Siemens S7 and TIA Portal Introduction

Introductory Webinar

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+321.089 kW

The automation portfolio for the Digital Enterprise with efficient proven automation components





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The SIMATIC Controllers Portfolio

Always the right controller – Plus integrated added value!



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Page 3 December 2019

SIMATIC S7-1500 T-CPU | Sales slides

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SIMATIC controller Scalable. Powerful. Easy to operate

Efficient Engineering!

Scalable controller portfolio

One engineering system for all controllers: The TIA Portal!

Complete portfolio with comprehensive functionalities and best performance in

> Service made easy! Integrated system diagnostics minimizes downtimes and increases productivity

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each category

Technology Integrated Perfect integration of drives through motion control functionalities and **PROFIdrive**

Secures investment and protects know-how for a safe machine operation!

Security Integrated and **Safety Integrated**

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Service made easy with SIMATIC controllers! Minimize your downtime for higher productivity



500210-64	No. Palloter A	RUN Å	and a second at
		Coming 8:34:44 Mi 300000 Single channel error: Low Init visitated hwy.D=-60203 hput channel number 60006	The second secon

Feature / Function

Integrated trace log of variables with cycle-granular recording of process values for analysis

- Integrated webserver
- Innovative memory card concept
- Integrated system diagnostics with fine-granular messages in plain text
- User-friendly controllers thanks to easy wiring and smart replace concept for modules



B	Benefits		
•	Error localization even of sporadic errors		
•	Diagnostics and service independent of engineering tool Simplifies updates or program transfer		
•	No additional programming required Easy and fast error localization		
•	Easy installation prevents faults and saves time and money during (re)commissioning and in ongoing operation		

Innovative functions for more efficiency are already integrated Security Integrated, Safety Integrated and Technology Integrated



Feature / Function

- Integrated know-how, copy and access protection
- Additional password protection for access to F-configuration and F-program
- One controller for fail-safe and standard automation
- Functional safety certified to EN 61508

 Integrated motion control functions

 Integrated PID control with auto tuning

Benefits

 High level of protection for intellectual property and investments as well as from unauthorized changes in the configuration

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- Reduced types and parts due to one automation system for standard and safety
- Flexible connection of drives via PROFINET, PROFIBUS or analog interfaces
- Simple realization of loop control: continuous, discrete (pulse width modulation) or as step controller

Versatile applications require extensive application-optimized form factors

Advanced Controller (S7-1500) Software Controller S7-1500 Interface modules Communication Signal Technology CPU Power supply modules modules modules 11 2-9 n1. ATTER AND ATT Ċ 2 **Basic Controller (S7-1200) Distributed Controller (ET 200SP CPU)** Switch Signal Technology Signal CPU CPU **Power supply Communication modules** ET 200SP modules modules modules modules boards ----222 8.

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SIMATIC S7-1200

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Project Edit View Insert Online Options Tools Window Help ★ Di Di Save project = ★ i = Di ★ ★ ★ ★ C → Window Help

Kiemens - TIA_Portal_Basic_Controller

Network Li Connections

TIA_Portal_Basic_Controller

Devices & networks

Flexibly tailored to your requirements

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PROFIBUS

TIT

PROFINET 2

ARRES SESSES

PROFINET 1

10 device

Productivity Highlights



 Protecting against unauthorized project changes

System Diagnostic

Security Integrated

• For efficient fault analysis, uniform display concept and reducing plant downtimes



 Investment protection while replacing S7-1200 with S7-1500 thanks to compatibility of programs





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Product overview – SIMATIC S7-1200 The right CPU for every application

Standard Safety CPU CPU 1211C CPU 1212C CPU 1214C CPU 1217C CPU 1212FC CPU 1214FC CPU 1215FC CPU 1215C 1 1 1 1 1 1 1 1 1 1 1 1 1 1 Interfaces Work 50 KB 75KB 100 KB 125 KB 150 KB 100 KB 125 KB 150 KB Memory 10DI 6DO Digital 6DI 4DO 8DI 6DO 14DI 10DO 8DI 6DO 14DI 10DO 14DI 10DO 14DI 10DO 4DI* 4DO* **Signals** Analogic 2AI 2AI 2AQ 2AI 2AI 2AQ 2AI 2AI 2AI 2AI Signals 3 @100kHz HSC 6 @100kHz 3 @1MHz ΡΤΟ 4 4 4 4 4 4 4 4 3 - CM3 – CM 3 – CM 3 - CM3 - CM3 - CM3 - CM3 – CM Expandable 1 – SB 1 - SB 2 – SM. 8 – SM 8 – SM 8 – SM 2 - SM8 – SM 8 – SM

* RS422/485

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SIMATIC S7-1200

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Signal Modules





SIMATIC S7-1200

Communication Modules





New Features FW4.4



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Feature / Function	Benefit
OPC UA Server DA	Open Communication for 3rd party devices OPC UA with a centralized certificate management.
Encrypted E-mail communication	E-Mail communication via the integrated CPU interfaces
DNS Name Resolution	Clear configuration through name based addressing
WebServer	Firmware update and DataLog download, status, delete and retrieve.

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New Features FW4.4







Feature / Function	Benefit
D-IOʻs sinking modules (16 Channel)	A sinking digital I/O provides the ground needed in the circuit.
Additional Option Push-in Terminal Blocks	Constant clamping force on wires even under vibration.
Vindconnect	Mindsphere Connection
PV6	IP V6 support via CP

Advanced Controller SIMATIC S7-1500

Increased productivity with the ultimate power

Trace

1516F-3 PNIDPL + Traces +

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Advanced_Control

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SIMATIC S7-1500 Positioning





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Advanced Controller – SIMATIC S7-1500 CPU Increase productivity with the ultimate power

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Security Integrated

- Integrated copy and know-how protection function protect intellectual property
- Improved access protection (authentication)

Safety Integrated

- A controller for standard and fail-safe tasks
- The high-density channel can be directly addressed during the engineering

High Performance

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- Higher productivity and product quality thanks to the backplane bus and shortest reaction times
- PROFINET with deterministic time response ensure reproducibility and precision within µs

Efficient Engineering

 Support of all IEC 61131-3 programming languages (LAD/FBD, STL, SCL and Graph) and of high-level languages such as C/C++ (only for CPU 1518(F)-4 PN/DP MFP and CPU 1515SP PC2 (F/T/TF) through SIMATIC ODK 1500S)

Reliable diagnostics

- The automatic generation of system and user diagnostics enables quick error detection
- Any errors can be quickly localized on-site thanks to 1:1 LED channel assignment for peripheral systems





Technology Integrated

- Motion Control task can be programmed directly in the controller, e.g.
 - Speed-controlled axes, positioning axes, gearing, camming
 - Control of kinematics
 - Cross-PLC synchronous operation
- Implement various technology functions directly with I/O modules (e.g. PWM)

SIMATIC S7-1500 T-CPU | Sales slides

Advanced Controller – SIMATIC S7-1500 CPU Increased productivity through ultimate power

SIMATIC S7-1500





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Feature / Function

Efficient Engineering

 Support of various programming languages (LAD/FBD, STL, SCL and Graph and C/C++¹⁾)

Simplified Maintenance

- Thanks to standardized machine and plant diagnosis ProDiag
- Integrated system diagnosis possible throughout all system components

Integrated Trace Feature

- Trace Editor integrated in the engineering
- Trace View also part of the web server

Highest user-friendliness

- Common front connector
- Pre-wiring position

High connectivity

OPC UA client & server on the CPU

¹⁾ C/C++ as library function or independent applications with the Multifunctional Platform CPU 1518(F)-4 PN/DP MFP



	Benefit
	 Efficient commissioning and service through innovative download behavio Flexible and free program design
	 Efficient diagnostics of process disruptions Fast spotting of automation system failures
	 Program and application diagnostics i real time to spot even sporadic failure Error debugging without engineering
•	 Simple handling of wiring and easy commissioning directly at the device
	Vertical composition also to 2nd ports

 Vertical connection also to 3rd party devices and up to the ERP level

Advanced Controller – SIMATIC S7-1500 Compact CPU The Advanced Controller in compact design and footprint

SIMATIC S7-1500C: CPU 1511C-1 PN and CPU 1512C-1 PN



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Feature / Function

Two compact CPUs with integrated analogue and digital inputs and outputs

- CPU 1511C-1PN
- CPU 1512C-1PN
- Integrated counting measurement or frequency measurement with 100 kHz fast inputs
- Integrated 100 kHz fast outputs, usable for:
 - PTO stepping motor control
 - PWM pulse width modulation
- Frequency output

Less width with combined integrated inputs and outputs as 25 mm wide Push-In contacts

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Benefit
 Well-priced entry level model of the S7-1500 system with periphery on board and a high number of integrated technological functions Reduced variety of parts and types
 Technological functionality integrated with on-board periphery Integrated technological functions for an easy and direct device connection, e.g. step drives, valves,

Especially space-saving construction form by retaining the system characteristics of the S7-1500

Advanced Controller – SIMATIC S7-1500 Technology-CPU Scalable motion control in the advanced controller portfolio

SIMATIC S7-1500T: CPU 1511T/TF, CPU 1515 T/TF, CPU 1516 T/TF, CPU 1517T/TF, TO Kinematics



Feature / Function

Extended Motion Control functions:

- Speed-, positioning axis
- Gearing
- Camming
- Kinematics with up to 4 interpolating axis

Kinematic configurator and trace with path recording and kinematic control panel

Cam editor integrated in the TIA Portal

 Simple definition of non-linear dependencies between leading and following axes

Consistent functionality and programming of S7-1500 throughout to S7-1500 T-CPU

Failsafe PLC with extended Motion Control functions



Benefits

Simple programming of sophisticated Motion Control functions:

- in the well known SIMATIC environment
- for a high machine flexibility
- E.g. Pick & Place, assembly or handling tasks based on PLCopen

Simple 3D visualization and diagnosis of movements as well as **comminsioning** of the kinematics

High engineering efficiency through

- graphic-based and tabular configuration
- optimization of cams

Seamless extension of the Motion

Control functionality of a standard CPU in TIA Portal

Standard automation, Motion Control and safety functions **inside one CPU**

Advanced Controller – SIMATIC Multifunctional Platform The S7-1500 Controller with flexible C/C++ Integration

Multifunktionale Plattform: CPU 1518(F)-4 PN/DP MFP



Feature / Function Benefit Integration of high level language Reduced space application and PLC program into • Robustness of a SIMATIC S7 one hardware · PLC independant applications in · Simplified creation and reuse of C/C++ for any application (e.g. customer specific application in high protocoll converter, database, ...) level language Code generation with model based Direct integration of complexe development tool, e.g. Matlab functions Simulink · Regular firmware updates stand for · Users solely care about the highest security standards implementation of the automation task Closed embedded operating Stability and long term availability systems

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SIMATIC S7-1500 Redundant systems System overview



Consistent concept – Identical synchronization process

Scaling of the switching performance over the **available bandwidth** of the sync connection



Redundant – S7-1500R

CPU 1513R/CPU 1515R

via Profinet Ring (MRP)

Yes, 300 ms switchover time

Single PROFINET-Ring

PROFINET S1 and S2 (bump less switchover)

High available – S7-1500H



CPU 1517H

Via Sync module

Yes, 50 ms switchover time

Single PROFINET-Ring

PROFINET S1 and S2 (bump less switchover)

CPU type

Synchronization

Hot-Standby (switchover time)

PROFINET- Ring

PROFINET I/O-devices

SIMATIC S7-1500 Redundant systems The easiest way to a redundant solution



Integrated Engineering of controller and visualization in TIA Portal

Multiple execution levels The application program can be structured into several execution levels

Smooth changeover Hot-Standby → The changeover has no negative impact on the process

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Automatic program and data synchronization Simplifies the configuration and handling of both CPUs

System-IP

Simple connection via Ethernet to other devices (e.g. HMI, SCADA) like with single CPU systems

Higher Availability

The CPU-redundancy significantly increases the availability compared to single CPU systems

Product overview – SIMATIC S7-1500 The right CPU for every application

Compact Standard Technology **Redundant/ High** MFP available 1511C-1 1512C-1 1511F-1 1513F-1 1515F-2 1516F-3 1517F-3 1518F-4 1511TF- 1515TF- 1516TF- 1517TF- 1518F-4 1513R-1 1515R-2 1517H-3 **CPU** types PN/DP PN/DP PN/DP 3 PN/DP 3 PN/DP PN PN PN **PN PN 1 PN** 2 PN PN/DP PN PN PN MFP 1 1 1 2 1 2 1 2 1 2 4 1 1 2 1 2 1 2 1 1 1 1 2 4 1 1 2 2 Interfaces 1 1 1 1 3 1 1 1 3 1 1 1 3 1 3 1 1 1 1 3 1 3 3 150/225 300/450 500/750 225/225 750/750 1,5/1,5 **Work Memory** 250 KB 1/1,5 MB 2/3 MB 3/3 MB 4/6 MB 175 KB 4/6 MB 300 KB 500 KB 2 MB KB KB KB KB KB MB Data 3 5 8 20 3 5 8 20 1.8 3.5 8 1 1 1 1.5 1 memory(MB) 50/500 $MB^{1)}$ **Bit-Performance** 60 2 30 2 48 60 40 30 10 60 30 2 40 1 10 1 (ns) Connections 320 192 320 96 128 96 128 192 256 384 96 192 256 320 384 128 max. Positioning axes - typical²⁾ 70 5 5 5 5 7 7 70 128 5 7 55 70 128 5 7 - maximum³⁾ 10 10 10 10 30 30 128 128 10 30 80 128 128 10 30 128 Width (mm) 85 110 35 35 70 70 175 175 35 70 175 175 175 35 70 175

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1) additional 50 MB memory for C/C++ functions (ODK) / 500 MB for applications (Runtime, API)

2) at 4ms Servo/IPO clock pulse

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3) no use of further TOs



Advanced Controller – SIMATIC Drive Controller Scalable motion control in the Advanced Controller portfolio



servo drives Further servo drives with additional **SINAMICS CUs**

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Advanced Controller – SIMATIC S7-1500 Enlargement of the CPU Portfolio with Technology CPUs

Drive Controller CPU Technology CPU Open Standard CPU Controller 1515SP PC2 **CPU types** 1511TF-1 1515TF-2 1516TF-3 1517TF-3 1518F-4 1504D TF 1507D TF PN/DP (MFP)¹ PN PN PN/DP PN/DP TF PN Interfaces 1 1 2 1 2 1 2 1 2 1 1 1 1 1 1 1 2 3 1 2 3 1 1 3 Program memory 750/750 KB 1.5/1,5 MB 225/225 KB 3/3 MB 4/6 MB 1/1.5 MB 2 MB 6 MB 1 MB 3 MB 5 MB 8 MB 20 MB1 5 MB 4 MB 20 MB Data memory Bit performance 60 ns 30 ns 10 ns 2 ns 1 ns 10 ns Scale with motion control performance **Functions** Display, S7-1500 backplane bus SINAMICS S120 Integrated (incl. 12 DI, 8 DI/DQ) additional PLC technology I/Os (8 DI/DQ) Positioning axes Typical² 5 7 55 70 128 30 10 55 Maximum³ 10 30 80 128 128 30 30 160 Motion Control Resources⁴ 800 2.400 6.400 10.240 10.240 2.400 2.400 12.800 Extended Motion Control 40 120 192 256 120 120 420 **Resources⁵** NEW

1 50 MB add. for C/C++ (PLC-RT)+500 MB for C/C++ appl. (RT/appl.)

4 Resources for Motion Control technology objects:

5 Resources for Extended Motion Control technology objects:

2 At 4 ms Servo/IPO cycle time and 35 % CPU load due to Motion Control3 No further TO's applicableSpeed axis = 40 | Positioning axis = 80 | Synchr. Axis = 160 | Output cam= 20 | Output cam track= 160 | Measuring input= 40Cams = 2 | Kinematic objects= 30 | Leading axis proxy = 3

1 PROFINET IO with IRT 2 PROFINET IO with RT 3 PROFINET basic communication (1 Gbit)

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SIMATIC ET 200SP CPU The Controller for Distributed Intelligence

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SIMATIC Distributed Controller

The compact controller in the S7-1500 family

Compact design High channel density of I/O modules with intelligent cable routing **Efficient engineering** Consistent engineering in the TIA Portal

Extensive module range A wide variety of tasks such as

weighing, counting and energy acquisition with only one I/O system

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Openness for PC applications Integration of high-level languages and Windows applications with simultaneous independence of the controller from the operating system



Improved security Protection of intellectual property and protection against manipulation

SIMATIC Distributed Controller I/O system



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Feature/function **Benefits** Fast, equidistant and High system performance • isochronous data transfer - This enables synchronous backplane bus communication Hot swapping and multi hot Modules can be replaced swapping during operation Replacement of several modules possible Flexible bus connection via Electrical isolation between 2 stations possible copper or fiber-optic **BusAdapter** Media change from FOC to copper directly in the BusAdapter Cable lengths of over 100 m possible

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SIMATIC Distributed Controller

More than 30% space saved as compared to similar systems

Feature/function **Benefits** 30% Compact design of CPUs Lower space requirements and reduced with integrated power **More Compact** supply unit component diversity Lower space High channel density of requirements with I/O modules with adherence to the bending intelligent cable routing radiuses No need for a second

Single-tier configuration with up to 64 modules

mounting rail or an additional interface module

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160 mm

120 mm

SIMATIC ET 200SP Open Controller 2 – **Multifunctional automation system**





... for assembly of a multifunctional automation system with centralized IO based on ET 200SP PLC functionality with ... with replaceable CFast innovative S7-1500 flash memory card for Software Controller operating system, runtime and project HMI functionality using ... with integrated WinCC RT Advanced graphics connection **PROFINET IO with ET 200SP** Open system for **BusAdapter**

PROFIBUS DP connection via ET 200SP CM

Windows applications and C++

SIMATIC ET 200SP Open Controller 2 – Highlights of CPU 1515SP PC2

Hardware

- Intel Quad-Core-Prozessor (E3940) 1.6 GHz/8 GB RAM
- DisplayPort
- 2 x USB 3.0/2 x USB 2.0/8 GB RAM/30 GB CFast

Software

- Newest features SW Controller V2.5
- Available as preinstalled bundles (Standard/Failsafe/HMI)
- Support of SIMATIC ODK 1500S

Operating System

- Windows 10 Enterprise 64 Bit LTSB 2016
- Restore process via USB stick
- Powerful Windows side for applications

SIMATIC ET 200 SP family

- Support of all released Bus Adapters and CM DP
- Support of ET200 AL assembly line



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SIMATIC ET200 Remote IO









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SIMATIC ET 200SP Overview of ET 200 portfolio





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SIMATIC ET 200SP

The highly modular IO system





Easy to use - smaller size - more powerful performance Simple - smaller - stronger

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SIMATIC ET 200SP Mechanical design



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SIMATIC ET 200SP The I/O system with all functionalities





SIMATIC ET 200SP Energy Meter

Scalable and adaptable to the task

	Certifie		Measured Value	s Types of Connection	
Functio		Energy Meter HF 480V (1) HF CT: Transformer (6ES7134-6PA00-0CU0) (2) HF RC: Rogowski Coil (6ES7134-6PA20-0CU)	 + 140 Harmonious for Current & Voltage + Voltage drop analysis + Overvoltage analysis + Overcurrent analysis + Sum current I1, I2, I3, IN + harmonic distortion + Amplitude balance U,I 	 + 3P4W1, 3 Phase, 4 Conductor, symmetrical load + 3P3W, 3 Phase, 3 Conductor + 3P3W1, 3 Phase, 3 Conductor, symmetrical load + 3P4WI, 3 Phase, 4 Conductor (only for current measurement) 	High Feature
on extensic		Energy Meter ST 480V (6ES7134-6PA20-0BD0)	 Voltages Current Phase angle Performances 	 + 3P4W1, 3 Phase, 4 Conductor , symmetrical load + 2P3W, 2 Phase, 3 Conductor + 3 x 1P2W, 3 x 1 Phase, 2 Conductor 	Standard
n		Energy Meter ST 400V (6ES7134-6PA01-0BD0)	 Energy / electrical work Frequences Power factors EE@Industry profiles 	 3P4W, 3 Phase, 4 Conductor 1P2W, 1 Phase, 2 Conductor 	Basic

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ET 200SP – the only I/O system with integrated motor starters



Introduction



The motor starter module rounds of the ET 200SP I/O system

Switching and protection device for three-phase induction motors, single-phase AC motors and three-phase asynchronous motors

- Integrated short-circuit and overload protection
- · Direct-on-line and reversing start function
- Diagnostics functions
- Energy management functions

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SIMATIC ET 200SP CM 1xDALI "definition"

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SIMATIC ET 200 MultiFieldbus Interfaces for ET 200MP, ET 200SP, ET 200eco PN, Coupler



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1) Planned for 01 / 2020 2) Planned for 06 / 2020 3) Planned

Feature / Function

Products

- ET 200SP IM: IM156-6MF HF ¹⁾
- ET 200MP IM: IM155-5MF ST 2)
- **PN/MF** Coupler ²)
- ET 200eco PN "Next generation" ³⁾

Functions

- Support for PROFINET, EtherNET/IP and Modbus TCP
- Simultaneous communication with all protocols to modules of a station via the same cable (e.g. Standard I/O via EIP, F-IO via
- PROFIsafe, Energy Metering via MTCP)
- Engineering via MFCT (MultiFieldbus Configuration Tool)
 - Support of Shared Device in MultiFieldbus configurations (Allocation of a station to several controllers)



Benefit

- Savings in costs and planning effort when designing machines/plants, since the same IO configuration can be used independently of the overarching controller
- High flexibility due to the possibility of access to the ET 200 station / modules from several controllers via shared device

PN/MF Coupler:

- Easy to configure deterministic data exchange, even across network boundaries, between SIMATIC and 3rd party controllers
- Simple integration of SIMATIC controls into existing machines / plants

SIMATIC ET 200MP

The modular I/O system for the central control cabinet

Multifunctional IO modules Universal IO system central / distributed Voltage ranges 24V DC to 230V AC Ruggedness

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Ideally suited for use with S7-1500 in the central cabinet

SIMATIC ET 200MP Mechanical design





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SIMATIC ET 200MP the flexible approach to connection technology



	Front connector	 Can be used universally Screw terminals/push-in terminals Integrated potential bridges for simple formation of potential groups Latching position, for de-energized wiring during operation
**	Flexible connection technology (Top Connect)	 + Pre-wired front connectors + Easy connection of sensors and actuators in the control cabinet + Considerable time savings through a reduction in the wiring effort by approx. 50%
	Fully modular connection technology (Top Connect)	 Modular system with minimum installation costs Up to 80% less wiring overheads when connecting sensors and actuators in the field Significant reduction in error causes during wiring

SIMATIC S7-1500 / ET 200MP – New Products

New products & features for better availability and minimum footprint

Release planned for Q3 / 2020







Feature / Function

New modules with high channel density 64-channel digital modules:

- DI 64x24VDC BA (p-/m-reading)
- DQ 64x24VDC/0.3A BA
- DQ 64x24VDC/0.3A SNK BA (m-switching)
- DI 32x24VDC/DQ 32x24VDC/0.3A SNK BA

16-channel analog modules:

- AI 16xU BA
- AI 16xI BA

Active backplane bus / Hot Swapping By using the active backplane bus for the ET 200MP, hot swapping (module exchange at RUN of the PLC) is possible even with multiple modules. Up to **12** S7-1500 / ET 200MP modules can be plugged in per station.

Benefit

 Optimized price-performance solution for price-sensitive applications

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- Minimum footprint due to highest possible channel density
- Time saving for mounting through the tool-free assembly of shielding and use of TOP Connect

Highest machine / system

availability, since in the event of failure and replacement of one or more modules, the PLC and unaffected modules remain in operation.

SIMATIC S7-1500 / ET 200MP – New Products



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Active Backplane – Details



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SIPLUS extreme durable and robust

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SIPLUS extreme

The comprehensive portfolio for extreme operational conditions





SIPLUS extreme Demands on the product portfolio



Extended temperature range

Ambient temperature range in operation from -40° C to $+70^{\circ}$ C



Installation altitude

Improved voltage strength and heat dissipation and reduction of failures due to cosmic radiation



Salt mist

For example, seaside and offshore environmental conditions



Chemically active substances

For example, corrosive gas atmospheres



Mechanically active substances

e.g. large amount of sand or dust in the air



Condensation and high humidity

With 100% RH (relative humidity) including condensation/frost

Requirements of the railway industry

e.g. Fire Protection EN 45545, Rolling Stock EN 50155, and Trackside EN 50121





TIA Portal

Your gateway to automation in the Digital Enterprise

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Totally Integrated Automation Portal (TIA Portal) One for all... The proven basis for innovative solutions



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TIA Portal V16 – Overview of Software components – Scalability in hardware and software functions

SIMATIC STEP 7/STEP 7 Safety SIMOTION SCOUT/SCOUT TIA Soft Starter ES/SIMOCODE ES SIMATIC WinCC SINAMICS Startdrive Integration of drives SIMOCODE Motormanagement System **Programming languages** Machine-oriented operator control and Integration of SIMOTION (F-)LAD, (F-)FBD, ST, STL¹⁾, S7-GRAPH¹ monitoring and process visualization (SCADA) SIRIUS Sanftstarter Additional access SCADA via PROFIBUS/ Comfortable and PROFINET guided acceptance of S7-1500 (F) Safety Integrated functions for S7-1500 SINAMICS G120 SINAMICS S120 SW-Controller (F) PC singe station SIMOTION C WinAC (F) Commissioning, opti-SIMOTION P Additional online mization and diagnosis Comfort and Basic (free of charge) Basic (free of charge) SINAMICS G120, G130, functions via SIMOTION D Mobile Panels SIRIUS PtP G150, S120, S150 & Medium Voltage Professional Professional Professional List parametrization Advanced Advanced Advanced Standard Premium Comfort with PN/PB STEP 7 integr. S7-1200 (F) **Basic Panels** SINAMICS V90 PROFINET STEP 7 integr. Basic **Basic Basic** parameterization within startup

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Communication	PROFIBUS, PROFINET, AS-i, IO-Link, ET 200, network topology PROFIsafe via PROFIBUS and PROFINET
Overall functions	e.g. system diagnosis, import/export to excel, undo
Engineering options	e.g. TIA Portal Multiuser, SIMATIC Energy Suite, SIMATIC ProDiag …

1 Not for S7-1200

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TIA Portal Product overview with engineering and runtime options

Totally Integrated Automation Portal Ē Ъ SINAMICS ų. SIRIUS 0 **SCOUT TIA STEP 7** WinCC SIMOCODE **Startdrive TIA Portal Multiuser Engineering** Engineering options **TIA Portal Teamcenter Gateway TIA Portal Cloud Connector TIA User Management Component TIA Portal Test Suite** SIMATIC Energy Suite ES SIMATIC S7-PLCSIM 👩 👢 Advanced SIMATIC **STEP 7 Safety** SIMATIC ODK 1500S 🚱 🖊 SIMATIC Target 1500S J SINAMICS DCC SiVArc for SIMULINK SIMATIC ProDiag **Runtime** €_ SIMATIC Energy Suite RT / S7-EE-Monitor options 🦫 🕂 SIMATIC OPC UA 💿 DVD 🛛 🖊 Download 1) Component of WinCC Runtime Professional **Safe Kinematics** WinCC/WebUX¹⁾

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THANK YOU





Heath Stranger

Siemens – PLC Product Manager

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