SIEMENS

Ingenuity for life

Engineered with TIA Portal

Be flexible thanks to networking possibilities

Basic Controller SIMATIC S7-1200

siemens.com/s7-1200

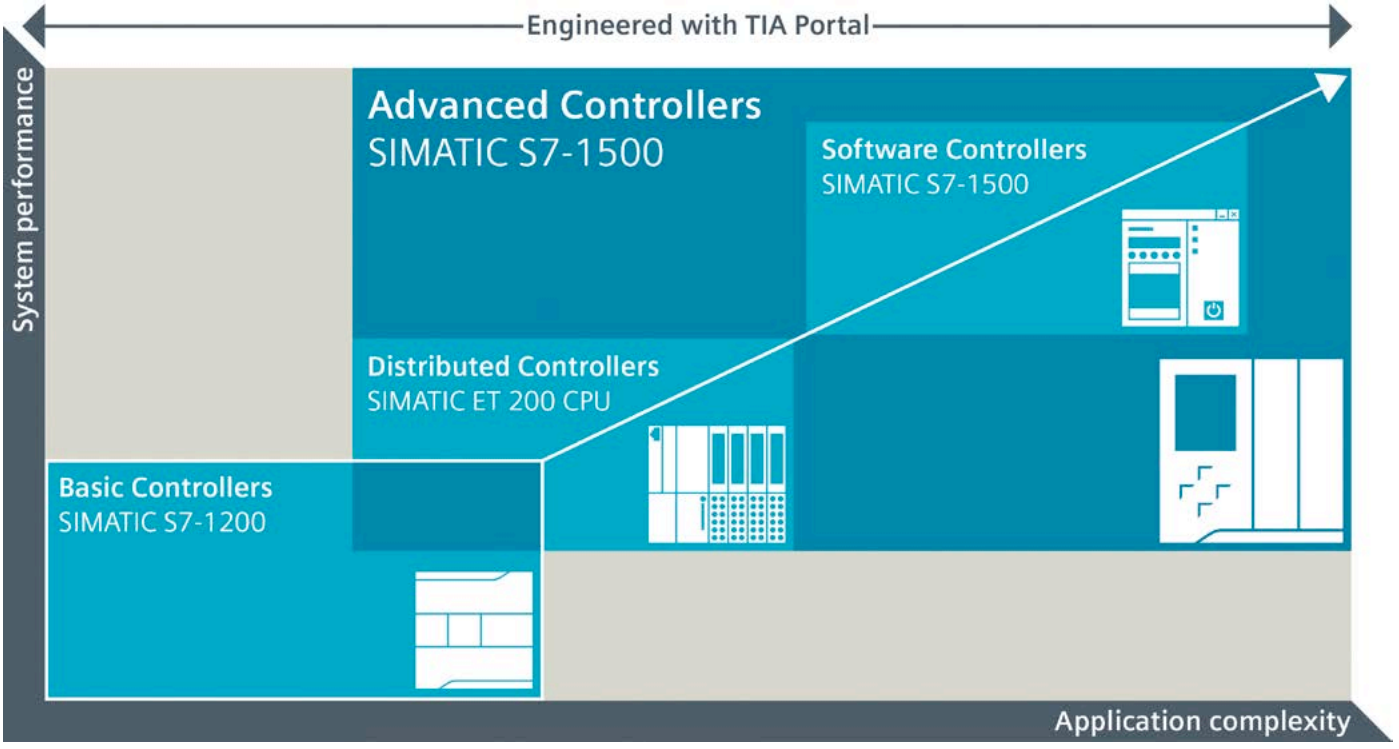
Basic Controller SIMATIC S7-1200
All in one!

SIMATIC S7-1200 Basic Controllers are the ideal choice when it comes to performing automation tasks in the low- to mid-performance range with maximum flexibility and efficiency. They deliver convincing results thanks to their comprehensive range of technological functions and integrated I/Os, as well as their compact, space-saving design. Thanks to standardized remote control protocols, you can connect SIMATIC S7-1200 controllers directly to your control center without any programming effort.

A further decisive benefit is the incorporation of all SIMATIC controllers into the Totally Integrated Automation Portal (TIA Portal): all SIMATIC controllers have access to a shared database, a standardized operating concept, and integrated services, such as communication protocols like PROFINET.

That means reduced engineering effort and faster commissioning for you. The user-friendly and innovative operation of the TIA Portal, as well as the integrated system diagnostics, also contribute to efficient working.

SIMATIC controllers support automation solutions that are scalable in performance and functionality, and thus cost-efficient in every case. The functionality of the SIMATIC S7-1200 controllers is seamlessly continued by the SIMATIC S7-1500 controllers that have been developed for more complex tasks and that are also available in a compact version. This universality means you benefit from uniform sequences and thus maximum efficiency in engineering, operation, and maintenance, and when migrating to new systems.



Scalable performance and functionality for consistent and efficient engineering: The functionality of the SIMATIC S7-1200 controllers is seamlessly continued by the SIMATIC S7-1500 devices. This makes subsequent expansions easier and more cost-effective.

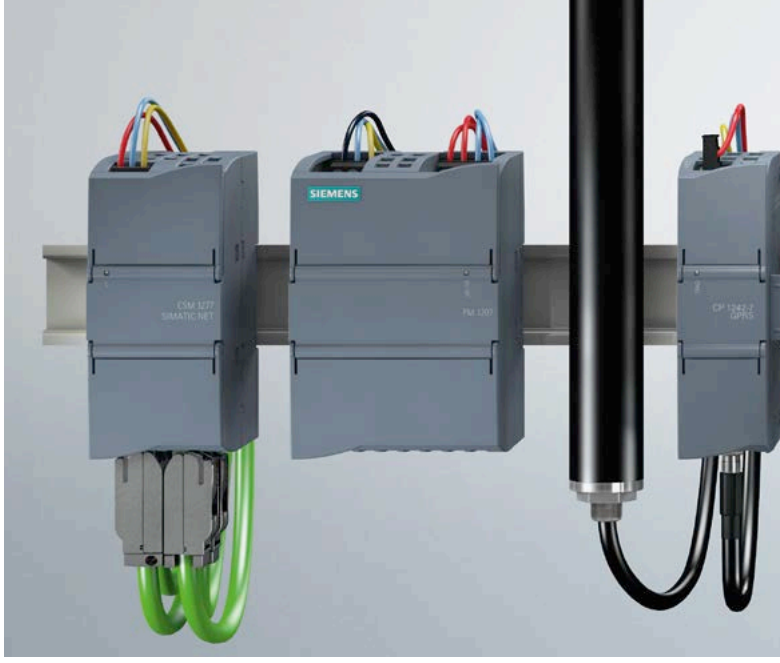
I/Os

	Article No.
Signal modules – digital	
DI 8 x 24 V DC	**6ES7221-1BF32-0XB0**
DI 16 x 24 V DC	**6ES7221-1BH32-0XB0**
DQ 8 x 24 V DC 0.5 A	**6ES7222-1BF32-0XB0**
DQ 16 x 24 V DC 0.5 A	**6ES7222-1BH32-0XB0**
DQ 8 x RLY 30 V DC/250 V AC 2 A	**6ES7222-1HF32-0XB0**
DQ 16 x RLY 30 V DC/250 V AC 2 A	**6ES7222-1HH32-0XB0**
DQ 8 x RLY Switchable 30 V DC/250 V AC 2 A	**6ES7222-1XF32-0XB0**
DI/DQ 8 x 24 V DC / 8 x 24 V DC 0.5 A	**6ES7223-1BH32-0XB0**
DI/DQ 16 x 24 V DC / 16 x 24 V DC 0.5 A	**6ES7223-1BL32-0XB0**
DI/DQ 8 x 24 V DC / 8 x RLY 30 V DC, 250 V AC 2 A	**6ES7223-1PH32-0XB0**
DI/DQ 16 x 24 V DC / 16 x RLY 30 V DC, 250 V AC 2 A	**6ES7223-1PL32-0XB0**
DI/DQ 8 x 120/250 V AC / 8 x RLY 30 V DC, 250 V AC 2 A	**6ES7223-1QH32-0XB0**
Signal modules – analog	
AI 4 x 13 bits ±10 V DC, ±5 V DC, ±2.5 V DC or 4–20 mA	**6ES7231-4HD32-0XB0**
AI 8 x 13 bits ±10 V DC, ±5 V DC, ±2.5 V DC or 4–20 mA	**6ES7231-4HF32-0XB0**
AI 4 x 16 bits ±10 V DC, ±5 V DC, ±2.5 V DC, ±1.25 V DC or 4–20 mA	**6ES7231-5ND32-0XB0**
AI 4 x RTD x 16 bits	**6ES7231-5PD32-0XB0**
AI 8 x RTD x 16 bits	**6ES7231-5PF32-0XB0**
AI 4 x TC x 16 bits	**6ES7231-5QD32-0XB0**
AI 8 x TC x 16 bits	**6ES7231-5QF32-0XB0**
AQ 2 x 14 bits ±10 V DC or 4–20 mA	**6ES7232-4HB32-0XB0**
AQ 4 x 14 bits ±10 V DC or 4–20 mA	**6ES7232-4HD32-0XB0**
AI/AQ 4 x 13 bits ±10 V DC, ±5 V DC, ±2.5 V DC or 4–20 mA / 2 x 14 bits ±10 V DC or 4–20 mA	**6ES7234-4HE32-0XB0**
Signal modules – fail-safe	
F-DQ RLY 2 x 5 A 30 V DC/250 V AC	**6ES7226-6RA32-0XB0**
F-DQ 4 x 2 A 24 V DC	**6ES7226-6DA32-0XB0**
F-DI 16 x 24 V DC	**6ES7226-6BA32-0XB0**
Technology modules	
SM 1238 Energy Meter 480 V AC	**6ES7238-5XA32-0XB0**
SM 1281 Condition Monitoring	**6AT8007-1AA10-0AA0**
SM 1278 IO-Link Master	**6ES7278-4BD32-0XB0**
SIWAREX WP231, Platform/Hopper Scale	**7MH4960-2AA01**
SIWAREX WP241, Belt Scale	**7MH4960-4AA01**
SIWAREX WP251, Dosing, Batching Scale	**7MH4960-6AA01**
Signal boards – digital	
DI 4 x 5 V DC 200 kHz	**6ES7221-3AD30-0XB0**
DI 4 x 24 V DC 200 kHz	**6ES7221-3BD30-0XB0**
DQ 4 x 5 V DC 0.1 A 200 kHz	**6ES7222-1AD30-0XB0**
DQ 4 x 24 V DC 0.1 A 200 kHz	**6ES7222-1BD30-0XB0**
DI 2 x 24 V DC/DQ 2 x 24 V DC 0.5 A	**6ES7223-0BD30-0XB0**
DI 2 x 5 V DC/DQ 2 x 5 V DC 0.1 A 200 kHz	**6ES7223-3AD30-0XB0**
DI 2 x 24 V DC/DQ 2 x 24 V DC 0.1 A 200 kHz	**6ES7223-3BD30-0XB0**
Signal boards – analog	
AQ 1 x 12 bits ±10 V DC or 0–20 mA	**6ES7232-4HA30-0XB0**
AI 1 x 12 bits ±10 V DC, ±5 V DC, ±2.5 V DC or 0–20 mA	**6ES7231-4HA30-0XB0**
AI 1 x RTD x 16 bits, type: Platinum (Pt)	**6ES7231-5PA30-0XB0**
AI 1 x TC x 16 bits, types: J, K, voltage range: ± 80 mV	**6ES7231-5QA30-0XB0**

Engineering Framework

	Article No.
SIMATIC STEP 7 Basic V15	**Download: 6ES7822-0AE05-0YA5** **DVD: 6ES7822-0AA05-0YA5**
Software Update Service SIMATIC STEP 7 Basic	**Download: 6ES7822-0AE00-0YY0** **DVD: 6ES7822-0AA00-0YL0**
Upgrade SIMATIC STEP 7 Basic V11–V14 to V15	**Download: 6ES7822-0AE05-0YE5** **DVD: 6ES7822-0AA05-0YE5**
SIMATIC STEP 7 Safety Basic V15	**Download: 6ES7833-1FB15-0YH5** **DVD: 6ES7833-1FB15-0YA5**
Upgrade SIMATIC STEP 7 Safety Basic V13 SP1-V14 to V15	**Download: 6ES7833-1FB15-0YK5** **DVD: 6ES7833-1FB15-0YE5**

Our product portfolio at a glance



CPUs

	Article No.
Standard CPUs	
CPU 1211C	
50 KB program memory, DI 6 x 24 V DC, DQ 4 x 24 V DC or 4 x RLY, AI 2 x 0–10 V DC	
DC/DC/DC	**6ES7211-1AE40-0XB0**
AC/DC/RLY	**6ES7211-1BE40-0XB0**
DC/DC/RLY	**6ES7211-1HE40-0XB0**
CPU 1212C	
75 KB program memory, DI 8 x 24 V DC, DQ 6 x 24 V DC or 6 x RLY, AI 2 x 10 bits 0–10 V DC	
DC/DC/DC	**6ES7212-1AE40-0XB0**
AC/DC/RLY	**6ES7212-1BE40-0XB0**
DC/DC/RLY	**6ES7212-1HE40-0XB0**
CPU 1214C	
100 KB program memory, DI 14 x 24 V DC, DQ 10 x 24 V DC or 10 x RLY, AI 2 x 0–10 V DC	
DC/DC/DC	**6ES7214-1AG40-0XB0**
AC/DC/RLY	**6ES7214-1BG40-0XB0**
DC/DC/RLY	**6ES7214-1HG40-0XB0**
CPU 1215C	
125 KB program memory, DI 14 x 24 V DC, DQ 10 x 24 V DC or 10 x RLY, AI 2 x 0–10 V DC, AQ 2 x 0–20 mA DC, 2 x PROFINET Port	
DC/DC/DC	**6ES7215-1AG40-0XB0**
AC/DC/RLY	**6ES7215-1BG40-0XB0**
DC/DC/RLY	**6ES7215-1HG40-0XB0**
CPU 1217C	
150 KB program memory, DI 10 x 24 V DC, DI 4 x RS422/485, DQ 6 x 24 V DC, DQ 4 x RS422/485, AI 2 x 0–10 V DC, AQ 2 x 0–20 mA, 2 x PROFINET Port	
DC/DC/DC	**6ES7217-1AG40-0XB0**
F-CPUs	
CPU 1212FC	
100 KB program memory, DI 8 x 24 V DC, DQ 6 x 24 V DC or 6 x RLY, AI 2 x 10 bits 0–10 V DC	
DC/DC/DC	**6ES7212-1AF40-0XB0**
DC/DC/RLY	**6ES7212-1HF40-0XB0**
CPU 1214FC	
125 KB program memory, DI 14 x 24 V DC, DQ 10 x 24 V DC or 10 x RLY, AI 2 x 0–10 V DC	
DC/DC/DC	**6ES7214-1AF40-0XB0**
DC/DC/RLY	**6ES7214-1HF40-0XB0**
CPU 1215FC	
150 KB program memory, DI 14 x 24 V DC, DQ 10 x 24 V DC or 10 x RLY, AI 2 x 0–10 V DC, AQ 2 x 0–20 mA DC, 2 x PROFINET Port	
DC/DC/DC	**6ES7215-1AF40-0XB0**
DC/DC/RLY	**6ES7215-1HF40-0XB0**

Starter Kits S7-1200

	Article No.
Content: SIMATIC STEP 7 Basic in TIA Portal and CPU 1212C AC/DC/RLY or CPU 1212FC DC/DC/RLY in Package 5	
Package 1: SIMATIC S7-1200 Starter Kit	**6ES7212-1BD34-4YB0**
Package 2: SIMATIC S7-1200 + KP300 Basic Panel Starter Kit	**6AV6651-7HA01-3AA4**
Package 3: SIMATIC S7-1200 + KTP400 Basic Panel Starter Kit	**6AV6651-7KA01-3AA4**
Package 4: SIMATIC S7-1200 + KTP700 Basic Panel Starter Kit	**6AV6651-7DA01-3AA4**
Package 5: SIMATIC S7-1200 F-CPU Starter Kit + F-DI and F-DQ Signal Module	**6ES7212-1HF41-4YB0**

Communication modules

	Article No.
Serial interface	
CM 1241 RS232	**6ES7241-1AH32-0XB0**
CM 1241 RS422/485	**6ES7241-1CH32-0XB0**
AS interface	
CM 1243-2 AS-i Master	**3RK7243-2AA30-0XB0**
DCM 1271 AS-i Data Coupler	**3RK7271-1AA30-0AA0**
PROFIBUS	
CM 1242-5 PROFIBUS DP-Slave	**6GK7242-5DX30-0XE0**
CM 1243-5 PROFIBUS DP-Master	**6GK7243-5DX30-0XE0**
Mobile wireless	
CP 1242-7 GPRS	**6GK7242-7KX31-0XE0**
CP 1243-7 LTE	**6GK7243-7KX30-0XE0 (EU)** **6GK7243-7SX30-0XE0 (US)**
Ethernet/Telecontrol	
CP 1243-1 Security (Firewall, VPN), Telecontrol Protocol (DNP3, IEC 60870-5-140, Telecontrol Basic)	**6GK7243-1BX30-0XE0**
CP 1243-8 IRC Telecontrol Protocols (SINAUT ST7, DNP3, IEC 60870-5-140)	**6GK7243-8RX30-0XE0**
Identification	
RF120C	**6GT2002-0LA00**
Communication board	
CB 1241 RS485	**6ES7241-1CH30-1XB0**
Partner product	
HMS CM CAN Open	**can be ordered via HMS**

Power supply

	Article No.
PM 1207	**6EP1332-1SH71**

System accessories

	Article No.
SIMATIC memory card	
SIMATIC memory card 4 MB	**6ES7954-8LC02-0AA0**
SIMATIC memory card 12 MB	**6ES7954-8LE03-0AA0**
SIMATIC memory card 24 MB	**6ES7954-8LF03-0AA0**
SIMATIC memory card 256 MB	**6ES7954-8LL03-0AA0**
SIMATIC memory card 2 GB	**6ES7954-8LP02-0AA0**
SIMATIC memory card 32 GB	**6ES7954-8LT03-0AA0**
Miscellaneous	
Battery board, long-term backup of the real-time clock/RTC	**6ES7297-0AX30-0XA0**
Extension cable for signal module, 2 m	**6ES7290-6AA30-0XA0**
CSM 1277, 4-Port unmanaged Switch, 4 x RJ45, 10/100 Mbit/s	**6GK7277-1AA10-0AA0**

Operator control and monitoring

	Article No.
SIMATIC HMI KP300 Basic Mono 3"-FSTN display, push buttons, black-white four-color backlight	**6AV6647-0AH11-3AX0**
SIMATIC HMI KTP400 Basic Color 4" widescreen TFT display, touch screen + push buttons, 65,536 colors	**6AV2123-2DB03-0AX0**
SIMATIC HMI KTP700 Basic Color 7" widescreen TFT display, touch screen + push buttons, 65,536 colors	**6AV2123-2GB03-0AX0**
SIMATIC HMI KTP900 Basic Color 9" widescreen TFT display, touch screen + push buttons, 65,536 colors	**6AV2123-2JB03-0AX0**
SIMATIC HMI KTP1200 Basic Color 12" widescreen TFT display, touch screen + push buttons, 65,536 colors	**6AV2123-2MB03-0AX0**

Related topics

HMI

Equipped with numerous functions and available in different performance classes, each SIMATIC Panel enables efficient machine-oriented operator control and monitoring of your plants. You can find information in the Siemens Industry Mall or at siemens.com/hmi

SIPLUS extreme

Specially refined automation and drive components for use under especially demanding environmental conditions.
You can find information on SIPLUS extreme in the Siemens Industry Mall or at siemens.com/siplus-extreme

SINAMICS converters

Whether it involves efficient pumping, ventilation and compression or precise movement, finishing or processing – the number of applications for converters is almost infinite. SINAMICS offers the right converter for every requirement. You can find information in the Siemens Industry Mall or at siemens.com/sinamics

Identification systems

Automatic data acquisition using RFID or 1D and 2D codes enables you to create production and logistics processes that are economically viable. You can find information in the Siemens Industry Mall or at siemens.com/ident

Teleservice

Remote diagnostics and remote maintenance over the Internet enable fast and reliable access to distant machines and plants at any time. Siemens offers a complete product range for teleservice applications – with security functionality as well. You can find more information at siemens.com/teleservice

SIPLUS CMS1200

The Condition Monitoring System of the SIMATIC S7-1200 can permanently monitor the status of mechanical components. It enables changes caused by wear or due to other damage to be detected earlier based on documented trends – and to be rectified before a plant shutdown can occur. You can find information at siemens.com/siplus-cms1200

Configurator

TIA Selection Tool

You can use the TIA Selection Tool to select, configure and order devices for Totally Integrated Automation (TIA).
It not only combines the familiar configurators for automation technology in a single tool, but can do much more.
www.siemens.com/tia-selection-tool

This is what the S7-1200 controllers offer you:

- **Innovative design and easy operation**
  Compact construction with integrated I/Os and flexibility due to the board concept
- **Security Integrated**
  Security thanks to protected access to the CPU and program copy protection
- **Technology Integrated**
  Incorporated functions and flexible connection of drives
- **Versatile diagnostics**
  System diagnostics indicate error messages in plain-text in the TIA Portal on the HMI or web server
- **Efficient engineering**
  With SIMATIC STEP 7 Basic in the TIA Portal
- **Safety Integrated**
  Fail-safe CPUs for the execution of standard and safety-related programs
- **Flexible integration into all network structures**
  PROFINET, PROFIBUS, AS-i, IO-Link, CANopen or even connection to remote control centers
- **Use in extreme ambient conditions**
  as SIPLUS S7-1200 version
- **Condition Monitoring**
  Early detection of mechanical damage

A single controller for standard and safety

The S7-1200 CPUs with Safety Integrated can additionally assume the monitoring of safety functions – e.g. protective door with tumbler. The fail-safe sensors and actuators are integrated either centrally via fail-safe signaling modules or in a distributed manner via PROFIsafe.

Advantages at a glance

- Optimum integration of the safety functions into the overall sequence of production processes
- Efficient engineering in the TIA Portal
- Savings can be made even with just using a few safety features

Standard controller in combination with an external safety-relay solution

- Complex wiring of the safety function (for feedback and possible functional dependencies)
- Fault diagnosis only possible by means of onboard LEDs and not on a central HMI panel

Integrated safety solution with a fail-safe controller of the S7-1200 series

- Reduced effort required for wiring:
  All information (e.g. signal states and diagnoses) is already available in the system
- Efficient fault diagnosis centrally on an HMI panel

Published by
Siemens AG 2018

Digital Factory
P.O. Box 48 48
90026 Nuremberg, Germany

Article No.: DFFA-B10053-03-7600
Printed in Germany
Dispo 06336
05186.0

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

Follow us at
twitter.com/siemensindustry
youtube.com/siemens

Basic Controller SIMATIC S7-1200:

- **SIMATIC S7-1200 with PROFIsafe and Energy Meter module**
- **Automation Tasks (Tutorials)**
- **Customer references**

Discover more:
siemens.com/s7-1200

Note
Product HMS CM CAN Open is a product of Product Partner HMS, and can only be obtained from HMS.

Product Partners are external companies outside of Siemens AG and its affiliated companies. Information and descriptions of products from Product Partners are non-binding, and are the responsibility of the Product Partners. These products are manufactured independently by the relevant Product Partner on its own responsibility, and are distributed and delivered under its general terms and conditions of business and delivery. Unless compulsory by law, Siemens assumes no liability or warranty for these products or for the connection with these products of the Product Partners. Please also observe the note on the disclaimer of liability and the use of hyperlinks*.

*Disclaimer of liability
This information and the descriptions have been compiled with great care. However, it is not possible for Siemens to check the completeness, correctness and currentness of the data supplied by Product Partners. The possibility that individual items of information might be incorrect, incomplete, or not up-to-date cannot therefore be ruled out. Unless compulsory by law, Siemens assumes no liability for the usability of the data or of the products for the user per se.