage a certificate of license will be required for each Unified Comfort Panel
- No need for license transfer
- Version independent

# Free Application Example – “Getting Started with Edge @ Unified Comfort Panels”

```
export function Funtion (parameter1, parameter2){  
  let tag1 = Tags('MyTag1');  
  tag1.Write(123);  
  
  let tag2 = Tags('MyTag2');  
  tag1.Write(123);  
  
  if (tag1 > tag2){  
    UI.RootWin.  
    HMIRutnti  
  } else  
    HMIRun  
  }  
}
```



## Free application example including following content

- MQTT App
- Source Code
- Documentation about how to develop an App and how to download to the Unified Comfort Panel
- How to use the Siemens App Publisher
- How to use the Open Pipe interface to exchange data between an Edge App and the WinCC Unified

Available in SIOS

# SIMATIC HMI Unified Comfort Panels – Security integrated



## Further information

Security guidelines for SIMATIC HMI devices [SIOS 109481300](#)



## Activate/Deactivate Hardware interfaces

- Mass storage (USB/SD)
- Ethernet/PROFINET (also via RT functions)
- SNMP and Transfer

## Activate/Deactivate applications

- All Applications can be deactivated
- EDGE is deactivated by default

## Security Updates

With TIA Portal or SIMATIC Automation Tool

## Device security

- User management also for control panel
- Access to control panel instead of operating system GUI

## Experience the new panels virtually

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Check out the new SIMATIC HMI Unified Comfort panels instantly. The latest AR technology makes it possible to place a scale 3D model of a panel in your immediate environment. Simply scan the QR code with your smartphone.



# Get Started

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# SIMATIC HMI Template Suite

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[www.siemens.com/hmi-template-suite](http://www.siemens.com/hmi-template-suite)



# SIMATIC HMI Template Suite – The TIA Portal library for good HMI design

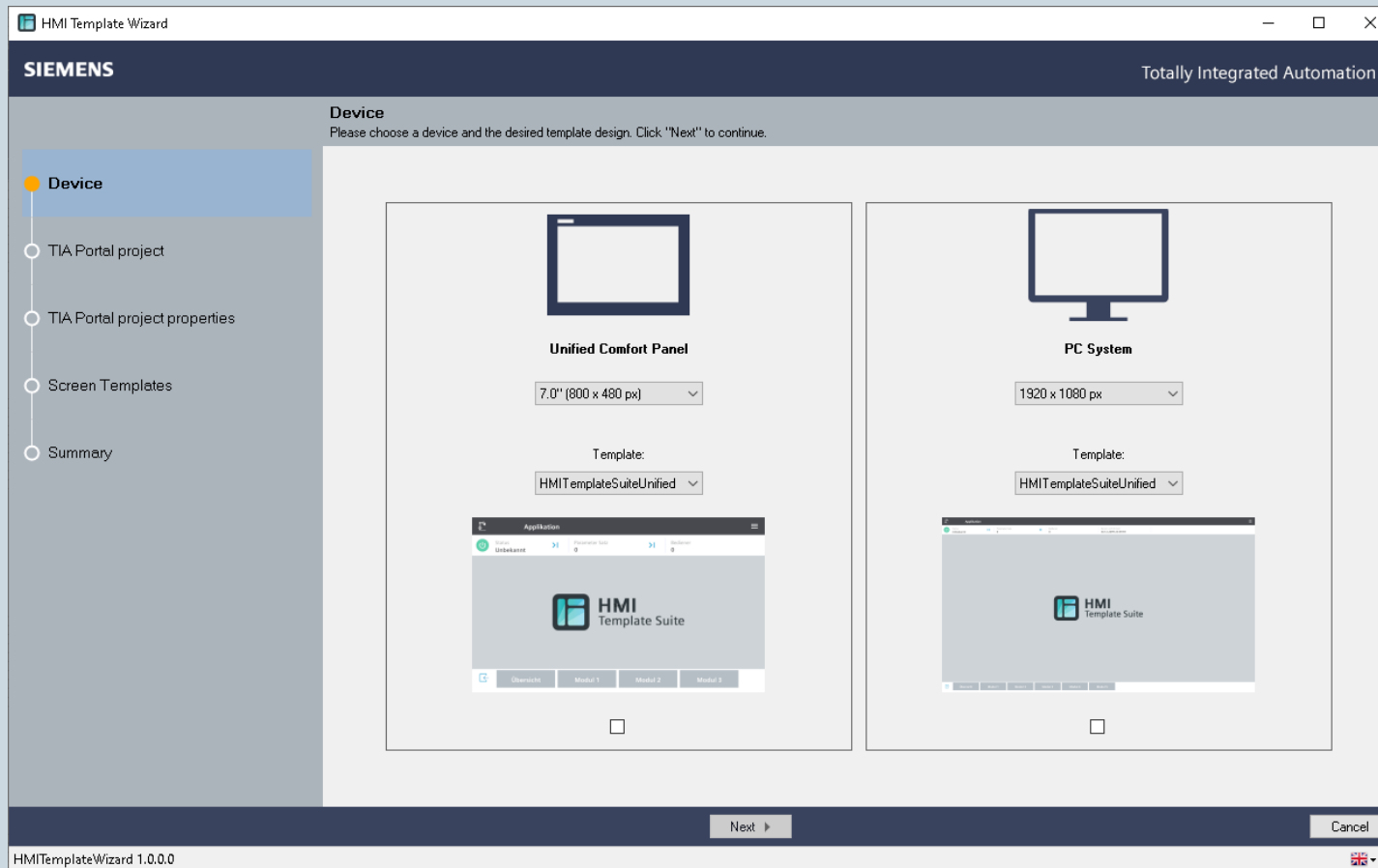


Ready to use screen  
templates for WinCC Unified  
and Unified Comfort Panels

Available for all common  
resolutions from 7" - 22"

Available free of charge in  
Industry Online Support

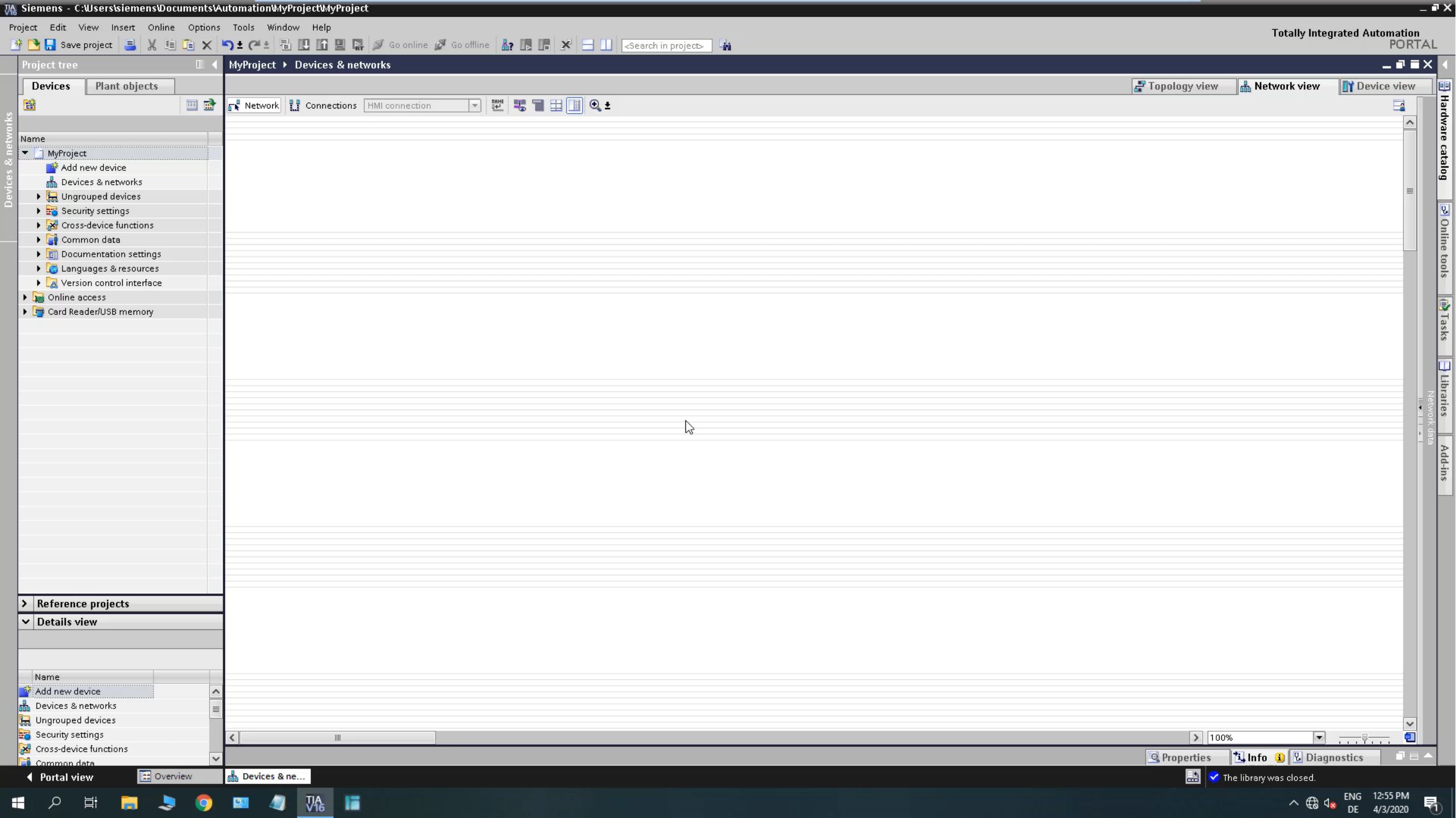
# SIMATIC HMI Template Wizard – The quickest way to your first project with WinCC Unified



Wizard based configuration of  
the navigation structure

Activate the screens and  
elements you want to use

The device will be generated  
fully automatically



# SIMATIC HMI Template Suite Download



The complete application example contains:

- Documentation
- Wizard (Tool)
- TIA Portal Library
- TIA Portal Example Project

Download under entry ID **91174767** or from Industry Online Support via the following link:

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

# SIMATIC WinCC Unified System – Application Examples



Type	English
TIA Portal Add-In Data 2 Unified	<a href="#">SIOS Download</a>
WinCC Unified Tag Simulator	<a href="#">SIOS Download</a>
WinCC Unified Demo projects	<a href="#">SIOS Download</a>
TIA Portal Library HMI Template Suite	<a href="#">SIOS Download</a>
Getting Started Edge @ Unified Comfort Panel	Soon
From Comfort to Unified Comfort Guideline	Soon



# WinCC Unified Community – Join us now for free!



Learn everything you need to get  
started with the WinCC Unified System



Discuss with other WinCC Unified  
users or prospects online



More than 90 minutes of videos  
in short on-demand clips

Join us now for free on  
[www.siemens.com/wincc-unified-system](http://www.siemens.com/wincc-unified-system)

# SIMATIC HMI Unified Comfort Panels – Starter Kits



Available

## Hardware Starter-Kit

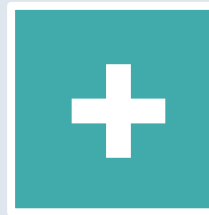
- Device
- WinCC Unified V16 Comfort
- 1,5 m Profinet cable
- Memory Card (32 GB)
- Protective film
- Device-Managed Edge license





## 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 here (as soon as available:)  
<https://support.industry.siemens.com/cs/de/en/view/99860269>

Available Q2/2020

**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

**Advanced  
SIMATIC WinCC Unified  
Scripting (JavaScript)**

**Description**

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

# SIMATIC WinCC Unified – Promotion Packages



Available until 12/31/2020

## 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**

**Packages only available via Online Software Delivery (OSD)**



# SIMATIC WinCC Unified – Promotion Packages Plant Intelligence Options



Available until 12/31/2020

## WinCC Unified Plant Intelligence Optionen

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

**6AV2155-0XP01-6AL0**

**Packages only available via Online Software Delivery (OSD)**

~ 30%  
discount

# Further Information

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# SIMATIC HMI Unified Comfort Panels – Choose accessories upon demand



Available Q2/2020

## Mounting accessories

Mounting frame for  
Comfort Panel compatibility



## Input tools

- Touch pen incl. holder
- USB mouse and keyboard



## Protective films

All display sizes (7 – 22")



## Storage Media

- SIMATIC SD-card
- SIMATIC HMI USB flash drive

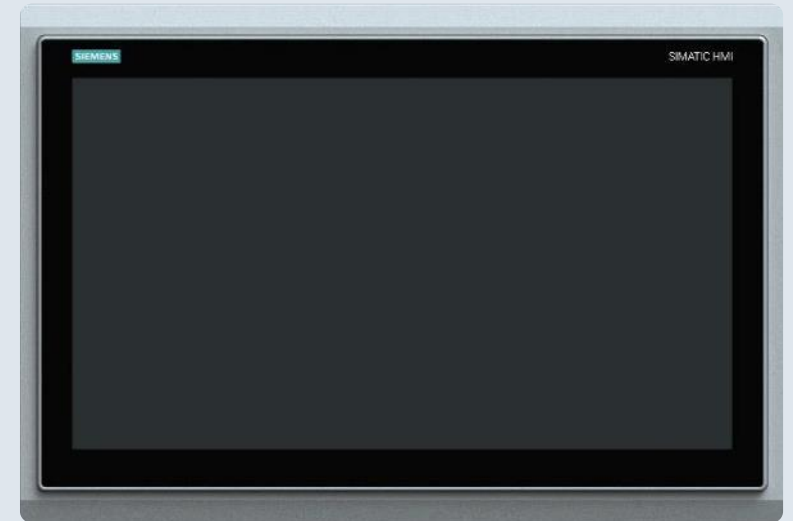
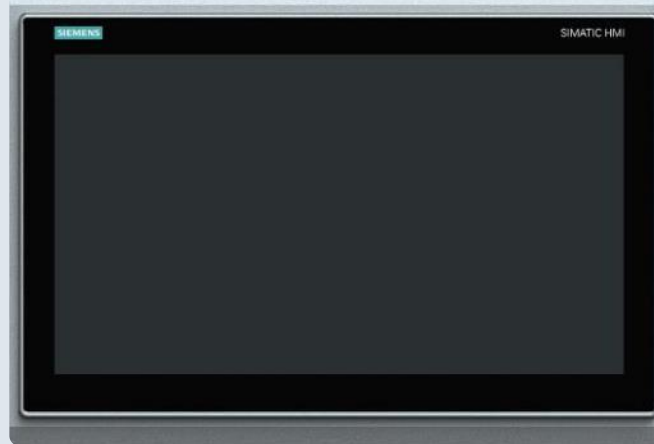
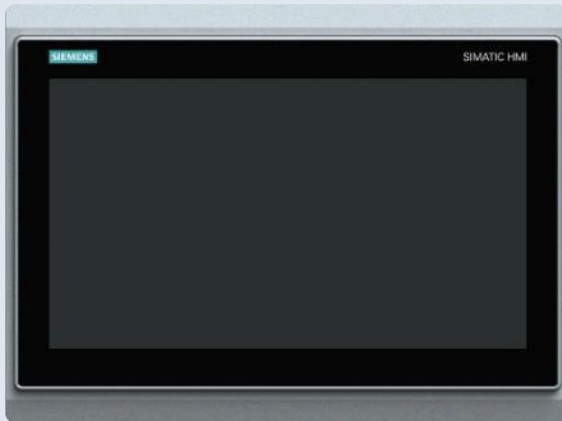


<https://mall.industry.siemens.com/mall/de/WW/Catalog/Products/10144445?tree=CatalogTree>

# SIMATIC HMI Unified Comfort Panels – Accessories – Mounting frames

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Available Q2/2020



Available for all devices (MTP1500, MTP1900, MTP2200) that have smaller cut-out  
compared to Comfort Panel



# Ordering Information

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# 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>

# WinCC Unified V16 – IPC Packages



Package	Order Number
WinCC Unified V16 PC RT 150, Package	6AV2155-3DB01-6AA0
WinCC Unified V16 PC RT 500, Package	6AV2155-1EB01-6AA0
WinCC Unified V16 PC RT 1k, Package	6AV2155-2EB01-6AA0
WinCC Unified V16 PC RT 2.5k, Package	6AV2155-2MB01-6AA0
WinCC Unified V16 PC RT 5k, Package	6AV2155-1FB01-6AA0
WinCC Unified V16 PC RT 10k, Package	6AV2155-2FB01-6AA0
WinCC Unified V16 PC RT 50k, Package	6AV2155-1GB01-6AA0

Further information: <https://support.industry.siemens.com/cs/de/en/view/99860269>

# SIMATIC HMI Unified Comfort Panels – Ordering information



Device Name	Display Size	MLFB Standard Design	MLFB Neutral Design
MTP700 Unified Comfort	7.0"	6AV2128-3GB06-0AX0	6AV2128-3GB36-0AX0
MTP1000 Unified Comfort	10.1"	6AV2128-3KB06-0AX0	6AV2128-3KB36-0AX0
MTP1200 Unified Comfort	12.1"	6AV2128-3MB06-0AX0	6AV2128-3MB36-0AX0
MTP1500 Unified Comfort	15.6"	6AV2128-3QB06-0AX0	6AV2128-3QB36-0AX0
MTP1900 Unified Comfort	18.5"	6AV2128-3UB06-0AX0	6AV2128-3UB36-0AX0
MTP2200 Unified Comfort	21,5"	6AV2128-3XB06-0AX0	6AV2128-3XB36-0AX0
License for Device Managed Edge		6AV2170-2BA00-0AA0	

## Mounting Frames – Ordering information

Name	Mounting compatibility	MLFB
Mounting Frame Set 15" Touch	from TP1500 to MTP15000	6AV6881-6QD41-1AA0
Mounting Frame Set 19" Touch	from TP1900 to MTP1900	6AV6881-6UD41-1AA0
Mounting Frame Set 22" Touch	from TP2200 to MTP2200	6AV6881-6VD41-1AA0

# SIMATIC HMI Unified Comfort Panels – Starter Kits



Device Name	MLFB
MTP700 Unified Comfort Starter Kit	6AV2128-3GB06-0AP0
MTP1000 Unified Comfort Starter Kit	6AV2128-3KB06-0AP0
MTP1200 Unified Comfort Starter Kit	6AV2128-3MB06-0AP0
MTP1500 Unified Comfort Starter Kit	6AV2128-3QB06-0AP0
MTP1900 Unified Comfort Starter Kit	6AV2128-3UB06-0AP0
MTP2200 Unified Comfort Starter Kit	6AV2128-3XB06-0AP0

# Thank you for your attention!

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