

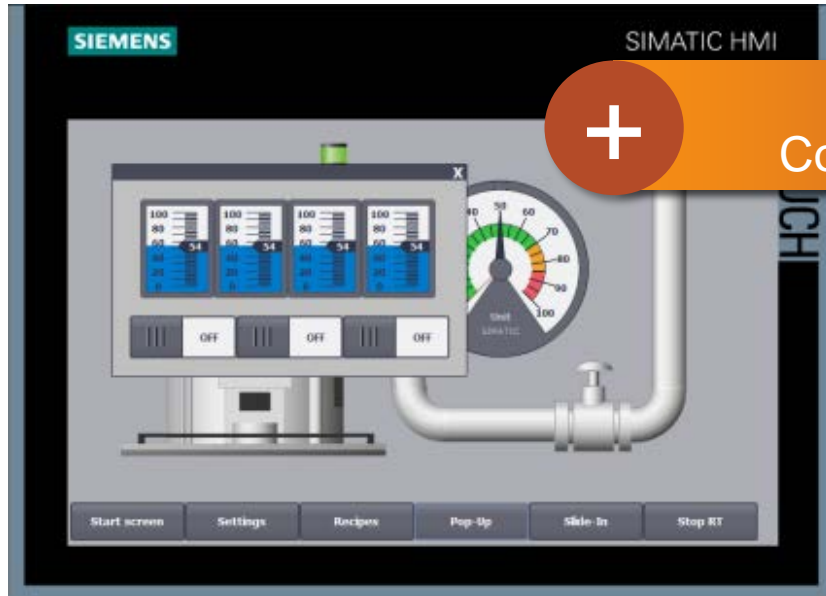


What's New from Siemens Automation

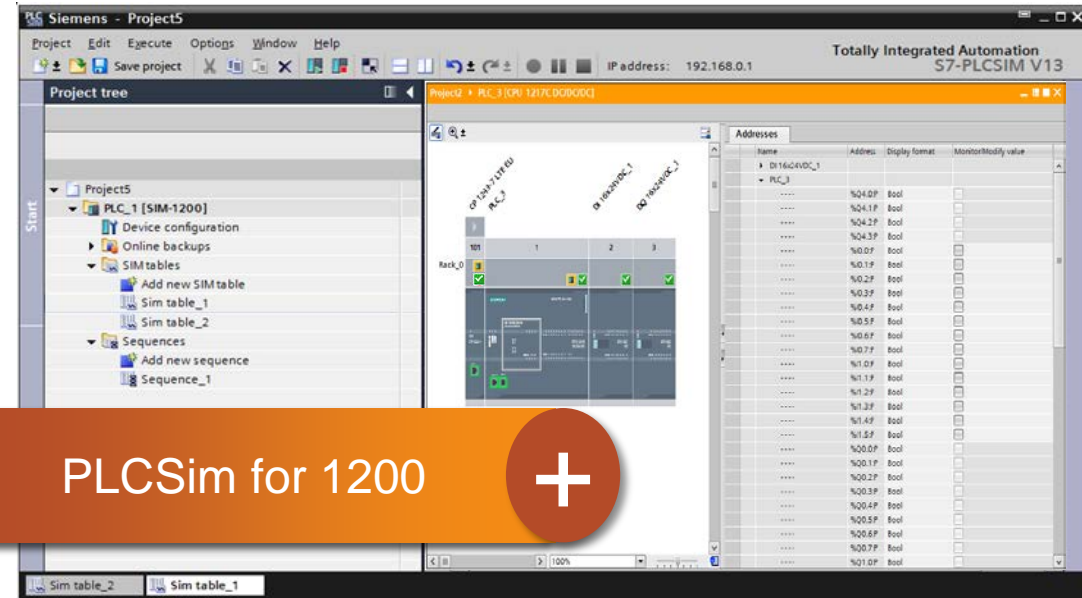


SIEMENS

New Improvements with TIA Portal V13 SP1

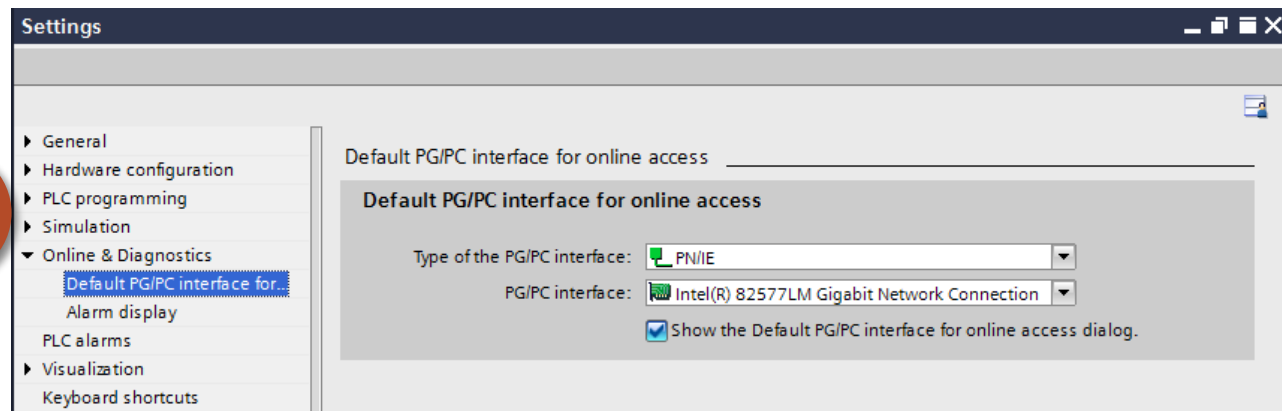


+ Pop Ups for Comfort Panels



+ PLCSim for 1200

+ Default Online Interface



SIMATIC STEP 7 in TIA Portal - Intuitive and efficient operation

Structured I/O Variables



SIEMENS

S7-1500 S7-1200 S7-300/400/WinAC

RT-Adv. RT-Prof.

New

Structured access to E/As and use the structures in your program and HMI

User defined datatypes can be used as data type for I/O Variables. The I/O's can be accessed as structure in the PLC program or HMI without any further copy action.

1. Define UDT

...1516-3 PN/DP] > PLC data types > RobotUDT

2. Define PLC Tag

Inc16 > PLC_1 [CPU 1516-3 PN/DP] > PLC tags > Standard-Variablen-tabelle [50

| RobotUDT | | | | |
|----------|----------------|--|--|--|
| | Name | | | |
| 1 | Motor_On | | | |
| 2 | Motor_Error | | | |
| 3 | Motor_Velocity | | | |

| Standard-Variablen-tabelle | | | | |
|----------------------------|----------------|-----------|---------|---------------|
| | Name | Data type | Address | Monitor value |
| 1 | robot | *RobotUDT | %I0.0 | |
| 2 | Motor_On | Bool | %I0.0 | FALSE |
| 3 | Motor_Error | Byte | %IB1 | 16#00 |
| 4 | Motor_Velocity | Int | %IW2 | 0 |

New

+ Easy way to reuse Faceplate with only 1 tag to change for new image

3. Define HMI Tag of PLC UDT and use in Screen

Inc16 > HMI_1 [TP900 Comfort] > HMI tags

| HMI tags | | | |
|----------|----------------|-----------|----------|
| | Name | Data type | PLC name |
| 1 | robot | RobotUDT | PLC_1 |
| 2 | Motor_On | Bool | PLC_1 |
| 3 | Motor_Error | Byte | PLC_1 |
| 4 | Motor_Velocity | Int | PLC_1 |

New

! Tag structure easily shared and used in HMI

+ Drag and Drop PLC UDT to HMI tag to create HMI UDT

SIEMENS SIMATIC HMI Root screen

Motor_On 0

SIMATIC STEP 7 in TIA Portal – Online Backup & Restore your PLC



SIEMENS

S7-1500

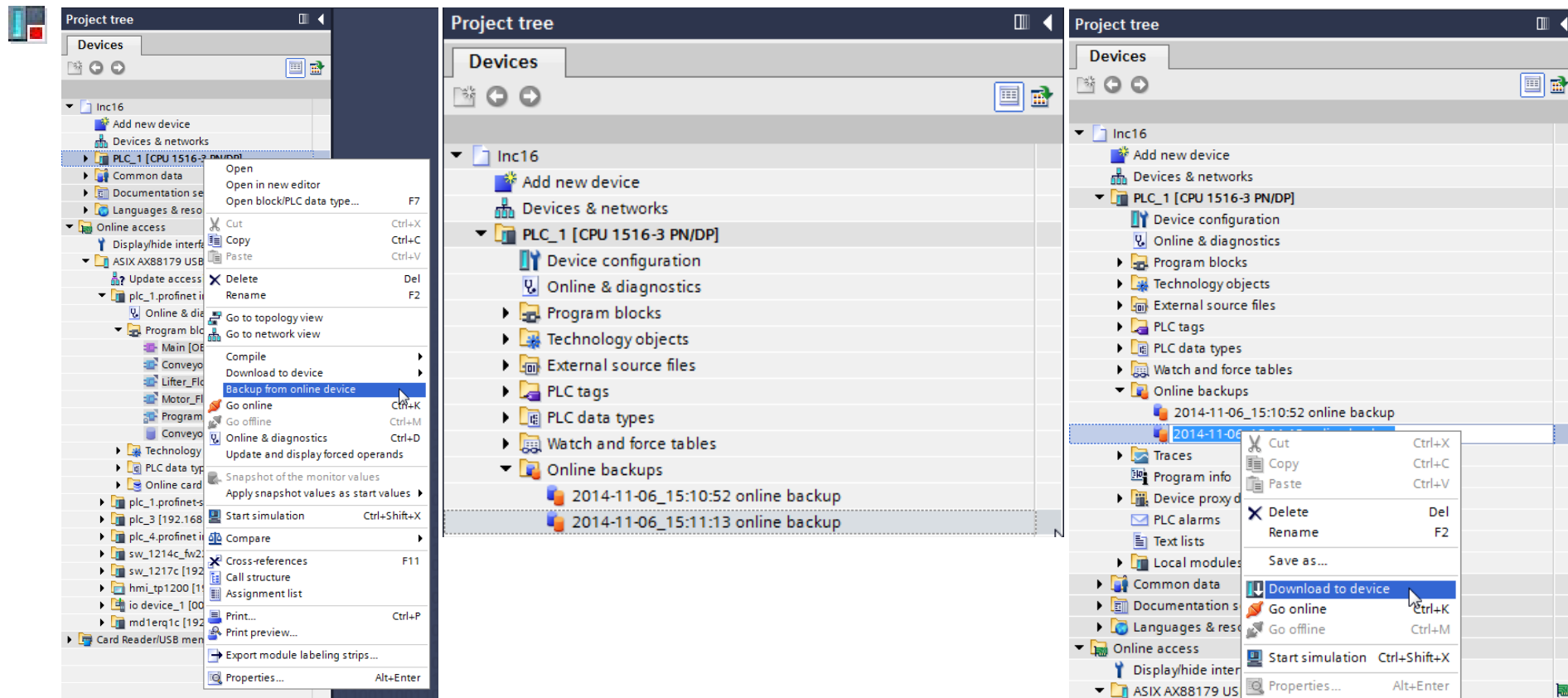
new

S7-1200

planned

S7-300/400/WinAC

New backup allows for a complete copy of running code including the current values of DB's.



SIMATIC STEP 7 in the TIA Portal - Team engineering PLC proxy for HMI

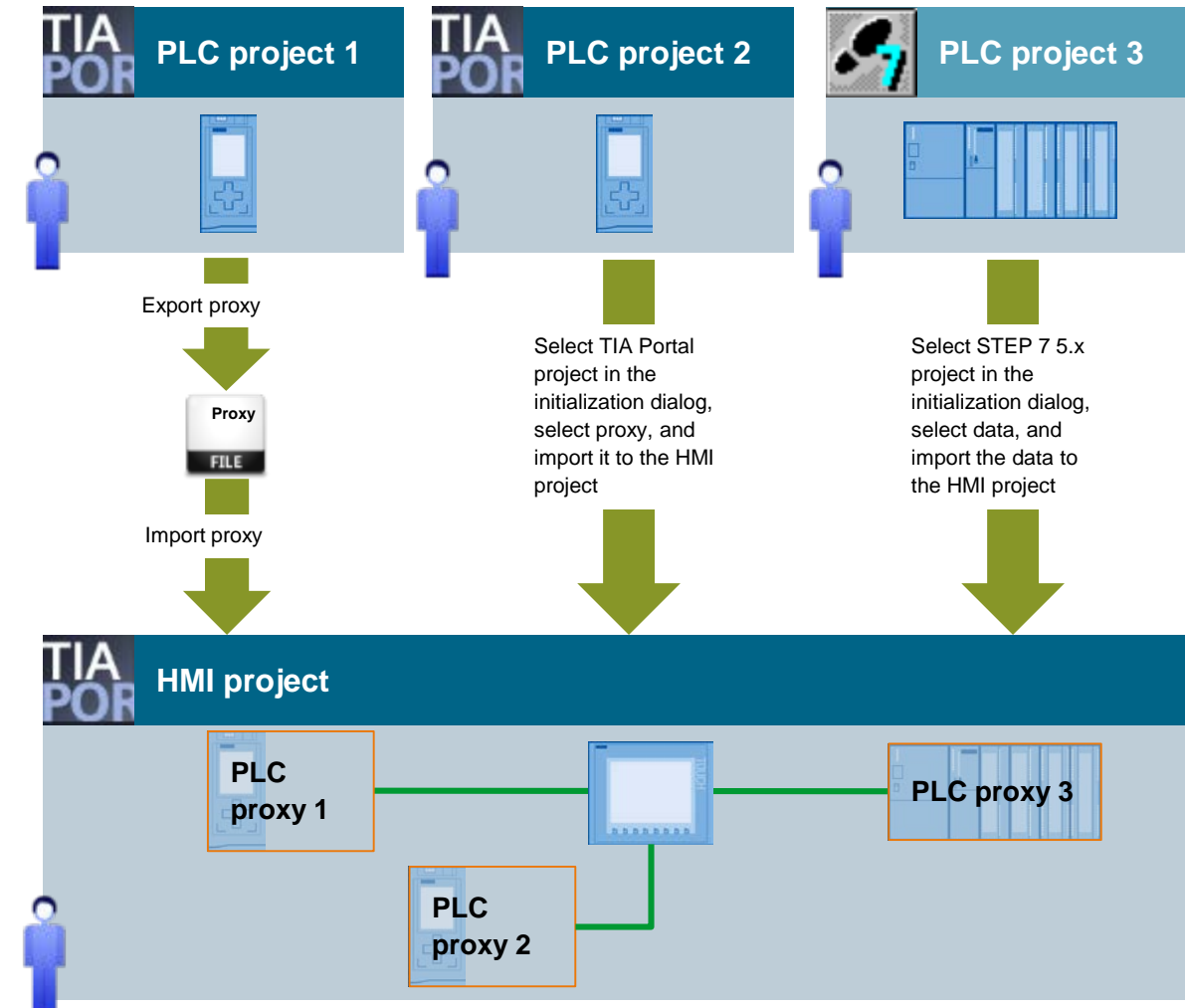


Develop PLC and HMI in parallel in the team

- Several developers can develop the PLC and HMI in separate projects
- HMI configuring takes place exactly as in an integrated project
- Data exchange via file or direct project access (TIA and Classic)

NEW Support for PROFINET, PROFIBUS and **MPI**

NEW Proxy connection of H CPUs



SIEMENS

- Devices & networks
- PLC programming
- Motion & technology
- Drives Configuration

SIMATIC Controllers

- Welcome Tour
- First steps



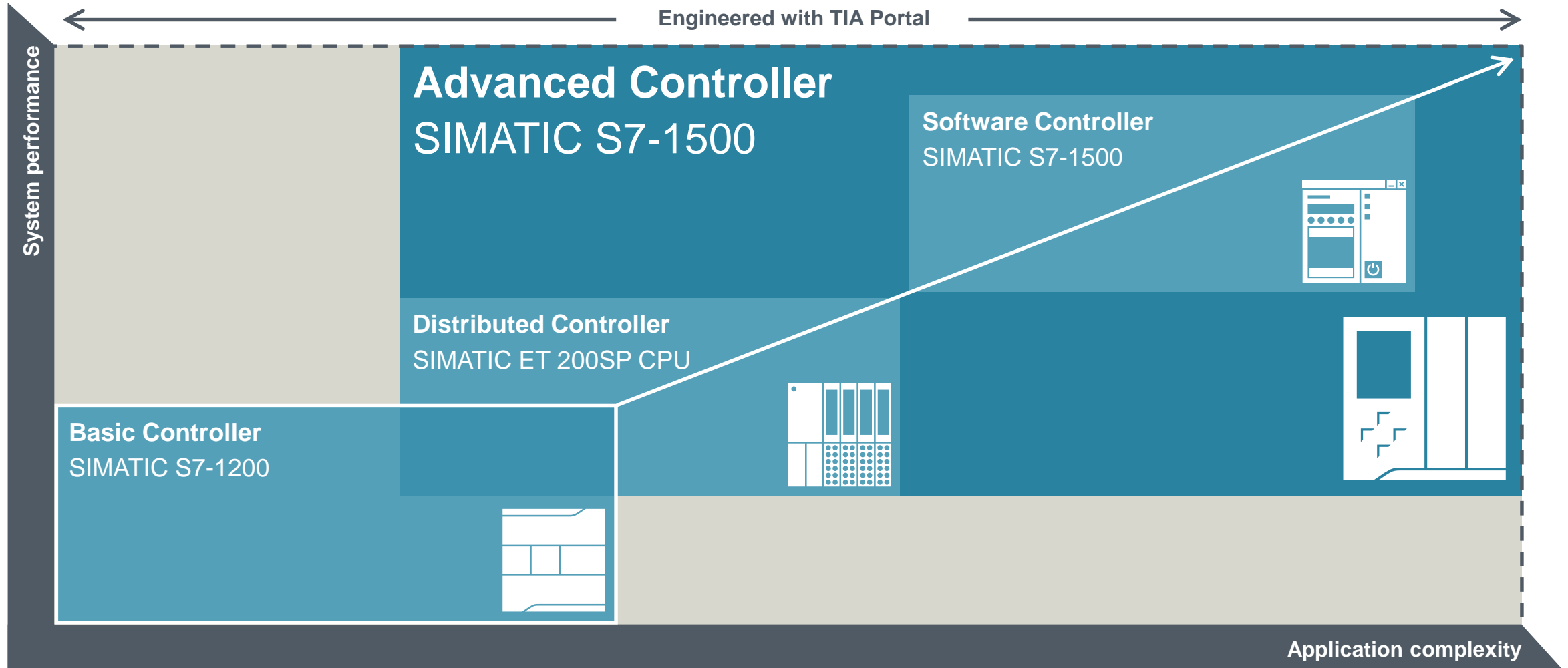
Engineered with TIA Portal

SIMATIC New Controller Generation

Always the appropriate Controller performance!



SIEMENS



SIMATIC S7-1500 – New Controllers in FY14

Positioning/Portfolio Standard CPUs



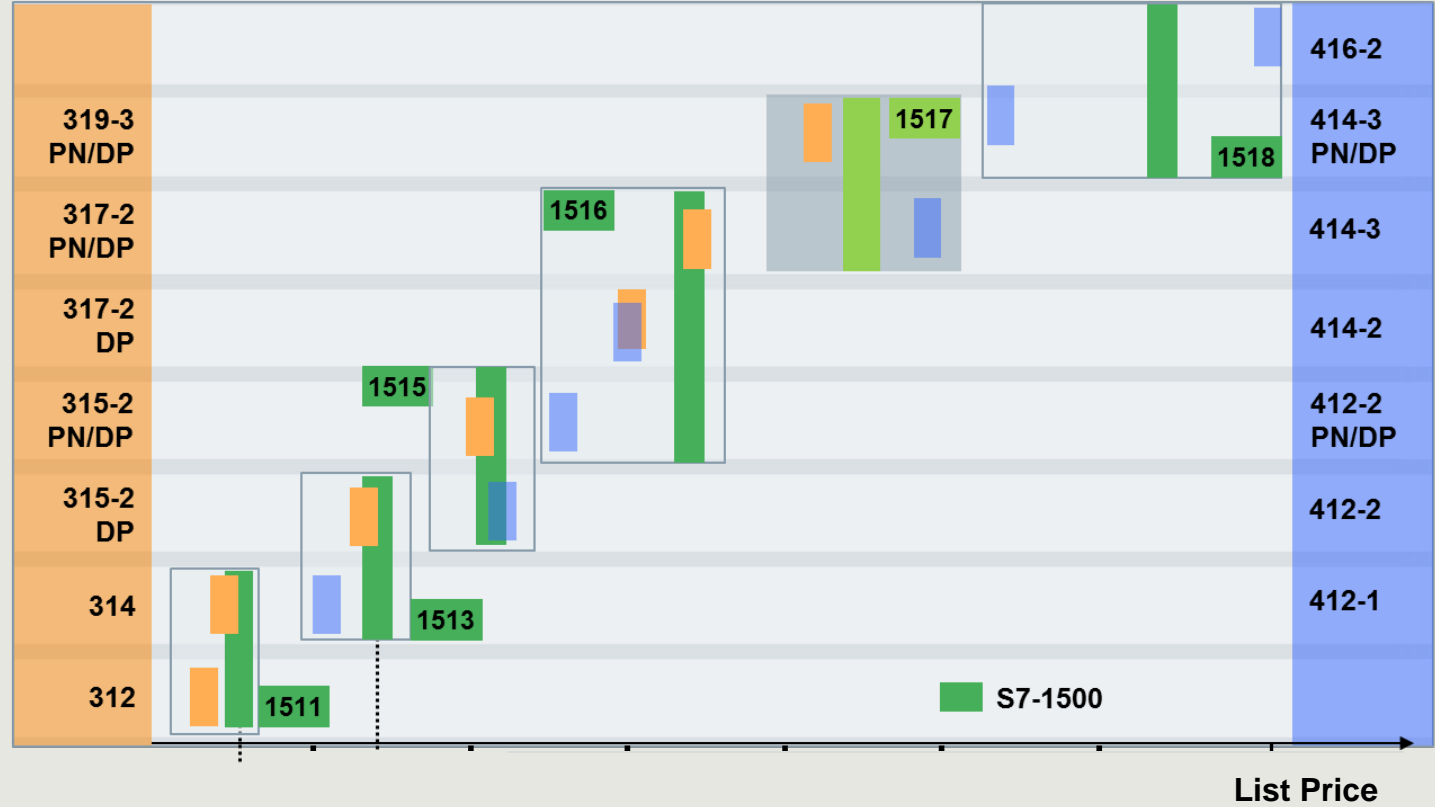
SIEMENS

Standard S7-1500 CPUs



- ✓ CPU 1511-1 PN
- ✓ CPU 1513-1 PN
- ✓ CPU 1515-2 PN
- ✓ CPU 1516-3 PN/DP
- ✓ CPU 1517-3 PN/DP
- ✓ CPU 1518-4 PN/DP

S7-1500 CPU Portfolio - Standard CPUs



SIMATIC S7-1500 – New Controllers in FY14

Positioning/Portfolio Failsafe CPUs



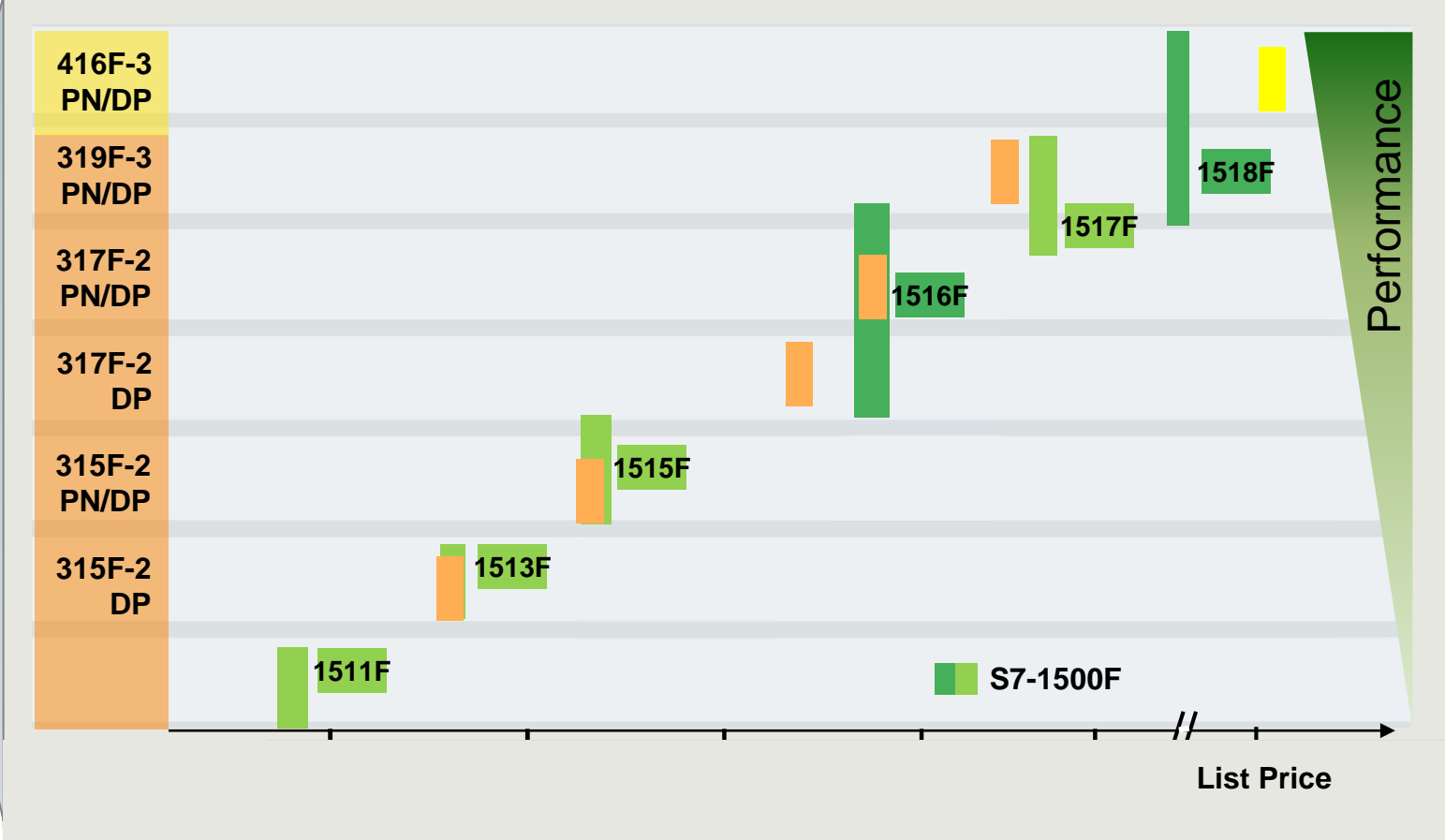
SIEMENS

Failsafe S7-1500 CPUs



- ✓ CPU 1511F-1 PN
- ✓ CPU 1513F-1 PN
- ✓ CPU 1515F-2 PN
- ✓ CPU 1516F-3 PN/DP
- ✓ CPU 1517F-3 PN/DP
- ✓ CPU 1518F-4 PN/DP

S7-1500 CPU Portfolio – failsafe CPUs



SIMATIC S7-1500 / ET 200 SP CPUs

Highlights with Firmware V1.8 in TIA Portal V13 SP1 UPD4



SIEMENS

+ Hardware Innovations

+ SIMATIC S7-1500 Compact-CPU

+ faster Startup sequence

+ New Hardware for

- each S7-1500(F) CPUs \leq 1516(F)
- each ET 200SP(F) CPUs

+ ET 200SP CPU:

- support FO-Adapter (with new HW)
- support ASi-Master



+ Programming

- + Additional functionality for block "T_Config" (IP-address of the NTP-Servers can be changed during runtime)

+ New Features

- + Support SIMATIC S7 App

+ New features for display and webserver

- + Write tags / tag status via display and webserver

SIMATIC S7-1500 Compact-CPU Highlights



SIEMENS



Highlights SIMATIC S7-1500 Compact-CPU

- Highly improved performance and technological functionalities in comparison with S7-300C CPU, e.g. via integrated HSC for counting and frequency measurements with 100kHz input channels
- Starting with a later firmware version the PTO and PWM functionality shall be available for the S7-1500 Compact CPUs → upwards compatibility of S7-1200C to S7-1500C regarding technological functionalities
- PROFINET is the standard interface
- Up to 10% less width compared with a S7-300C CPU
- Simplified ordering:
 - Front connectors are inclusive
 - Reduction of varieties -> two S7-1500 Compact CPUs;

SIMATIC S7-1500 / ET 200 SP CPUs

Highlights with Firmware V1.8 in TIA Portal V13 SP1 UPD4



SIEMENS

Support of SIMATIC S7 App

- Secure connection to your SIMATIC S7-1500 and ET 200SP CPU via App, supporting the following functionality:
 - Scanning and establishment of connections to up to 50 CPUs
 - Changing of CPU-Operating mode (RUN/STOP)
 - Retrieving of CPU diagnostic information and sending via E-Mail
 - Changing of variable values
 - Trend view functionality for up to 8 variables
- High security via encrypted communication and encrypted profile data; password needed for startup and for connection



SIMATIC S7-1200 Controller

- S7-1200 FW4 Processors



FW4 Processors, S7-1200

- NEW HW required for all existing CPUs
– **cannot update existing V3 CPUs!**

Cost effective remote IO solution
at Micro Level! – i-Device



Investment Protection – Security Enhancements
(similar to S7-1500)



Faster commissioning – Trace functionality
incorporated, mobile web, PLCSim



Simplified Engineering – Recipe handling



S7-1200 “V4” CPUs!



CPU1211C



CPU1212C



CPU1214C



CPU1215C



CPU1217C

S7-1200 “Safety” CPUs



SIEMENS

S7-1200FCC-CPU's (DC/DC/DC and DC/DC/RIy)

- S7-1214FC
- S7-1215FC

Fail-safe S7-1200 IO-Modules

- SM 1226 F-DI 16 x 24VDC
- SM 1226 F-DQ 4 x 24VDC
- SM 1226 F-DQ 2 x Relay

Software:

- STEP 7 Safety Advanced V13 SP1
- STEP 7 Safety Basic V13 SP1

S7-1200 Safety



Low Entry Price Point for SAFETY!
New Market – micro level...



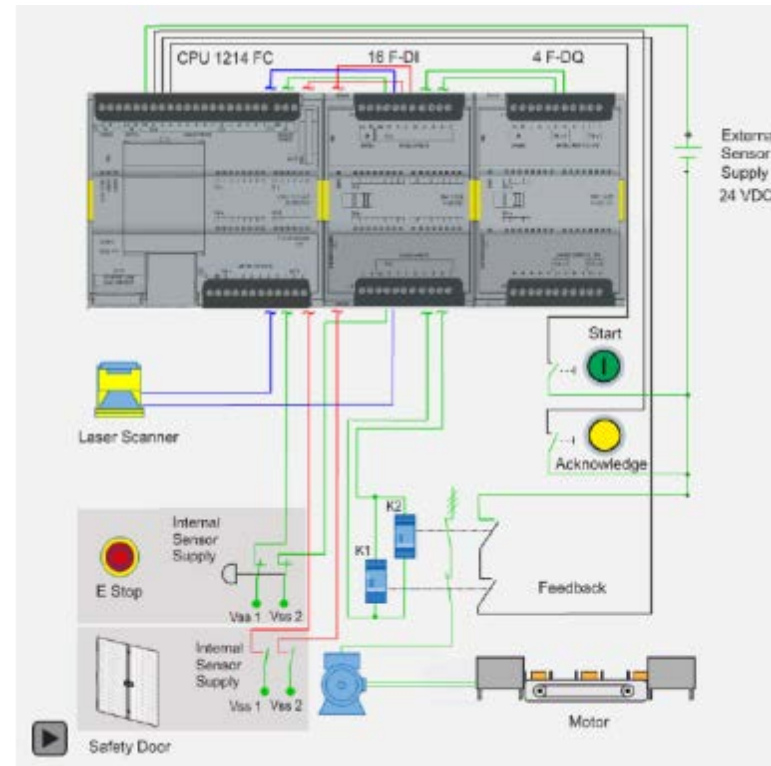
SIMATIC S7-1200F

Interactive - Functional Safety Manual

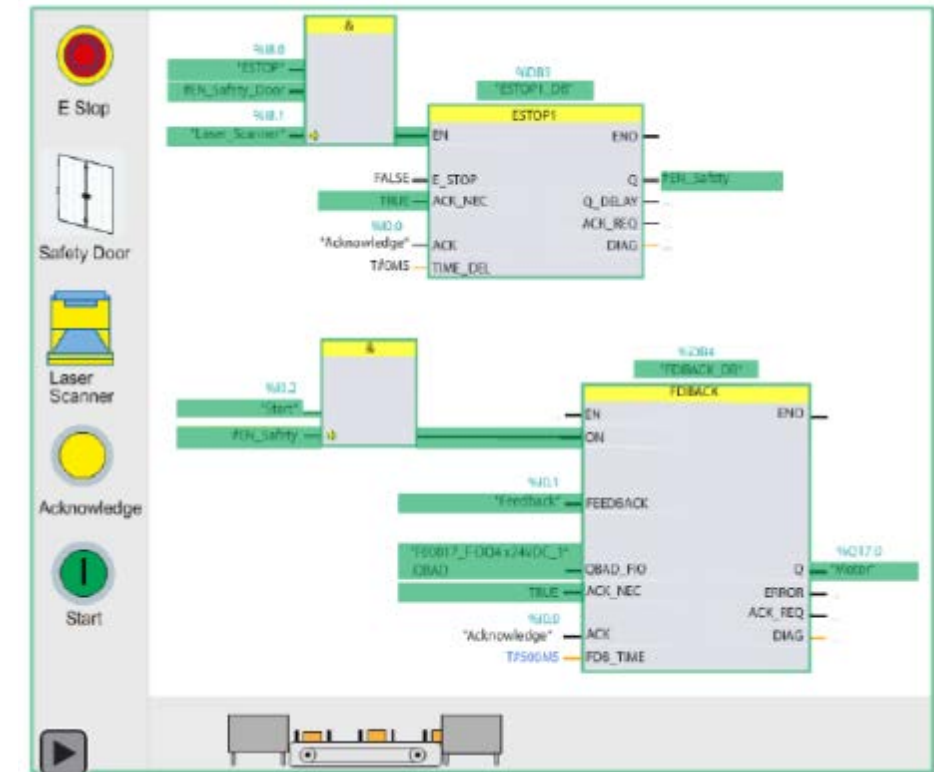


SIEMENS

| | |
|---|---|
| SIEMENS | Preface |
| | Product overview 1 |
| SIMATIC | Getting started 2 |
| S7 | Fail-Safe signal module (SM) applications 3 |
| S7-1200 Functional Safety Manual | Fail-Safe CPU and signal module (SM) installation 4 |
| Manual | Fail-Safe signal module (SM) I/O configuration 5 |
| | Fail-Safe signal module (SM) diagnostics 6 |
| | Technical specifications A |
| | Ordering information B |
| | Fail-Safe response times C |



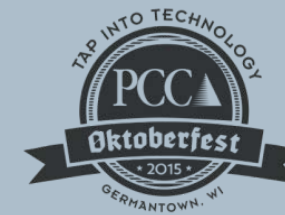
In the Manual on Page 29, click on play button to run functional example



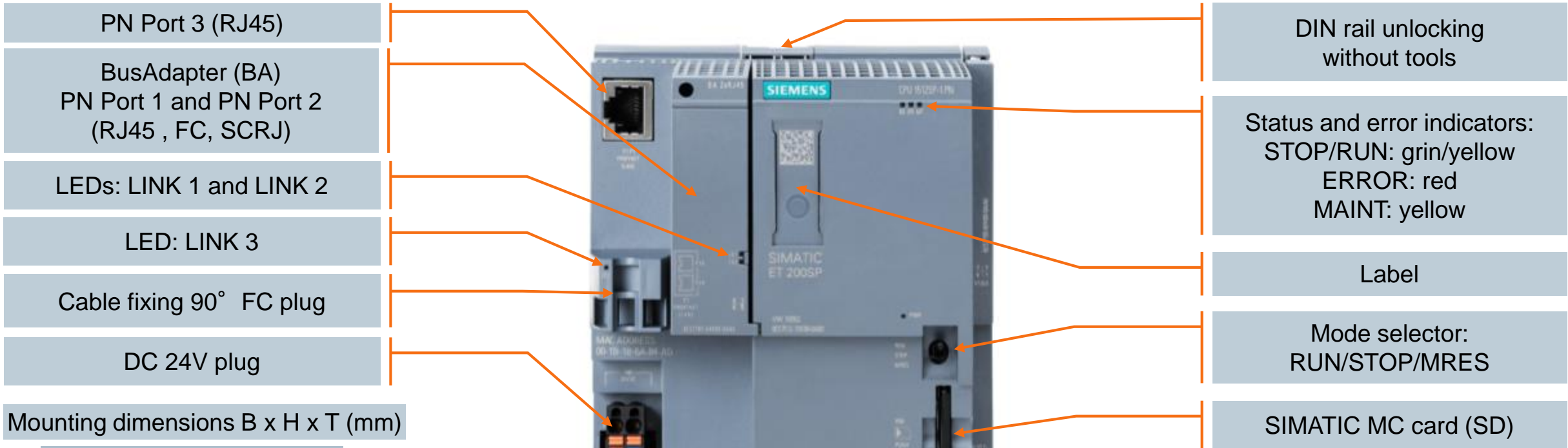
In the Manual on Page 63, click on play button to run result of programming

SIMATIC ET 200 SP CPUs

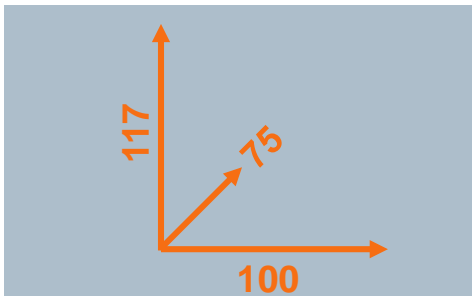
ET200SP CPUs - Operator controls and indicators



SIEMENS



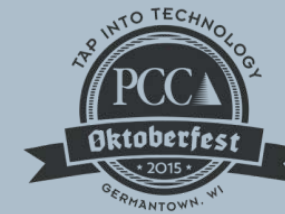
Mounting dimensions B x H x T (mm)



- ✓ IM151-7, 60mm wide
- ✓ IM151-8, 120mm wide

SIMATIC S7-1500 CPU

Portfolio Outlook



SIEMENS

SIMATIC S7-1500 Standard CPU

| CPU 1510SP | CPU 1512SP | CPU 1511 | CPU 1513 | CPU 1515 | CPU 1516 | CPU 1517 | CPU 1518 |
|---|--|---|---|---|---|---|--|
| <p>CPU 1510SP</p> <p>\$955</p> <p>100 KB Prog. 750 KB Data 72 ns Bit Perf. 85 mm Width</p> | <p>CPU 1512SP</p> <p>\$1,225</p> <p>200 KB Prog. 1 MB Data 48 ns Bit Perf. 110 mm Width</p> | <p>CPU 1511</p> <p>\$950</p> <p>150 KB Prog. 1 MB Data 60 ns Bit Perf. 35 mm Width</p> | <p>CPU 1513</p> <p>\$2,110</p> <p>300 KB Prog. 1,5 MB Data 40 ns Bit Perf. 35 mm Width</p> | <p>CPU 1515</p> <p>\$3,150</p> <p>500 KB Prog. 3 MB Data 30 ns Bit Perf. 70 mm Width</p> | <p>CPU 1516</p> <p>\$5,195</p> <p>1 MB Prog. 5 MB Data 10 ns Bit Perf. 70 mm Width</p> | <p>CPU 1517</p> <p>\$6,720</p> <p>2 MB Prog. 8 MB Data 2 ns Bit Perf. 175 mm Width</p> | <p>CPU 1518</p> <p>\$9,775</p> <p>3 MB Prog. 10 MB Data 1 ns Bit Perf. 175 mm Width</p> |

SIMATIC S7-1500 Failsafe CPU

| CPU 1510SP F | CPU 1512SP F | CPU 1511F | CPU 1513F | CPU 1515F | CPU 1516F | CPU 1517F | CPU 1518 F |
|---|--|---|---|---|--|--|--|
| <p>CPU 1510SP F</p> <p>\$1,025</p> <p>150 KB Prog. 750 KB Data 72 ns Bit Perf. 85 mm Width</p> | <p>CPU 1512SP F</p> <p>\$1,425</p> <p>300 KB Prog. 1 MB Data 48 ns Bit Perf. 110 mm Width</p> | <p>CPU 1511F</p> <p>\$ 1,270</p> <p>225 KB Prog. 1 MB Data 60 ns Bit Perf. 35 mm Width</p> | <p>CPU 1513F</p> <p>\$ 2,405</p> <p>450 KB Prog. 1,5 MB Data 40 ns Bit Perf. 35 mm Width</p> | <p>CPU 1515F-2 PN</p> <p>\$3,620</p> <p>750 KB Prog. 3 MB Data 30 ns Bit Perf. 70 mm Width</p> | <p>CPU 1516F-3 PN/DP</p> <p>\$5,745</p> <p>1,5 MB Prog. 5 MB Data 10 ns Bit Perf. 70 mm Width</p> | <p>CPU 1517F-3 PN/DP</p> <p>\$7,425</p> <p>3 MB Prog. 8 MB Data 2 ns Bit Perf. 175 mm Width</p> | <p>CPU 1518F-4 PN/DP</p> <p>\$10,785</p> <p>4,5 MB Prog. 10 MB Data 1 ns Bit Perf. 175 mm Width</p> |

SIEMENS







March 2015

What's new and coming with SIMATIC PC-based Automation

Targets for SIMATIC PC-based Automation FY15 – Product Releases



SIEMENS

| | | FY 2015 | | | |
|---------|----------------------------|--|---|--|--|
| | | Q1 | Q2 | Q3 | Q4 |
| | | ◆ SPS Show Nuremberg | | ◆ Hannover Fair | |
| Product | Open Controller (PC-based) | ET 200SP Open Controller "CPU1515SP PC" | S7-1500 Software Controller "CPU150xS" | "F" version | |
| | | | IPC Bundles | "F" version | |
| | | ODK1500S | New "Target" (Matlab/Simulink integration) | | |
| | | | | | |
| | Rack PCs | IPC347D,  | | | IPC347E,  |
| | Box PCs | | | | |
| | Panel PCs | IPC477D/677D Multi-touch 15" |  | Nano IPCs IPC227E IPC277E  | |
| | Monitors, Thin Clients | Industrial Flat Panel Multi-touch 15" | Industrial Ethernet Monitor | | |

- **ET 200SP Open Controller**
All-in-one embedded PC-based controller – fanless, expandable with all ET 200SP modules, S7-1500 Software Controller (F) installed, opt. WinCC installed
- **S7-1500 Software Controller CPU15xxS (F)**
100% Engineering with TIA Portal, Motion integrated, Security integrated, Safety integrated "F" version, C/C++ integration with new ODK
- **New "Target"** for S7-1500 Software Controller
Integration of Matlab/Simulink modules

- Rack PCs IPC347x**
- Intel processor new generation

- Nano IPCs: new "E" generation**
- Dual Core & Quad Core CPU's
 - Up to 8 GB RAM

- Multi-touch Flat Panels and Panel PCs**
- New: 15" fronts (19", 22" available)

- Industrial Ethernet Monitor**
All Signals run over One Ethernet Cable
Video, Touch and USB 2.0 over TCP/IP (1Gbit / s)

Next Generation of Nano IPCs

Powerful and compact entry platform



SIEMENS

SIMATIC
IPC227E



SIMATIC
IPC277E

Target Applications - Functionality - Price positioning as entry platform in the SIMATIC IPC portfolio

Much more Power

- Single Core → Dual Core & Quad Core
- Max. 2 GB → Up to 8 GB RAM
- 32 bit → 64 bit architecture
- Latest interfaces → USB 3.0 / DP / CFast



Compact & Improved

- Only 1 liter volume
- COM switchable
- Multitouch for 15" & 19"
- Display-Port for Panel PC

Wider range of applications

CPU 1505S – Software Controller
B.Data – Energy Box

WinCC Single Station / Client
WinCC OA

Rack PC SIMATIC IPC347D

Entry Level Rack PC



SIEMENS

Easy distribution +

- 4 variations directly from the storehouse
- No configurator

Reliable continuous operation +

Industrial-standard design and repair services worldwide



Packages +

Simatic HMI packages for price-intensive applications in the low performance area (Client/Workstation)

Optimized price +

Optimal positioning against the competition in the office segment

Service-friendly enclosure +

- Front USB and externally accessible fan
- Easy expandability for RAM, HDD and PCI/PCle cards

SIMATIC IPC347D

Four Fixed Configurations – Available Ex Works



SIEMENS

| | Configuration 1 | Configuration 2 | Configuration 3 | Configuration 4 |
|---------------------|--|-----------------|---------------------|------------------------------|
| Processor | Intel Pentium G2010 | | Intel Core i5-3340S | |
| RAM | 2 GByte DDR3 | 4GByte DDR3 | | |
| Bulk memory | 500 GByte SATA HDD | | | |
| Optical drive | DVD-ROM | DVD±R/RW | | |
| Operating system | - | | | Windows 7 Ultimate 64 bit |
| Interfaces | 6x USB 2.0, 2x GBit Ethernet, 2x COM, 2x PS/2, 1x DVI-D, 1x VGA | | | |
| Slots | 3x PCIe, 4x PCI | | | |
| Industrial standard | 19" full-metal enclosure (4RU), positive pressure ventilation and dust protection filter, ambient temperature up to 40° C (in continuous operation without power loss) | | | |

Decentralized operating concepts



SIMATIC ITC

Positive feedback

- Performance
- Remote configuration
- Display sizes up to 22"
- Usability



Getting Started Videos



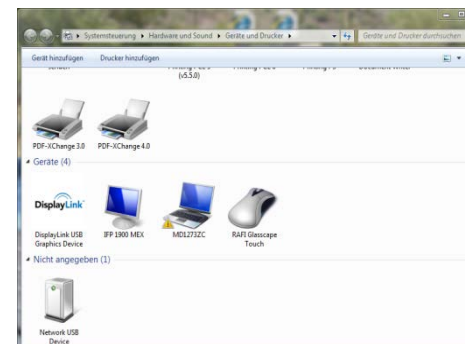
Getting Started Docu
Industry Online Support



Application Example
Industry Online Support

Ethernet Monitor IFP1900

- **All Signals run over One Ethernet Cable**
Video, Touch and USB 2.0 over TCP/IP (1Gbit / s)
- Full Multitouch operation
- Supporting Windows 7 and Windows 8
(as a virtual graphics adapter and USB – Server)
- Multiple monitor operation (up to 4)
- Monitor shows connection status to the PC
- No BIOS access or visible BIOS boot messages



Ethernet monitor shows up
as a regular monitor within the
Windows device list or control panel.

S7-1500 Software Controller Highlights



SIEMENS

+ Supported platforms

- + Windows 7 32 and 64 Bit
- + Microbox IPC4x7D
- + Box/Rack/Panel IPC6x7D/8x7D
(IPC2x7E: 2. delivery stage)

+ Ruggedness

- + Innovative real-time concept based on virtualization concepts
- + 100 % decoupling of Windows
- + **Reboot Windows – during ongoing control**

+ Usability

- + Display Application for easy operation
- + Complete projecting with TIA-Portal

+ Performance

- + Improved Code processing
- + 64 Bit exploitation
- + Fast run-up @ PC boot



+ Compatibility and scalability

- + 100% Code compatible with S7-1500
- + **Motion & Trace**

+ Security

- + Improved copy and know-how protection
- + Improved communication security

+ ODK

- + Execution of real-time algorithms
- + Invocation of Windows DLLs

SIMATIC S7-1500 Software Controller

Flexible Compliance with Customer Requirements



$$f(x) = a_0 + \sum_{n=1}^{\infty} \left(a_n \cos \frac{n\pi x}{L} + b_n \sin \frac{n\pi x}{L} \right)$$

Complex control tasks

- Realization of minimum cycle times
- Integration of complex algorithms
- High capacity of program and data memory



Integration of PC applications

- Direct integration of closed-loop controllers from model-based development
- Integration of (already existing) high-level language code



Multiple tasks on one device

- Realization of central and distributed operating concepts
- Reduced component variety and spare parts stocking
- Integration of third-party software (e.g. image processing)

SIMATIC ET 200SP Open Controller

The compact PC-based controller within the S7-1500 portfolio



SIEMENS

Independent of Windows

Maximum controller availability even in case of Windows failure or during installation of updates

Increased security

Protection of intellectual property and manipulation protection

Compact design

Space savings in the control cabinet of over 30% in comparison to similar systems



PC and field bus interfaces onboard

Easy connection to automation and IT networks

Efficient engineering

Integrated engineering of controller and visualization in the TIA Portal

The SIMATIC ET 200SP Open Controller at a glance

Robust hardware with powerful software for innovative machines



SIEMENS

Hardware

- Fanless design
- High temperature range (0° C to 60° C)
- Up to 4GB RAM
- All PC-interfaces onboard (DVI, USB, Gbit Ethernet)
- Exchangeable bus adaptor for PROFINET IRT
- Integrated Run-Stop-Switch for the controller



Software

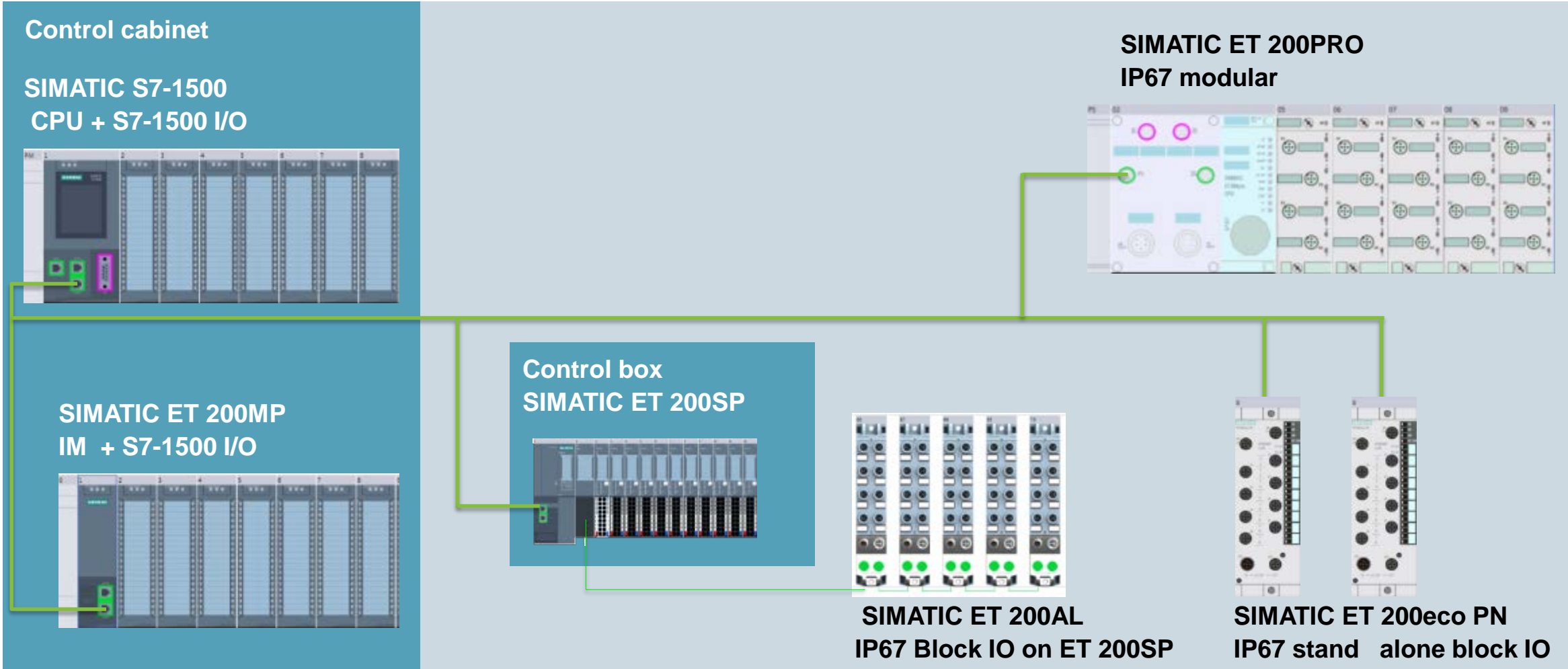
- S7-1500 Software Controller pre-installed
- Optionally with installed visualization software WinCC
- Visualization also with multitouch functionality possible
- Optionally 32 Bit or 64 Bit WES 7 operating system

SIMATIC ET 200SP

Overview of ET 200 portfolio



SIEMENS



SIMATIC ET 200SP

Special modules (Available)



SIEMENS

Fiber Optic BusAdapter (BA 2xSCRJ)

- Distance up to 250 meter between ET200SP stations.
- Supports cable types: POF, PCF, PCF GI.

AS-Interface Communication Modules (CM AS-i Master ST)

- AS-i slaves can be configured on AS-i subnet in TIA Portal.
- Analog slaves with access in I/O area (up to 288 bytes).

AS-Interface Failsafe Communication Modules (F-CM AS-I Safety ST)

- Must be combined with CM AS-i Master ST. Supports 31 safety inputs and 16 safety outputs.
- Similar configuration and programming as the F-DI and F-DQ.

Weighing Technology (SIWAREX WP321)

- Applications: Platform scales, silo and hopper weighing, weighing in explosive areas, and force measurements.
- Resolution accuracy of +/- 2 Million parts



+ Smallest Weighing module in the market

SIMATIC ET 200MP

Delivery Release



SIEMENS

New Modules

- ✓ DI, DQ, DI/DQ, AI, and AQ 25mm wide module (Slimmer)

Additional cabinet space saving with slimmer 25mm modules



- ✓ DQ 16x230VAC/2A ST 35mm (Relays)
- ✓ DQ 16x230VAC/1A ST 35mm (Triac)

F modules



F modules

- ✓ 16 F-DI
- ✓ 8 F-DQ 2A ppm



Delivery Release soon!

SIMATIC Distributed IO IP65 / 67 ET 200AL



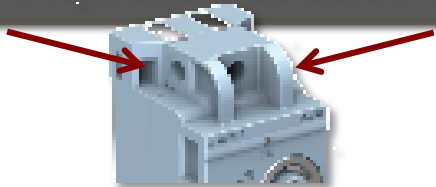
SIEMENS

The Rugged I/O for effortless mounting anywhere

+ **Small and lightweight**
(30/45 mm width, 145 gram)



+ **Flexible assembly**
Front and side screw connection



+ **Perfect integration**
of IP65/67 modules in ET 200SP



+ **Uniform engineering in the**
TIA Portal and STEP7 V5.5



+ **M8 connection system for Digital**
module (M12: Analog and IO-Link)

Next releases: M12 for digital

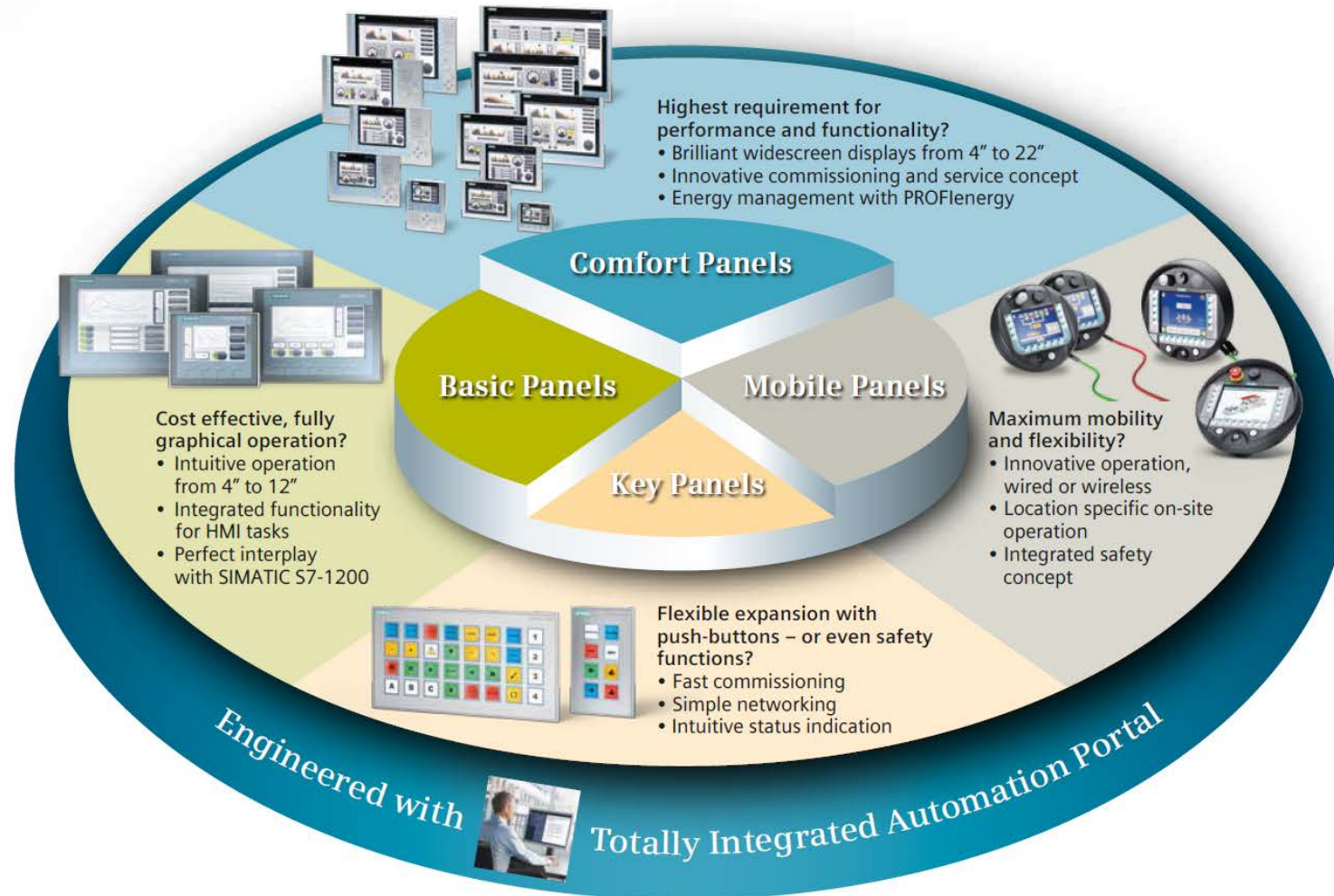


The Family of SIMATIC HMI Panels

Efficient to a new level



SIEMENS





SIEMENS

SIMATIC HMI 2nd Generation Basic Panels

Nicely paired with S7-1200



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

Uniform functionality throughout entire family



Lead with 2nd Gen for simple applications



SIEMENS

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 Comfort Panels INOX



SIEMENS

Stainless Steel



Easy cleaning, ideal for
hygienic areas



IP66 protection; Shatter
protection



Target Food &
Beverage



SIMATIC HMI Comfort Panels

Coming soon! - Outdoor Panels



SIEMENS

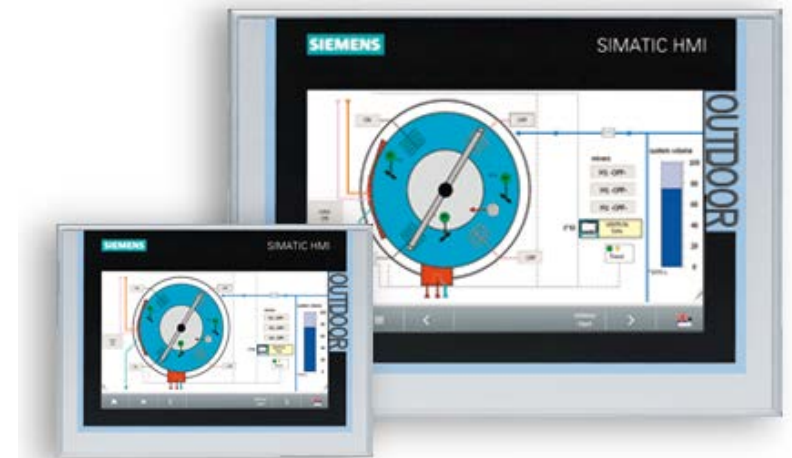
Temperature range:
-30°C to +60°C



Daylight readable; UV Protection



Target Oil & Gas,
Marine, Cranes, etc.



SCALANCE W - 802.11n Wifi

New portfolio additions



SIEMENS

Small form factor Wifi products open the door to new Entry-level and Mainstream business and round out 802.11n portfolio

Features

- Lower entry price
- Data rates of up to 150 or up to 300Mbit/s
- 2-port switch on W770/730 series
- KEY-Plug/C-Plug for iPCF support on W770/730 series
- Small footprint with Direct + Rail mounting



Mainstream: W774/W734
6GK5774-1FX00-0AB00

[Link](#)



Entry-level: W761/W721/W722
6GK5721-1FC00-0AA0

[Link](#)



+ S7-1500 design



+ ET200SP design



Customer benefits: Increased Flexibility and cost effectiveness

- **Smaller footprint** allows for use of 802.11n technology even in applications with size and space restrictions
- **Design following the S7-1500 and ET200SP** allows for easy integration into existing cabinets



SCALANCE XB200 – Entry Level Managed Switches

Ethernet/IP certified



Entry level pricing

8 different versions



Up to 16x ports

X300 SW features



IGMP activated by default





SITOP PSU8600 Highlights

+ Integrated Ethernet/PROFINET communication for optimal integration

+ Modular extension without wiring effort

+ Integration in TIA Portal for optimized engineering & operation

+ Selective monitoring of outputs

+ Modular extension for buffering short term power failures

+ Energy management via PROFIenergy

+ Extensive monitoring & diagnostics for preventative maintenance



Top reliability

Top efficiency

Top integration

Thank you!



SIEMENS

