SIEMENS

Product portfolio overview

SIMATIC S7-1500 plus TIA Portal

Power + Efficiency

The Ultimate Plus in Automation

Intuitive, efficient, proven –
The TIA Portal redefines engineering

siemens.com/s7-1500

SIMATIC S7-1500 – Highest efficiency and maximum usability for complex automation tasks
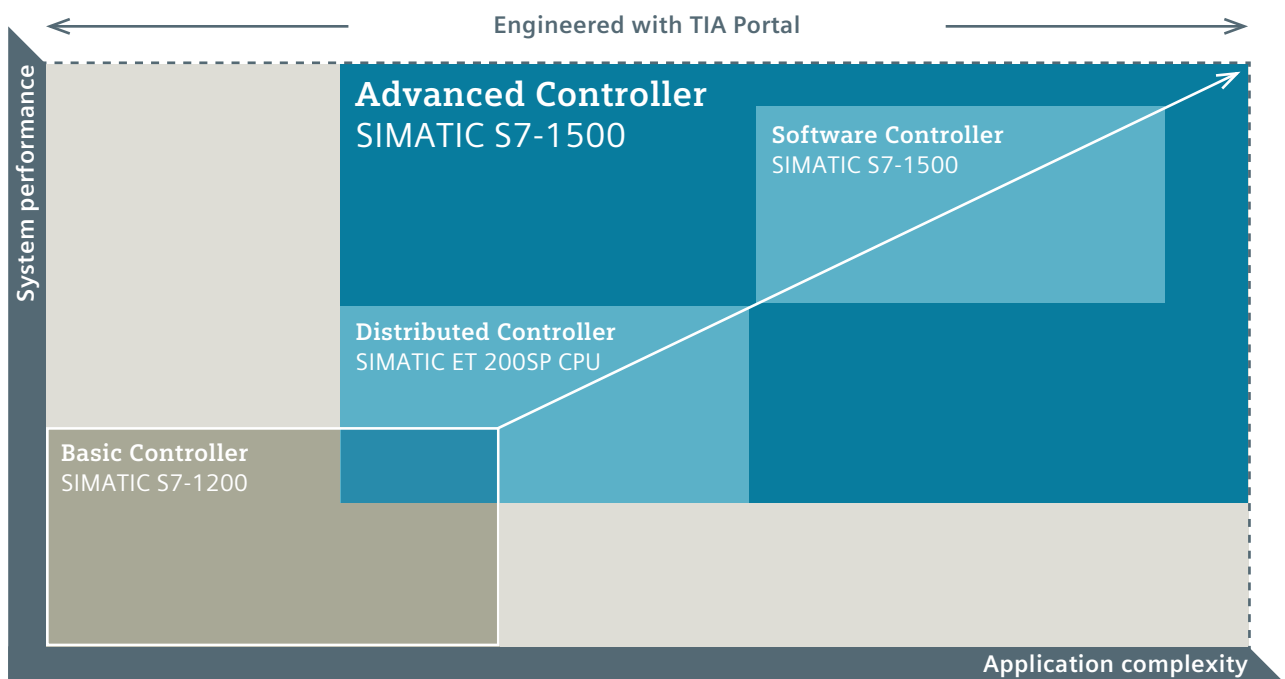
SIMATIC S7-1500 plus TIA Portal

The SIMATIC® S7-1500 controller sets new standards in system performance and usability, while the Totally Integrated Automation Portal (TIA Portal) redefines efficiency in engineering, configuring and operation. As a team, SIMATIC S7-1500 and TIA Portal are unbeatable. They ensure higher plant availability and set standards for the future.

The seamless integration of the SIMATIC S7-1500 controller into the TIA Portal provides the benefits of one common data management, uniform operating concept, and centralized services. This makes the use of comprehensive functions very easy.

The controller is quick and easy to install and connect, and with its short system response times, it boosts productivity. This means more flexibility in handling, shorter time-to-market, and a fast return on investment.

Scalable performance and functionality for every application
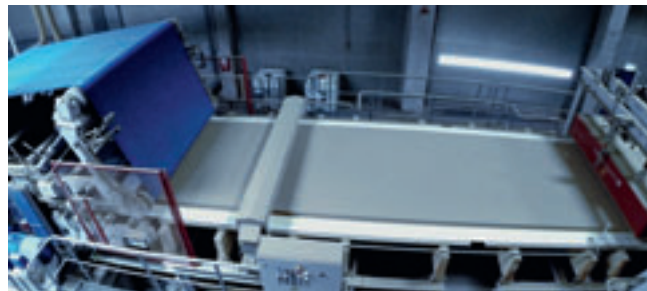
In terms of performance and functionality, the SIMATIC S7-1500 controller supports scalable and therefore cost-efficient automation solutions in every case. It continues, for example, the functionality of the SIMATIC S7-1200 controller. This means you benefit from standardized processes and thus maximum efficiency in engineering, operation, maintenance, and migration.

Engineered with TIA Portal

System performance

Advanced Controller
SIMATIC S7-1500

Software Controller
SIMATIC S7-1500

Distributed Controller
SIMATIC ET 200SP CPU

Basic Controller
SIMATIC S7-1200

Application complexity

Siemens offers the right controller for an extremely wide range of automation requirements. The new generation of SIMATIC Controller, comprising Basic, Advanced, Distributed and Software Controllers, leaves a lasting impression with its scalability and continuous functionality.

"Dieffenbacher provides automation from the individual machine right up to entire plants. Therefore the free scalability of the SIMATIC S7-1500 is the perfect basis for us."

Ulf Könekamp (German company Dieffenbacher)

Your plus of power and efficiency

Enhanced usability through innovative design and handling

- Commissioning and diagnostics are simplified by built-in CPU display showing system diagnostics messages in plaintext, as well as changes of IP addresses, for example.

- A standardized front connector and convenient wiring solutions enable simple installation and reduced parts logistics.

Increased productivity through lower cycle times and top-speed troubleshooting

- High-speed backplane bus, terminal-terminal response times of less than 100 µs, and command processing of up to 1 ns result in extremely short execution times.

- With integral system diagnostics, a trace function, and a standardized display concept in the TIA Portal, the HMI, the Webserver and the display of the S7-1500, faults can be located and corrected efficiently.

Protection for intellectual property and the machine through Security Integrated

- Your intellectual property and the investment it represents are perfectly protected thanks to integrated know-how, copy and tampering protection as well as additional password protection for access to program contents and secure communication.

- Extended access protection thanks to integrated firewall via Security CP 1543-1.

Simple creation and implementation of motion and closed-loop control applications

- Integrated motion control functions for flexible connection of drives via PROFINET, PROFIBUS or analog interfaces, as well as programming of motion sequences with PLCopen motion blocks.

- Configuration of continuous and discrete pulse width modulation thanks to integrated PID control.

Easy CPU selection due to one automation system for standard and fail-safe

- Safety Integrated applies to all S7-1500 controllers and enables simple connection of PROFIsafe devices via PROFIBUS and PROFINET. It was designed for use in safety-related applications to SIL 3 according to IEC 62061, and PL e according to ISO 13849.

Efficient engineering thanks to comprehensive software and hardware functions

- The innovative engineering framework TIA Portal integrates HMI, controllers, distributed IO, motion control and drives seamlessly into one engineering environment.

- Integration of the SIMATIC S7-1500 controllers in the TIA Portal provides complete symbolic programming, an optimized compiler for enhanced performance, and the same range of commands for all programming languages.

Totally Integrated Automation Portal – the common engineering framework

Software packages

SIMATIC STEP 7 PROFESSIONAL V13 SP1	DVD	6ES7822-1AA03-0YA5
SIMATIC STEP 7 PROFESSIONAL V13 SP1	Download	6ES7822-1AE03-0YA5
SIMATIC WinCC COMFORT V13 SP1	DVD	6AV2101-0AA03-0AA5
SIMATIC WinCC COMFORT V13 SP1	Download	6AV2101-0AA03-0AH5
SIMATIC STEP 7 SAFETY ADVANCED V13 SP1	DVD	6ES7833-1FA13-0YA5
SIMATIC STEP 7 SAFETY ADVANCED V13 SP1	Download	6ES7833-1FA13-0YH5
SINAMICS STARTDRIVE V13 SP1		6SL3072-4DA02-0XG0

Starter Kit

Starter Kit

SIMATIC S7-1500 Starter Kit Contains: STEP 7 Professional V13 SP1, 365-day license, SIMATIC S7-1500 CPU 1511-1 PN, SIMATIC Memory Card 4 MB, digital input module DI 16x 24 V DC, digital output module DO 16x 24 V DC/0.5 A ST Mounting rail 160 mm, front connector, power module PM 70 W 120/230 V AC SIMATIC TOP connect: front connector module, push-in SIMATIC TOP connect: connecting cable SIMATIC TOP connect: 3-wire connection module Standard Ethernet CAT 5 cable, screwdriver	6ES7511-1AK01-4YB5

1

Central systems

CPUs

Standard CPUs

CPU 1511-1 PN	6ES7511-1AK00-0AB0
CPU 1513-1 PN	6ES7513-1AL00-0AB0
CPU 1515-2 PN	6ES7515-2AM00-0AB0
CPU 1516-3 PN/DP	6ES7516-3AN00-0AB0
CPU 1517-3 PN/DP	6ES7517-3AP00-0AB0
CPU 1518-4 PN/DP	6ES7518-4AP00-0AB0

Fail-safe CPUs

CPU 1515F-2 PN	6ES7515-2FM00-0AB0
CPU 1516F-3 PN/DP	6ES7516-3FN00-0AB0
CPU 1517F-3 PN/DP	6ES7517-3FP00-0AB0
CPU 1518F-4 PN/DP	6ES7518-4FP00-0AB0

Interface modules

ET 200MP

PROFINET

IM 155-5 PN ST	6ES7155-5AA00-0AB0
IM 155-5 PN HF	6ES7155-5AA00-0AC0

PROFIBUS

IM 155-5 DP ST	6ES7155-5BA00-0AB0

Current ordering data, plus terms and conditions of sale and delivery can be found in Catalogs ST 70 and ST 80/ST PC or on the Internet at
www.siemens.com/industrymall

2   IO modules

IOs	
35-mm wide modules (without front connector)	
DI 16x 24 V DC HF	6ES7521-1BH00-0AB0
DI 32x 24 V DC HF	6ES7521-1BL00-0AB0
DI 16x 24 V DC SRC BA	6ES7521-1BH50-0AA0
DI 16x 230 V AC BA	6ES7521-1FH00-0AA0
DO 16x 24 V DC/0.5 A ST	6ES7522-1BH00-0AB0
DO 32x 24 V DC/0.5 A ST	6ES7522-1BL00-0AB0
DO 8x 24 V DC/2 A HF	6ES7522-1BF00-0AB0
DO 8x 230 V AC/2 A ST	6ES7522-5FF00-0AB0
DO 8x 230 V AC/5 A ST	6ES7522-5HF00-0AB0
AI 8x U/I/RTD/TC ST	6ES7531-7KF00-0AB0
AI 8x U/I HS	6ES7531-7NF10-0AB0
AO 4x U/I ST	6ES7532-5HD00-0AB0
AO 8x U/I HS	6ES7532-5HF00-0AB0
25-mm wide modules (incl. front connector)	
DI 16x 24 V DC BA	6ES7521-1BH10-0AA0
DI 32x 24 V DC BA	6ES7521-1BL10-0AA0
DO 16x 24 V DC/0.5 A ST	6ES7522-1BH10-0AA0
DO 32x 24 V DC/0.5 A ST	6ES7522-1BL10-0AA0
DI 16x 24 V DC/DO 16x 24 V DC/0.5 A BA	6ES7523-1BL00-0AA0
AI 4x U/I/RTD/TC ST	6ES7531-7QD00-0AB0
AQ 2x U/I ST	6ES7532-5NB00-0AB0
AI/AO 4x U/I/RTD/TC / 2x U/I ST	6ES7534-7QE00-0AB0

Communication			3
PtP			
CM PtP, RS232 BA		6ES7540-1AD00-0AA0	
CM PtP, RS232 HF		6ES7540-1AD00-0AB0	
CM PtP, RS422/485 BA		6ES7541-1AB00-0AA0	
CM PtP, RS422/485 HF		6ES7541-1AB00-0AB0	
Communication modules for point-to-point or multipoint communication with the protocols Freeport, 3964(R), Modbus RTU or USS. Transfer rates up to 115.2 kbit/s are supported.			
PROFIBUS			
CM 1542-5 PROFIBUS communication module		6GK7542-5DX00-0XE0	
CP 1542-5 PROFIBUS communications processor		6GK7542-5FX00-0XE0	
Communication modules for PROFIBUS with DP master or DP slave function (CP/CM) and larger quantity structure, as well as dataset routing (CM).			
Ethernet			
CP 1543-1, Industrial Ethernet		6GK7543-1AX00-0XE0	
CM 1542-1, PROFINET communication module		6GK7542-1AX00-0XE0	
Communication modules for Industrial Ethernet with Security Integrated by means of VPN and firewall (CP), or for additional PROFINET interfaces (CM).			

Technology modules			4
Technology modules			
TMs			
TM Count 2x 24 V		6ES7550-1AA00-0AB0	
TM PosInput2		6ES7551-1AB00-0AB0	
TM Timer DIDO 16x 24 V		6ES7552-1AA00-0AB0	
Modules for counter functions to 200 kHz or 1 MHz, with measuring functions for frequency, periods duration or speed, for position detection with incremental or absolute value encoders.			

Power supply and system wiring

PM load current supply

PM 70 W, 120/230 V AC		6EP1332-4BA00
PM 190 W, 120/230 V AC		6EP1333-4BA00

The load current supply (PM) provides 24 V power for SIMATIC S7-1500 modules such as CPU,
system power supplies, IO circuits of the peripheral modules and, where required, sensors and actuators.

PS system power supply

System power supply 25 W, 24 V DC		6ES7505-0KA00-0AB0
System power supply 60 W, 24/48/60 V DC		6ES7505-0RA00-0AB0
System power supply 60 W, 120/230 V AC/DC		6ES7507-0RA00-0AB0

The system power supply (PS) provides the power for the S7-1500 modules via the backplane bus.

SIMATIC TOP connect system wiring

You will find more information about SIMATIC TOP connect in the Siemens Industry Mall or at
http://www.siemens.com/simatic-tc

SIPLUS extreme

You will find information on SIPLUS extreme in the Siemens Industry Mall or at
http://www.siemens.com/siplus-extreme

Accessories and spare parts

Accessories

Mounting rail, 160 mm (with drill hole)		6ES7590-1AB60-0AA0
Mounting rail, 482 mm (with drill hole)		6ES7590-1AE80-0AA0
Mounting rail, 530 mm (with drill hole)		6ES7590-1AF30-0AA0
Mounting rail, 830 mm (with drill hole)		6ES7590-1AJ30-0AA0
Mounting rail, 2000 mm (without drill hole) for self-customizing		6ES7590-1BC00-0AA0
PE connection element for mounting rail 2000 mm (spare part), 20 pcs.		6ES7590-5AA00-0AA0
Front connector for 35-mm wide modules; screw terminal, 40-pin		6ES7592-1AM00-0XB0
Front connector for 35-mm wide modules; push-in terminal, 40-pin		6ES7592-1BM00-0XB0
SIMATIC Memory Card 4 MB		6ES7954-8LC02-0AA0
SIMATIC Memory Card 12 MB		6ES7954-8LE02-0AA0
SIMATIC Memory Card 24 MB		6ES7954-8LF02-0AA0
SIMATIC Memory Card 256 MB		6ES7954-8LL02-0AA0
SIMATIC Memory Card 2 GB		6ES7954-8LP01-0AA0
Front cover for DP interface of the CPU 1518-4 PN/DP, 1 unit		6ES7591-8AA00-0AA0

Spare parts

Display for CPU 1511/13		6ES7591-1AA00-0AA0
Display for CPU 1515, 1516, 1517 and 1518		6ES7591-1BA00-0AA0

Discover more:

www.siemens.com/s7-1500

Experience everything about SIMATIC S7-1500

> In video form: Design overview and videos showing the main highlights

> As a 360° animation: Experience all the benefits directly on the product

> All about the outstanding engineering efficiency thanks to TIA Portal

> The latest references and podcasts

SIMATIC S7-1500 – take a look!

Follow us on:
twitter.com/siemensindustry
youtube.com/siemens

The information provided in this brochure contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

All product designations may be trademarks or product names of Siemens AG or supplier companies whose use by third parties for their own purposes could violate the rights of the owners.

Siemens offers automation and drives products with industrial security functions that support safe operation of the plant or machine. They are an important component in a holistic industrial security concept. With this in mind, our products undergo continuous development. We therefore recommend that you keep yourself informed with respect to our product updates, and that you only use the latest versions in each case.

You can find information on this at:
http://support.automation.siemens.com.

There you can also register for a newsletter specifically about these products. To ensure the secure operation of a plant or machine, it is also necessary to take suitable preventive action (e.g. cell protection concept) and to integrate the automation and drive components into a state-of-the-art, holistic industrial security policy for the entire plant or machine. Products used from other manufacturers should also be taken into account here.
For more information, go to
www.siemens.com/industrialsecurity