

**SIEMENS**

*Ingenuity for life*



Engineered with TIA Portal

Be flexible thanks to  
networking  
possibilities

Basic Controller SIMATIC S7-1200

[siemens.com/s7-1200](https://www.siemens.com/s7-1200)

# Basic Controller SIMATIC S7-1200

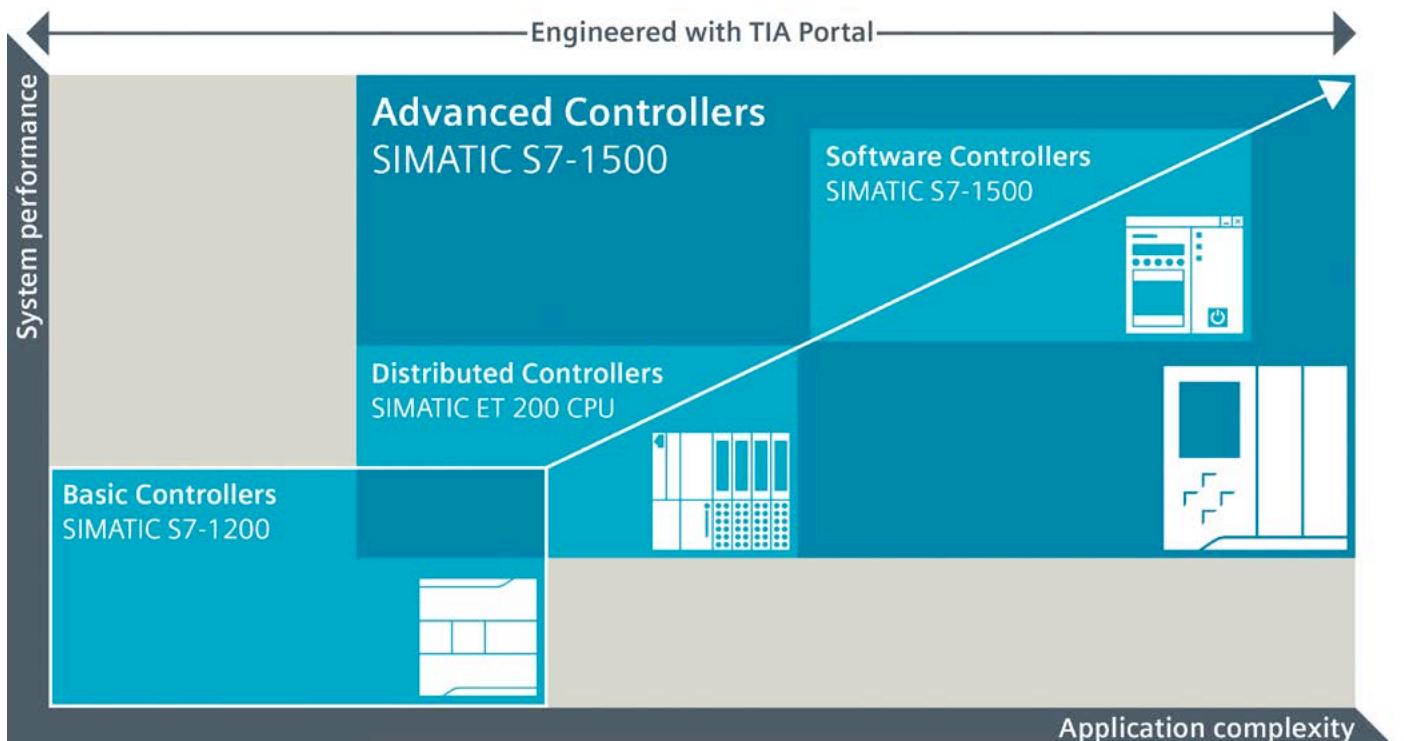
## All in one!

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.

**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 $\pm 10$ V DC, $\pm 5$ V DC, $\pm 2.5$ V DC or 4–20 mA	6ES7231-4HD32-0XB0
AI 8 x 13 bits $\pm 10$ V DC, $\pm 5$ V DC, $\pm 2.5$ V DC or 4–20 mA	6ES7231-4HF32-0XB0
AI 4 x 16 bits $\pm 10$ V DC, $\pm 5$ V DC, $\pm 2.5$ V DC, $\pm 1.25$ 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 $\pm 10$ V DC or 4–20 mA	6ES7232-4HB32-0XB0
AQ 4 x 14 bits $\pm 10$ V DC or 4–20 mA	6ES7232-4HD32-0XB0
AI/AQ 4 x 13 bits $\pm 10$ V DC, $\pm 5$ V DC, $\pm 2.5$ V DC or 4–20 mA / 2 x 14 bits $\pm 10$ 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

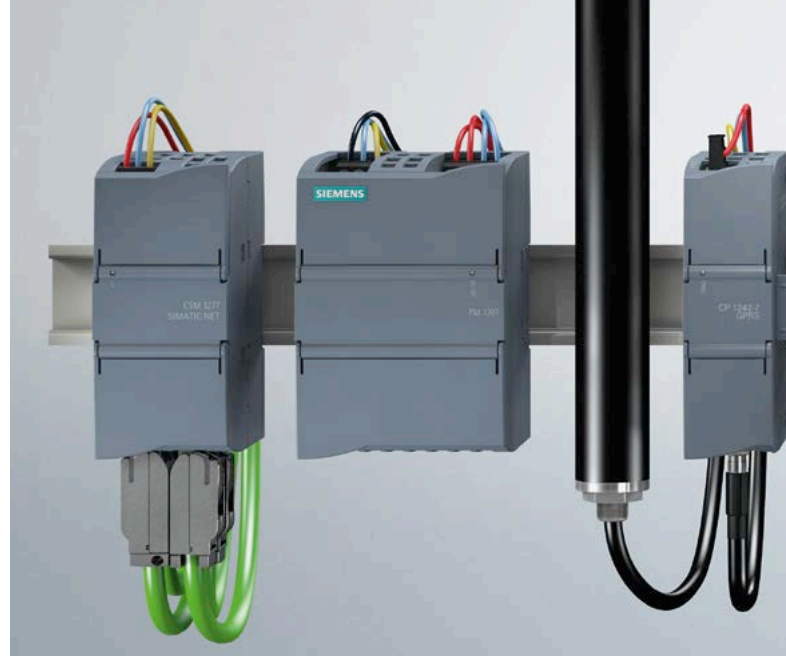
**Signal boards – analog**

AQ 1 x 12 bits $\pm 10$ V DC or 0–20 mA	6ES7232-4HA30-0XB0
AI 1 x 12 bits $\pm 10$ V DC, $\pm 5$ V DC, $\pm 2.5$ 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: $\pm 80$ mV	6ES7231-5QA30-0XB0

**Engineering Framework**

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



## CPU

### 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-CPU

##### 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

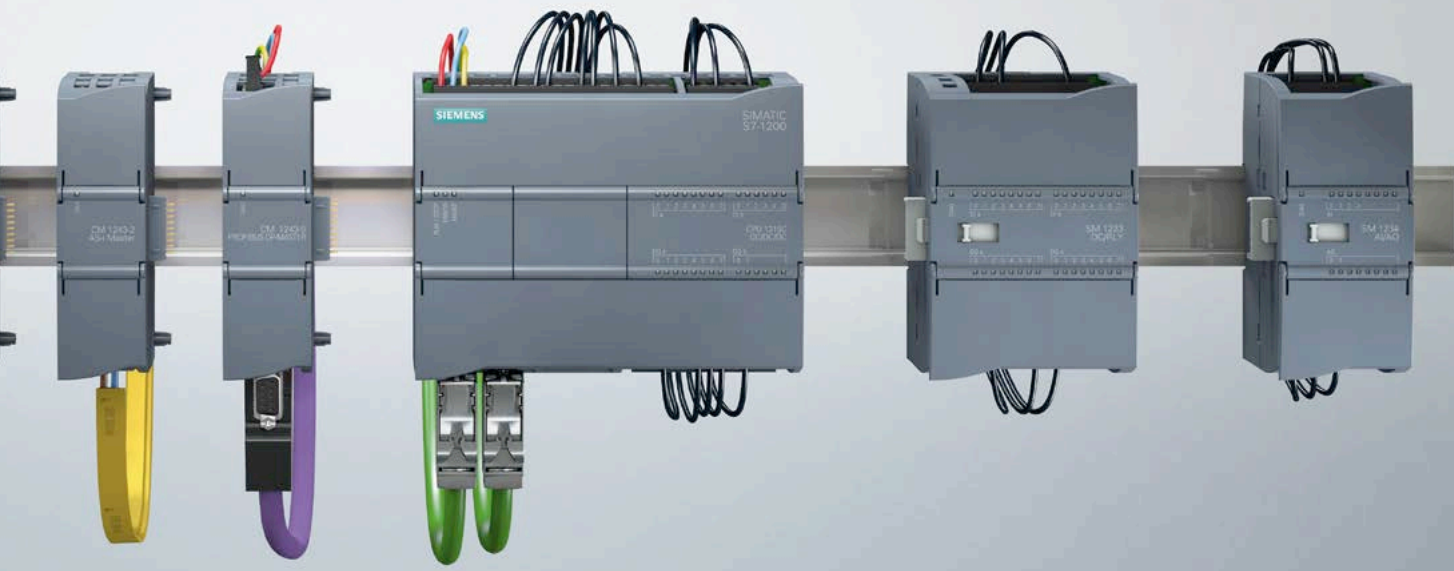
150 KB program memory, DI 14 x 24 V DC, DQ 10 x 24 V DC or 10 x RLY, AI 2 x 0–10 V DC, AQ 2 x 0–20 mA DC, 2 x PROFINET Port

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.
<b>Serial interface</b>	
CM 1241 RS232	6ES7241-1AH32-0XB0
CM 1241 RS422/485	6ES7241-1CH32-0XB0
<b>AS interface</b>	
CM 1243-2 AS-i Master	3RK7243-2AA30-0XB0
DCM 1271 AS-i Data Coupler	3RK7271-1AA30-0AA0
<b>PROFIBUS</b>	
CM 1242-5 PROFIBUS DP-Slave	6GK7242-5DX30-0XE0
CM 1243-5 PROFIBUS DP-Master	6GK7243-5DX30-0XE0
<b>Mobile wireless</b>	
CP 1242-7 GPRS	6GK7242-7KX31-0XE0
CP 1243-7 LTE	6GK7243-7KX30-0XE0 (EU) 6GK7243-7SX30-0XE0 (US)
<b>Ethernet/Telecontrol</b>	
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
<b>Identification</b>	
RF120C	6GT2002-0LA00
<b>Communication board</b>	
CB 1241 RS485	6ES7241-1CH30-1XB0
<b>Partner product</b>	
HMS CM CAN Open	can be ordered via HMS

## Power supply

	Article No.
PM 1207	6EP1332-1SH71

## System accessories



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

## 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](http://siemens.com/hmi)

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### 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](http://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](http://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](http://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](http://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

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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](http://www.siemens.com/industrialsecurity)

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## Basic Controller SIMATIC S7-1200:

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

**Discover more:**  
[siemens.com/s7-1200](http://siemens.com/s7-1200)

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