Introduction to SIMATIC HMI Panels and WinCC Comfort/Advanced
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- Basic Panels
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SIMATIC HMI Panels
Efficient to a new level

Highest requirement for performance and functionality?
- Brilliant widescreen displays from 4" to 22"
- Innovative commissioning and service concept
- Energy management with PROFinenergy

Cost effective, fully graphical operation?
- Intuitive operation from 4" to 12"
- Integrated functionality for HMI tasks
- Perfect interplay with SIMATIC S7-1200

Flexible expansion with push-buttons – or even safety functions?
- Fast commissioning
- Simple networking
- Intuitive status indication

Maximum mobility and flexibility?
- Innovative operation, wired or wireless
- Location specific on-site operation
- Integrated safety concept
The range of SIMATIC HMI panels is innovative and offers the right product for all requirements.

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<td>Versions 4” - 12”</td>
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<td>Innovative graphical user interfaces</td>
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<td>100% data security</td>
<td>USB interface for connection of keyboard, mouse or barcode scanner and data archiving on USB</td>
<td></td>
<td>Intuitive state detection</td>
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</table>
**Integrated functionality across all display sizes**
The HMI’s hardware functionality is identical throughout a device range. Simply select the optimum display size for your application and choose between operation via touch screen and/or keys. As the software is scalable, you can start with a small solution and further expand it any time as required. Innovative graphical interfaces open up completely new possibilities in terms of intuitive operation and monitoring.

**Unique Engineering efficiencies**
SIMATIC HMI panels can be intuitively configured in the TIA Portal via the scalable SIMATIC WinCC software. This results in increased engineering efficiency when further components from the Totally Integrated Automation portfolio are used – e.g. SIMATIC controllers. The perfect interaction with STEP 7 does away with multiple entries and ensures maximum data consistency.

**Long-term value maintenance**
SIMATIC products facilitate long-term investment protection. Existing projects can be easily and directly migrated to the successor product. Following the phase-out period of a model range, we support you with long-term spare parts availability. Moreover, the matching accessories for each product are available throughout the entire product lifecycle.

**3rd Party Connectivity**
With direct network connectivity to PROFINET, EtherNet/IP, Modbus TCP/IP, and other Ethernet drivers, SIMATIC HMI panels offer best in class visualization when combined with most third party controllers.
SIMATIC HMI Comfort Panels

- 16 million color display; 80k hour backlight
- Rugged cast aluminum
- Automatic backup / restore
SIMATIC HMI Comfort Panels

Highlights

- “Camera Control” for the connection of IP cameras
- Buffered real-time clock with automatic synchronization
- Transfer via standard cable (Ethernet, USB, etc.)
- Device configuration (IP, PN, etc.) via engineering
- OS update via storage medium

Innovative features for commissioning, operating and maintenance
SIMATIC HMI Comfort Panels
Consistent functionality of all Comfort Panels

All Comfort Panels offer the same high-end functionality over all display sizes.

Archives, scripts, Internet Explorer, PDF/Excel/Word viewer, Media Player, F(x) – functions, system diagnostics viewer, …
SIMATIC HMI Comfort Panels
Consistent functionality of all Comfort Panels

Key devices from 4” up to 15”

- Operating concept of the keyboard known of mobile phones
- Green LED at every function key
- Easier handling of slide-in labels

Optimal feedback by embossed function keys
SIMATIC HMI Comfort Panels
Integrated functionality of all Comfort Panels

- Interfaces available for:
  - PROFIBUS / MPI
  - PROFINET / Ethernet
  - USB host (flash drive, mouse, keyboard, ...)
  - USB client (transfer)
  - Audio

Various communication possibilities through standardized interfaces
SIMATIC HMI Comfort Panels
Widescreen Display

Widescreen displays for detailed display, high ease of use and readability

**Screen Resolutions:**
- 4” = 480 x 272
- 7” = 800 x 480
- 9” = 800 x 480
- 12” = 1280 x 800
- 15” = 1280 x 800
- 19” = 1366 x 768
- 22” = 1920 x 1080

**Features:**
- High definition and contrast
- 16 million colors; 80k hour backlight
- Viewing angle up to 170° (vertical/horizontal)
- Brightness up to 400 cd/m²
- Long lifespan due to LED backlight
LED backlight is dimmable …

- during the running application
- in the control panel
- by the screensaver
- via PROFIenergy

Reduced energy costs due to lower current consumption, longer lifespan and additional areas of application (e.g.: in shipbuilding)
SIMATIC HMI Comfort Panels
Maximum data security during a power failure

“Data” slot for archives and other data

- Maximum data security for archives in RDB format in the case of a power loss by using a 2 GB SIMATIC HMI Memory Card. *

- Energy reserves of the Comfort Panels provide protection against data losses and close RDB archives reliably in the case of a power failure.

* To secure the preservation of single, not yet archived data by 100% it is recommended to use an interruptible-free power supply.

Inexpensive preservation of all data without using an additional battery.
Simatic HMI Comfort Panels
Innovative service concept

“System” slot for automatic backup

- Automatic backup of all process relevant data on a 2 GB SIMATIC HMI Memory Card.
- The backup is made at the same time with the change of the respective data.
- No manual actions required.
- Fast device exchange and commissioning by inserting the card into the target device possible: Insert card ⇒ confirm message ⇒ done

Automatic backup and fast device exchange by an innovative servicing concept.
All Comfort panel touch devices can be operated in portrait or landscape mode, depending on application requirements and available space.
SIMATIC HMI Comfort Panels - INOX

- Stainless Steel
- Easy cleaning; ideal for hygienic areas
- IP66 protection; Shatter protection
- Target Food & Beverage

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**Highlights**

- Resistant and rugged stainless-steel fronts with polished surface for easy cleaning & liquid run off
- Same dimensions and performance as standard Comfort Panels
- Decorative foil, resistant against chemicals
- Rear tensioning frame provides high degree of protection
- Non-migrating, food-standard sealing material and display splash protection to avoid contamination

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**Ideal for Food and Beverage industry – Hygienic applications**
Temperature range: -30°C to +60°C

Daylight readable; UV Protection

Target Oil & Gas, Marine, Cranes, etc.
# SIMATIC HMI Comfort Panels – Outdoor

## Customer Value

### Feature

- Central engineering-tool TIA Portal (WinCC V13) with an innovative style-editor
- Performance like Comfort Panel

- 7” daylight readable Display with automatic dimming functionality
- UV-Protection at the front of the devices

- Extended temperature range from -30°C to +60°C with maximum humidity up to 90%

- Extensive certifications like CE, EX-Zone, German Loyd, Schutzart IP 65/IP 20,…

### Customer Value

- Efficient engineering for all HMI tasks, even with your own individual design
- High quality for every industry

- Long-lasting and dazzle-free readable Widescreen-Display, in darkness and in sunshine

- Optimized for stationary and mobile outdoor-utilization

- Usage in new branches like Oil & Gas, Marine or Cranes
SIMATIC HMI Comfort Panels - Outdoor

Highlights

- Readable at any time – non-reflective, anti-glare and UV protection
- Protection against extreme temperatures from -22°F – 140°F
- Extremely rugged – high resistance to vibration and shock
- Humidity protection up to 90%
- Operable in all lighting conditions due to automatic dimming functionality

Ideal for customers with applications subject to extreme ambient conditions
SIMATIC HMI Positioning
Comfort Panel vs. Basic 1\textsuperscript{st} & 2\textsuperscript{nd} Generation

Cost

Basic Panels

Basic Panels 2\textsuperscript{nd} Gen

Functionality

Comfort Panels
SIMATIC HMI Comfort vs. Basic Panels 2nd Generation
Product / Positioning: Comparison of New Features

**SIMATIC HMI Basic Panel (previous portfolio)**

- TFT displays (256 colors) from 3” to 15”
  - Classic design and user interface
  - No USB
- Access only possible via the following third-party controllers:
  - Schneider, Mitsubishi, Rockwell, Omron

**SIMATIC HMI Basic Panel (2nd generation)**

- Focus on essential basics
  - Integrated panel range with basic functionality
  - Perfect interaction with S7 controllers
  - Configured in the TIA Portal
- High-resolution widescreen display (64k colors) from 4” to 12”
  - Innovative graphical user interface
  - PROFINET-/PROFIBUS interface for connection to various PLCs
  - e.g. Schneider, Mitsubishi, Rockwell, Omron
  - Installable drivers for third-party controllers
- USB interface for archiving or connection of keyboard, mouse, barcode scanner
- Simple device change without an Engineering System for complete Backup/Restore by using an USB stick
SIMATIC HMI Basic Panels 2\textsuperscript{nd} Generation
Compared to 1\textsuperscript{st} Generation

**COLORS**
256 $\rightarrow$ 64k

**DISPLAY**
Low-Res $\rightarrow$ Hi-Res

**INPUT**
Key & Touch Only

**MEMORY**
None $\rightarrow$ USB

**TAGS**
250/500 $\rightarrow$ 800

**OBJECTS, ETC.**
Ouch $\rightarrow$ Great

**LED Display**
Brighter screen

**STUFF**
Less $\rightarrow$ More

**LANGUAGES**

**MEMORY**

**RECIPIES**

**ALARMS**

**ARCHIVES**

**CSP**
New Concept

**Engr. Software**
Flex & TIA $\rightarrow$ TIA Only

**Faster Driver Delivery**

**Texas Instruments**

**Rockwell Automation**

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SIMATIC HMI Comfort vs. Basic Panels 2nd Generation
Product / Positioning: Comparison of New Features

SIMATIC HMI Basic Panel 2nd generation
Beauty is Simplicity

- High-resolution wide-screen display (64k colors) from 4” to 12” with new user interface
- Integrated panel range with basic functionality
- Manual Backup/Restore by using an USB Stick
  - Easy archiving
- One process interface (DP or PN)
- Plastic enclosure

SIMATIC HMI Comfort Panel
Brilliant – intelligent – practical

- Innovative graphical user interface
- Perfect interaction with S7 controllers
- Configured in the TIA Portal

- Brilliant wide-screen display (16 million colors) with wide view angle from 4” to 22” with new user interface
- Integrated panel range with high-end functionality
- Automatic backup & restoration on USB stick / SD card or network
  - Advanced logging with 100% data security
  - Multiple process interfaces (PN and DP)
  - Additional options for Comfort Panels (camera control, printing, etc.)
    - Aluminum enclosure
SIMATIC HMI Basic Panels 2nd Generation

Perfectly paired with S7-1200

High-resolution, wide-screen display (64K colors)

Uniform functionality throughout entire family

Lead with 2nd Gen for simple applications
SIMATIC HMI Basic Panels 2nd Generation

Highlights

- Innovative user interface and improved usability thanks to new controls and graphics
- Touch and Key functionality for intuitive operation
- Archiving via USB stick
- Installation compatibility with Comfort Panels and existing Basic Panels 4’ & 6”
- Interface for connection with various PLCs

Ideal for simple applications with low quantity structure
### SIMATIC HMI Basic Panels 2nd Generation

Basic Excellence – Innovative Functionality at an Attractive Price

#### Feature / function

- Efficient engineering with the new WinCC V13 (TIA Portal)
- Perfect interaction with new SIMATIC controllers, especially S7-1200
- High-resolution display: Wide-screen, 64,000 colors, 4-12”, innovative graphical user interface
- Easy data and alarm logging with USB

#### Benefit

- **ONE** engineering framework for all automation applications
- Reduction of engineering and system test costs through rapid project engineering
- State-of-the-art panel for easy automation solutions
- Innovative presentation of applications
- Reduced commissioning expenditures
- Easy process monitoring
SIMATIC HMI 2nd Generation Mobile Panels (Wired)

- Comfort panel functionality
- Safety and non-safety models available
- Ideal for interaction with S7-1200 / S71500
SIMATIC HMI 2nd Generation Mobile Panels (Wired)

Highlights

- Integrated safety; illuminated E-STOP button for integration in safety circuits
- High-end functionality for demanding mobile applications
- Manual locking or enabling of functions via key switch
- Degree of protection IP65 and fall resistance from 1.2 m height
- Wired connection to PROFINET for seamless plant-wide integration

Mobile panels offer maximum mobility and flexibility for on-site operation
SIMATIC HMI 2nd Generation Mobile Panels (Wired)

Portfolio

- Mobile Panel with 4”, 7” or 9” display (16 million color)
- Connection box for control cabinet

Flexibility

- Safety and non-safety models available
- PROFIsafe or hardwired safety

Safety

- Emergency stop pushbutton and enabling buttons
- TÜV certification according to SIL 3
SIMATIC HMI Key Panels

Freely configurable tactile keys

Freely configurable onboard I/O’s

Target applications not requiring visualization
SIMATIC HMI Key Panels
Highlights

Key Panels offer flexible expandability by keys or even safety functions for rapid commissioning, easy networking, and intuitive state detection.

- Wiring time savings over 60%; material cost reductions over 30%
- Large mechanical buttons and multi-color LEDs
- 2 PROFINET ports for assembly of line and ring structures
- Direct connection of E-STOP and other fail-safe sensors (F-versions)
- Integrated digital I/Os for connection of key switches, indicator lights, etc.
Totally Integrated Automation Portal

Increase your Engineering Efficiency – up to 30% across the design, commissioning and maintenance phases
TIA Portal Editor Layout

- Project Tree – PLC, HMI and Drives
- Editor View – Device & Networks
- Main Menu Bar
- Task Cards – HW Catalog
- Inspector Window
- Status Bar
TIA Portal Editor Layout

- Project Tree – HMI Project Data
- Editor View – Screen Development Editor
- Task Cards – Screen Objects and Tools
SIMATIC WinCC (in TIA Portal)
Pack & Go

Download project to panel without Engineering Software

- Project cannot be modified
- Project can be provided to user via Email, FTP download etc.
- Easy to use GUI
  - Select download settings
  - Start
SIMATIC WinCC (in TIA Portal)
Object Reusability

Easily reusing objects via Copy & Paste or Drag & Drop

- Integration of screen objects from Panels all the way into the SCADA world and vice versa
- Including tags, alarms, text/graphics lists, etc.
SIMATIC WinCC (in TIA Portal)
Faceplates

Simple screen objects can be combined into more complex objects in the form of a **Faceplate**

- Centrally changeable
- Configurable interface for changeable properties
- Reuse in other projects

Interface Editor of a Faceplate
SIMATIC WinCC (in TIA Portal)
Integration of PLC & HMI

Data Consistency throughout the Project
- All changes to tags are immediately applied project-wide

Intelligent Drag & Drop between Editors
- Dragging & dropping a PLC tag (e.g., from a tag table, program editor or device view) into an HMI screen automatically generates:
  - Connection
  - HMI Tag
  - IO Field
SIMATIC HMI – Migration
Collaboration with STEP 7 (Classic) – Proxy PLC

PLC in STEP 7 V5.5 and HMI in WinCC V13
- Efficient navigation of the process values
- Alarm_S/D and System Error (SFM)
- Connection of controls which are not supported on TIA Portal
  S7-300 T PLCs
  S7-400H
  “older” PLCs
- Direct keys (Profibus and Profinet)
- Tag browsing directly
- Usability improvement (as of V13 SP1)
  - Initialization possible even if project is inconsistent
    → Only the DBs selected have to be consistent
SIMATIC WinCC (in TIA Portal)
Additional Features

### Additional Features

- **Multiple Devices in a single project** – Use one project for several target devices. Flexibility to simply change operator device type
- **Layers** – Objects on the screen can be functionally divided into layer (e.g. 1 layer for buttons, 1 layer for graphics)
- **Templates** – For objects displayed in multiple screens. Changes only required once in the template and not on each individual screen
- **Libraries** – Creation, storing and reuse of any project part (e.g. Tags, screens, program blocks, etc.)
- **Dynamic Objects** – Movement, color change, showing/hiding of objects can be configured easily without complex scripts
- **Property Duplication** – Static properties of an object can easily be transferred to other objects
- **Alarm Configuration** – Alarms and properties of alarms are configurable directly at the HMI tag
- **Archiving Configuration** – The archiving is conveniently and clearly configured at the HMI tag
- **Smart Server** – Allows remote operation and maintenance via the web; allows client/server architecture

Consistent engineering for the entire HMI bandwidth - from a Basic Panel up to a SCADA system for every HMI application. All of these devices can now be programmed with one single software: SIMATIC WinCC inside TIA Portal.
SIMATIC WinCC (in TIA Portal)
Comfort Panels and RT Advanced

**Controls**
- Web browser display
- PDF display
- Camera display
- Horizontal slider

**Navigation & Operation**
- Slide-in screens
  - Four, one from each side
- Pop-up screens
  - Direct tag connection
  - Fixed position
  - Come into view animated
Do I need different engineering systems for different HMI applications?

<table>
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<tr>
<th>Engineering Edition</th>
<th>Basic Panels</th>
<th>Comfort Panels, Mobile Panels</th>
<th>Panel PCs</th>
<th>SCADA</th>
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<td>WinCC Basic</td>
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<tr>
<td>WinCC Comfort</td>
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<tr>
<td>WinCC Advanced</td>
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<tr>
<td>WinCC Professional</td>
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3rd Party Connectivity
Engineered to meet the increasingly complex processes of all machines and systems

With direct network connectivity to PROFINET, EtherNet/IP, Modbus TCP/IP, and other Ethernet drivers, SIMATIC HMI Panels offer best in class visualization when combined with most third party controllers

3rd Part Drivers Supported
- EtherNet/IP
- DF1
- MC TCP/IP
- FX
- Modbus
- Modbus TCP/IP
- OPC UA Client / Server
- LINK/Multilink
Siemens panels offer “Best-in-Class” visualization when combined with 3rd party controllers.

- Siemens is the global leader in HMI panel technology
- Comfort, mobile and basic panels communicate E/IP
- Direct network connectivity to PROFINET, EtherNet/IP, Modbus TCP/IP, and other Ethernet drivers
- Siemens is the global leader in HMI software
- Offers scalable architecture from panel based solutions to distributed architecture
### “Best-in-Class” Features

<table>
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<tr>
<th>“Best-in-Class” Features</th>
<th>“Best-in-Class” Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethernet IP communication that is <strong>easily configurable</strong> and supports direct communication to MicroLogix, CompactLogix, ControlLogix, and GuardLogix processors</td>
<td><strong>Advanced visualization</strong> offering from the SIMATIC HMI Panel family when compared to current RA offering</td>
</tr>
<tr>
<td><strong>Tag Migration Tool</strong> that allows Rockwell Automation PLC tags to be easily imported into WinCC Engineering software</td>
<td><strong>Quick access to existing tags</strong> without losing time previously spent while creating them</td>
</tr>
<tr>
<td>High resolution <strong>16 million color</strong> 4” – 22” wide screen display family</td>
<td><strong>Photo-realistic images</strong> and highly readable process and other information</td>
</tr>
<tr>
<td><strong>Up to 80,000</strong> hour backlights</td>
<td>Backlights last at least <strong>60% longer</strong> than standard industrial (50,000 hour) backlights</td>
</tr>
<tr>
<td><strong>0 – 100% dimmable</strong> backlights</td>
<td>Screens can be adjusted to each application environment in order to <strong>preserve the backlight</strong> and/or <strong>prevent retina burn</strong> in dark environments</td>
</tr>
<tr>
<td><strong>10/100/1000 Mbps Ethernet port</strong></td>
<td>Additional Ethernet port supports Gigabit transfer speeds and allows for network segmentation at the HMI panel. This allows the HMI Panel to communicate to controllers on one network and pass data to higher level systems on a separate network with an additional network switch</td>
</tr>
</tbody>
</table>
### 3rd Party Connectivity

What are the advantages of switching to the Siemens HMI?

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<th>“Best-in-Class” Features</th>
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</thead>
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<tr>
<td>Fast and simple device replacement</td>
<td>Using a System SD card, the OS, application, and device settings are automatically backed up in case of device damage. On an additional Data SD card, all documents, videos, and alarm / data logs are protected</td>
</tr>
<tr>
<td>Standard product includes viewers for pdf, Word, Excel; Internet Explorer; and Media Player</td>
<td>Drawings, instructions, parts lists, training or instructional videos, access to websites and devices with web servers increases the efficiency and effectiveness of operators and technicians on the plant floor</td>
</tr>
<tr>
<td>170 degree viewing angle</td>
<td>Process screens and information can be seen from many locations around the installed location so that the customer is not limited to the space immediately in front of the HMI panel</td>
</tr>
<tr>
<td>Rugged design including aluminum front casing</td>
<td>Meets industrial requirements for vibration resistance and chemical resistance</td>
</tr>
<tr>
<td>2 port 10/100 Mbps Ethernet switch</td>
<td>Reduces need for separate switch in many applications. Also, supports MRP soft ring topology for protection against network failure without additional costly network switches</td>
</tr>
</tbody>
</table>
Contact Us

Cole Holland
SIMATIC HMI Product Manager

5300 Triangle Parkway
Norcross, GA 30092
Phone: (770) 871-3898
E-Mail: nicolas.holland@siemens.com