

**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)

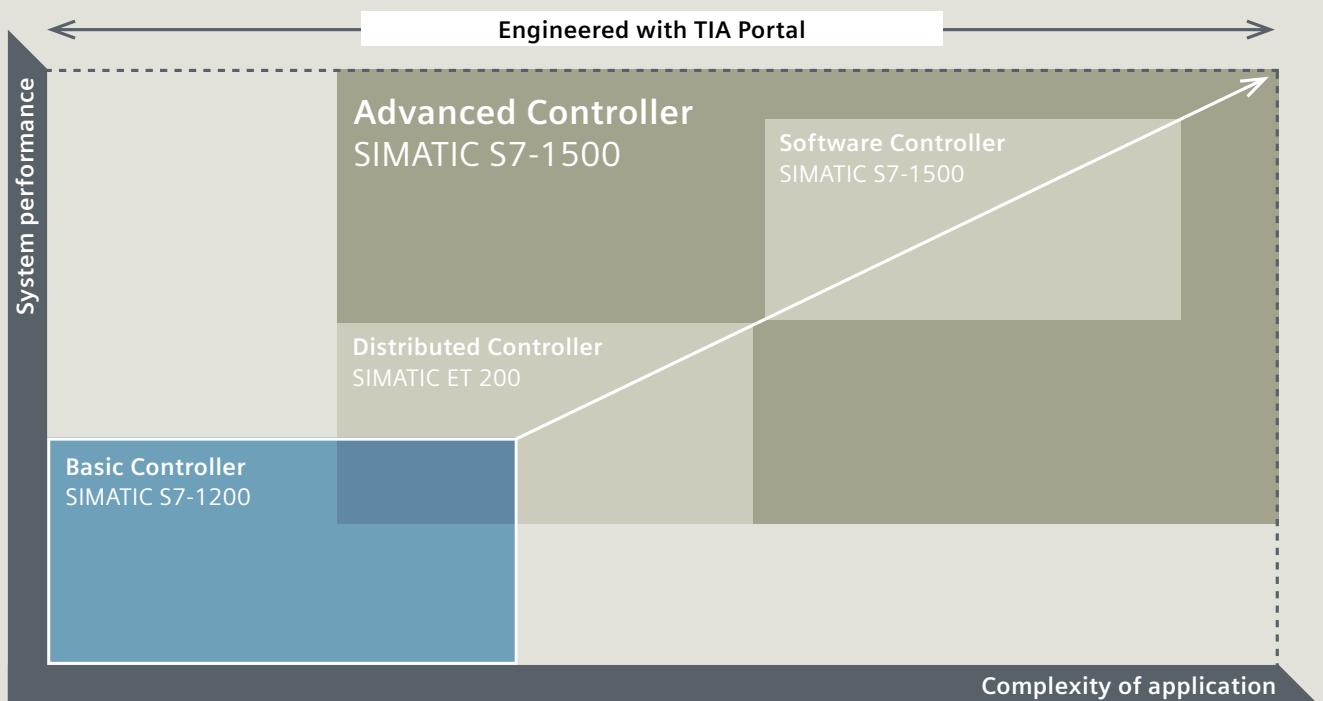
# Basic Controller SIMATIC S7-1200 All in one!

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.




# Central processing units

## Standard modules

	Article No.
<b>CPU 1211C</b> 	50 KB, DI 6x24 V DC, DQ 4x24 V DC or 4xRLY, AI 2x10 bit 0–10 V DC, expandable to 3 CM DC/DC/DC <b>6ES7 211-1AE40-0XB0</b> AC/DC/RLY <b>6ES7 211-1BE40-0XB0</b> DC/DC/RLY <b>6ES7 211-1HE40-0XB0</b>
<b>CPU 1212C</b> 	75 KB, DI 8x24 V DC, DQ 6x24 V DC or 6xRLY, AI 2x10 bit 0–10 V DC, expandable to 3 CM + 2 SM DC/DC/DC <b>6ES7 212-1AE40-0XB0</b> AC/DC/RLY <b>6ES7 212-1BE40-0XB0*</b> DC/DC/RLY <b>6ES7 212-1HE40-0XB0</b>
<b>CPU 1214C</b> 	100 KB, DI 14x24 V DC, DQ 10x24 V DC or 10xRLY, AI 2x10 bit 0–10 V DC, expandable to 3 CM + 8 SM DC/DC/DC <b>6ES7 214-1AG40-0XB0</b> AC/DC/RLY <b>6ES7 214-1BG40-0XB0*</b> DC/DC/RLY <b>6ES7 214-1HG40-0XB0</b>
<b>CPU 1215C</b> 	125 KB, DI 14x24 V DC, DQ 10x24 V DC or 10xRLY, AI 2x10 bit 0–10 V DC, AQ 2x10 bit, 0 to 20 mA, expandable to 3 CM + 8 SM DC/DC/DC <b>6ES7 215-1AG40-0XB0</b> AC/DC/RLY <b>6ES7 215-1BG40-0XB0</b> DC/DC/RLY <b>6ES7 215-1HG40-0XB0</b>

	Article No.
<b>CPU 1217C</b> 	150 KB, DI 10x24 V DC, 4x1.5 V differential, DQ 6x24 V DC, 4x1.5 V differential, AI 2x10 bit 0–10 V DC, AQ 2x10 bit 0–20 mA, line driver IO for (1 MHz ±1.5 V), expandable to 3 CM + 8 SM DC/DC/DC <b>6ES7 217-1AG40-0XB0</b>

## Fail-safe modules

<b>CPU 1212FC</b> 	100 KB, DI 8x24 V DC, DQ 6x24 V DC or 6xRLY, AI 2x10 bit 0–10 V DC, expandable to 3 CM + 2 SM DC/DC/DC <b>6ES7 212-1AF40-0XB0</b> DC/DC/RLY <b>6ES7 212-1HF40-0XB0</b>
<b>CPU 1214FC</b> 	125 KB, DI 14x24 V DC, DQ 10x24 V DC or 10xRLY, AI 2x10 bit 0–10 V DC DC/DC/DC <b>6ES7 214-1AF40-0XB0</b> DC/DC/RLY <b>6ES7 214-1HF40-0XB0</b>
<b>CPU 1215FC</b> 	150 KB, DI 14x24 V DC, DQ 10x24 V DC or 10xRLY, AI 2x10 bit 0–10 V DC, AI 2x10 bit, 0 to 20 mA DC/DC/DC <b>6ES7 215-1AF40-0XB0</b> DC/DC/RLY <b>6ES7 215-1HF40-0XB0</b>

\*also available as RAIL-variant

Also available as SIPLUS S7-1200 for use under extreme environmental conditions.

For more information, see [siemens.com/siplus-extreme](http://siemens.com/siplus-extreme)

# Communication

## Communications modules

	Article No.
	CM 1241 RS232 <b>6ES7 241-1AH32-0XB0</b>
	CM 1241 RS422/485 <b>6ES7 241-1CH32-0XB0</b>
	CM 1243-2 AS-i master <b>3RK7 243-2AA30-0XB0</b>
	DCM 1271 AS-i data decoupling <b>3RK7 271-1AA30-0AA0</b>
	CM 1242-5 PROFIBUS DP slave <b>6GK7 242-5DX30-0XE0</b>
	CM 1243-5 PROFIBUS DP master <b>6GK7 243-5DX30-0XE0</b>

## Communications processors

	Article No.
	CP 1242-7 GPRS <b>6GK7 242-7KX31-0XE0</b>
	CP 1243-7 LTE <b>6GK7 243-7KX30-0XE0</b>
	CP 1243-1 Security <b>6GK7 243-1BX30-0XE0</b>
	CP 1243-1 DNP3 protocol <b>6GK7 243-1JX30-0XE0</b>
	CP 1243-1 IEC 60870-5-104 protocol <b>6GK7 243-1PX30-0XE0</b>
	CP 1243-1 PCC (Plant Cloud Connect) <b>6GK7 243-1HX30-0XE0</b>
	CP 1243-8 IRC ST7 protocol <b>6GK7 243-8RX30-0XE0</b>

## Telecontrol and teleservice

	Article No.
<b>TS adapter IE Basic</b>	<b>6ES7 972-0EB00-0XA0</b>
<b>TS adapter IE Advanced</b>	<b>6ES7 972-0EA00-0XA0</b>
<b>TS module</b>	
TS module modem	<b>6ES7 972-0MM00-0XA0</b>
TS module ISDN	<b>6ES7 972-0MD00-0XA0</b>
TS module RS232	<b>6ES7 972-0MS00-0XA0</b>
TS module GSM	<b>6GK7 972-0MG00-0XA0</b>
	<b>Quad-band GSM/UMTS/LTE ANT794-4MR antenna</b> <b>6NH9 860-1AA00</b>
<b>Control center connection</b>	
Telecontrol Server Basic 8	<b>6NH9 910-0AA21-0AA0</b>
Telecontrol Server Basic 64	<b>6NH9 910-0AA21-0AB0</b>
Telecontrol Server Basic 256	<b>6NH9 910-0AA21-0AC0</b>

## Partner product

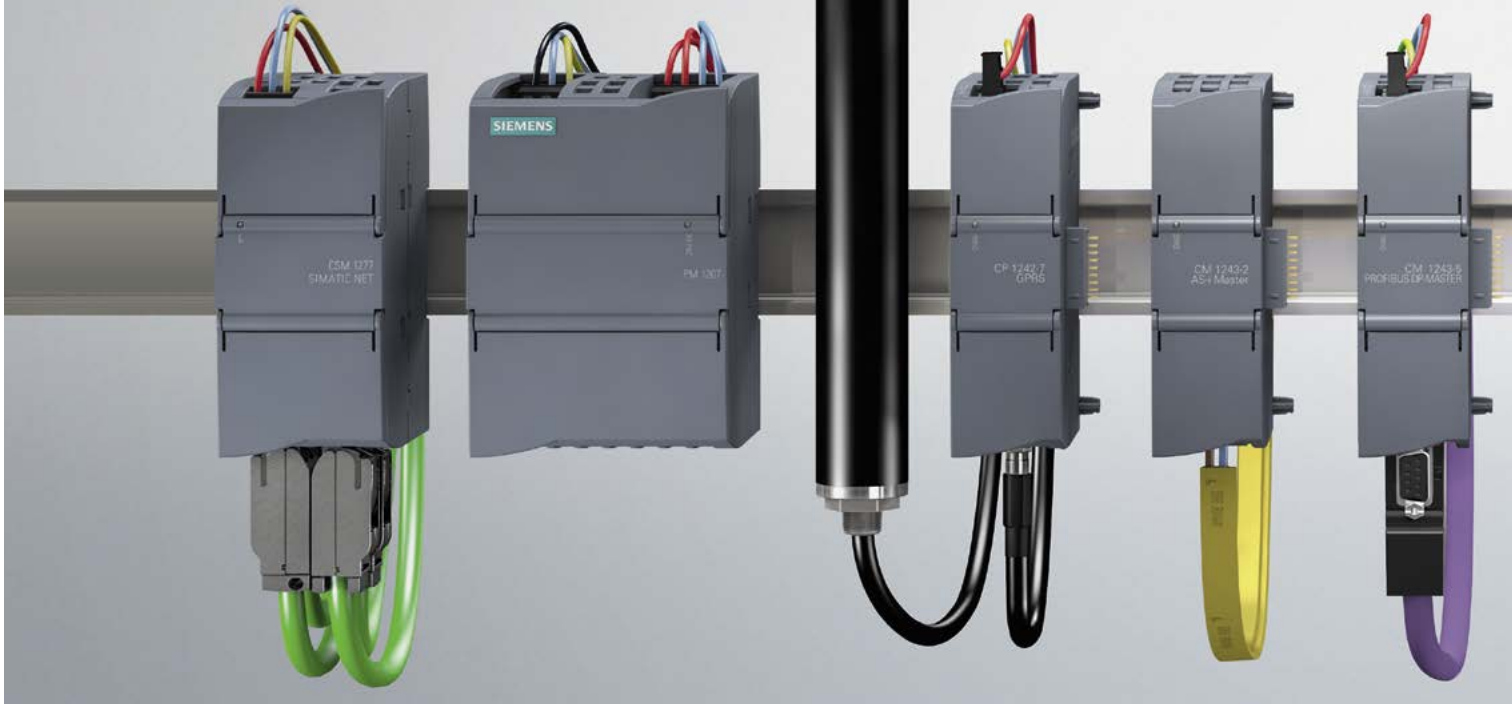
	Article No.
HMS CM CAN Open	Order by HMS

## Communications board

	Article No.
CB 1241 RS485	<b>6ES7 241-1CH30-1XB0</b>

Further Telecontrol products are also available, for more details, see [siemens.com/telecontrol](http://siemens.com/telecontrol)

# Our product portfolio at a glance



## Signal modules

### Signal modules – digital



	Article No.
<b>SM 1221 DC</b>	
DI 8x24 V DC	6ES7 221-1BF32-0XB0
DI 16x24 V DC	6ES7 221-1BH32-0XB0
<b>SM 1222 DC</b>	
DQ 8x24 V DC 0.5 A	6ES7 222-1BF32-0XB0
DQ 16x24 V DC 0.5 A	6ES7 222-1BH32-0XB0
<b>SM 1222 RLY</b>	
DQ 8xRLY 30 V DC/250 V AC 2 A	6ES7 222-1HF32-0XB0
DQ 16xRLY 30 V DC/250 V AC 2 A	6ES7 222-1HH32-0XB0
DQ 8xRLY switchover 30 V DC/250 V AC 2 A	6ES7 222-1XF32-0XB0
<b>SM 1223 DC/DC</b>	
DI 8x24 V DC, DQ 8x24 V DC 0.5 A	6ES7 223-1BH32-0XB0
DI 16x24 V DC, DQ 16x24 V DC 0.5 A	6ES7 223-1BL32-0XB0
<b>SM 1223 DC/RLY</b>	
DI 8x24 V DC, DQ 8xRLY 30 V DC/250 V AC 2 A	6ES7 223-1PH32-0XB0
DI 16x24 V DC, DQ 16xRLY 30 V DC/250 V AC 2 A	6ES7 223-1PL32-0XB0
<b>SM 1223 AC/RLY</b>	
DI 8x120/250 V AC, DQ 8xRLY 30 V DC/250 V AC 2 A	6ES7 223-1QH32-0XB0

### Signal modules – analog

	Article No.
<b>SM 1231 AI</b>	
AI 4x13 bit $\pm 10$ V DC, $\pm 5$ V DC, $\pm 2.5$ V DC or 4–20 mA	6ES7 231-4HD32-0XB0
AI 8x13 bit $\pm 10$ V DC, $\pm 5$ V DC, $\pm 2.5$ V DC or 4–20 mA	6ES7 231-4HF32-0XB0
AI 4x16 bit $\pm 10$ V DC, $\pm 5$ V DC, $\pm 2.5$ V DC, $\pm 1.25$ V DC or 4–20 mA	6ES7 231-5ND32-0XB0
<b>SM 1231 RTD</b>	
AI 4xRTD x 16 bit	6ES7 231-5PD32-0XB0
AI 8xRTD x 16 bit	6ES7 231-5PF32-0XB0
<b>SM 1231 TC</b>	
AI 4xTC x 16 bit	6ES7 231-5QD32-0XB0
AI 8xTC x 16 bit	6ES7 231-5QF32-0XB0
<b>SM 1232 AQ</b>	
AQ 2x14 bit $\pm 10$ V DC or 4–20 mA	6ES7 232-4HB32-0XB0
AQ 4x14 bit $\pm 10$ V DC or 4–20 mA	6ES7 232-4HD32-0XB0
<b>SM 1234 AI/AQ</b>	
AI 4x13 bit $\pm 10$ V DC, $\pm 5$ V DC, $\pm 2.5$ V DC or 4–20 mA, AQ 2x14 bit $\pm 10$ V DC or 4–20 mA	6ES7 234-4HE32-0XB0
<b>SM 1238 Energy Meter 480VAC</b>	
Energy measuring module for data acquisition in 1- and 3-phase networks (TN, TT) up to 480 V AC; Current range: 1 A, 5 A	6ES7 238-5XA32-0XB0





## Signal boards

	Article No.
<b>SB 1221 DC* 200 kHz</b>	
DI 4 x 5 V DC*	6ES7 221-3AD30-0XB0
DI 4 x 24 V DC*	6ES7 221-3BD30-0XB0
<b>SB 1222 DC 200 kHz</b>	
DQ 4 x 5 V DC 0.1 A	6ES7 222-1AD30-0XB0
DQ 4 x 24 V DC 0.1 A	6ES7 222-1BD30-0XB0
<b>SB 1223 DC/DC</b>	
DI 2 x 24 V DC/DQ 2 x 24 V DC 0.5 A	6ES7 223-0BD30-0XB0
<b>SB 1223 DC*/DC 200 kHz</b>	
DI 2 x 5 V DC*/DQ 2 x 5 V DC 0.1 A	6ES7 223-3AD30-0XB0
DI 2 x 24 V DC*/DQ 2 x 24 V DC 0.1 A	6ES7 223-3BD30-0XB0
<b>SB 1232 AQ</b>	
AQ 1 x 12 bit $\pm 10$ V DC or 0–20 mA	6ES7 232-4HA30-0XB0
<b>SB 1231 AI</b>	
AI 1 x 12 bit $\pm 10$ V DC, $\pm 5$ V DC, $\pm 2.5$ V DC or 0–20 mA	6ES7 231-4HA30-0XB0
<b>SB 1231 RTD</b>	
AI 1 x RTD x 16 bit, type: Platinum (Pt)	6ES7 231-5PA30-0XB0
<b>SB 1231 TC</b>	
AI 1 x TC x 16 bit, types: J, K voltage range: $\pm 80$ mV	6ES7 231-5QA30-0XB0

\*Sourcing input



## Signal modules – fail-safe

	Article No.
<b>SM 1226 F-DQ 2 x relay</b>	
F-DQ RLY 2 x 5 A 30 V DC/250 V AC	6ES7 226-6RA32-0XB0
<b>SM 1226 F-DQ 4 x 24 V DC</b>	
F-DQ 4 x 2 A 24 V DC	6ES7 226-6DA32-0XB0
<b>SM 1226 F-DI 16 x 24 V DC</b>	
F-DI 16 x 24 V DC	6ES7 226-6BA32-0XB0





## Engineering framework

### SIMATIC STEP 7 software




	Article No.
<b>SIMATIC STEP 7 SP1 Basic V14</b>	
	6ES7 822-0AA03-0YA5
<b>Software Update Service SIMATIC STEP 7 Basic</b>	
	6ES7 822-0AA00-0YL0
<b>Upgrade SIMATIC STEP 7 Basic V11–V13 to V14</b>	
Floating license	6ES7 822-0AA03-0YE5
<b>SIMATIC STEP 7 Safety Basic V14 SP1</b>	
Floating license	6ES7 833-1FB14-0YA5
<b>Software Update Service STEP 7 Safety Basic – Standard</b>	
	6ES7833-1FD00-0YX2


## Accessories

	Article No.
 Battery board (long-term backup of real-time clock [RTC])	<b>6ES7 297-0AX30-0XA0</b>
<b>Memory card</b>  4 MB (optional)	<b>6ES7 954-8LC02-0AA0</b>
12 MB (optional)	<b>6ES7 954-8LE02-0AA0</b>
24 MB (optional)	<b>6ES7 954-8LF02-0AA0</b>
256 MB (optional)	<b>6ES7 954-8LL02-0AA0</b>
2 GB (optional)	<b>6ES7 954-8LP01-0AA0</b>
32 GB (optional)	<b>6ES7 954-8LT02-0AA0</b>

### Digital input simulators

 Simulator (8 positions for CPU 1211C/1212C)	<b>6ES7 274-1XF30-0XA0</b>
Simulator (14 positions for CPU 1214C/1215C)	<b>6ES7 274-1XH30-0XA0</b>
Simulator (14 positions for CPU 1217C)	<b>6ES7 274-1XK30-0XA0</b>


### Analog input simulators

 Potentiometer: for all CPUs	<b>6ES7 274-1XA30-0XA0</b>
--	----------------------------

### Expansion cable for signal module

 2.0 m	<b>6ES7 290-6AA30-0XA0</b>
--	----------------------------




### CSM 1277

 4-port unmanaged switch, 4 x RJ45 sockets, 10/100 Mbit/s	<b>6GK7 277-1AA10-0AA0</b>
--	----------------------------


## Technology

	Article No.
<b>IO-Link</b> SM 1278 IO-Link master	<b>6ES7 278-4BD32-0XB0</b>


### SIWAREX weighing modules

 SIWAREX WP231, platform / hopper scale	<b>7MH4 960-2AA01</b>
 SIWAREX WP241, belt scales	<b>7MH4 960-4AA01</b>
 SIWAREX WP251, dosing, filling and bagging scale	<b>7MH4 960-6AA01</b>





### Condition monitoring

 SM 1281 condition monitoring	<b>6AT8007-1AA10-0AA0</b>
---	---------------------------

## Power modules





	Article No.
<b>PM 1207</b>  Input: 120/230 V AC, 50/60 Hz, 1.2 A/0.67 A Output: 24 V DC/2.5 A	<b>6EP1 332-1SH71</b>

## Operator control and monitoring

	Article No.
<b>SIMATIC HMI KP300 Basic mono PN</b>  Operation using keys, 3" FSTN display, monochrome, adjustable backlighting color (white, red, green, yellow)	<b>PROFINET 6AV6 647-0AH11-3AX0</b>
<b>SIMATIC HMI KP400 Basic color PN</b>  Operation using keys, high-resolution 4" TFT widescreen display, 256 colors	<b>PROFINET 6AV6 647-0AJ11-3AX0</b>
<b>SIMATIC HMI KTP400 Basic</b>  Operation using touchscreen + keys, 4" TFT widescreen display, 65,536 colors	<b>PROFINET 6AV2 123-2DB03-0AX0</b>
<b>SIMATIC HMI KTP700 Basic</b>  Operation using touchscreen + keys, 7" TFT widescreen display, 65,536 colors, PROFINET or PROFIBUS	<b>PROFINET 6AV2 123-2GB03-0AX0</b> <b>PROFIBUS 6AV2 123-2GA03-0AX0</b>
<b>SIMATIC HMI KTP900 Basic</b>  Operation using touchscreen + keys, 9" TFT widescreen display, 65,536 colors	<b>PROFINET 6AV2 123-2JB03-0AX0</b>
<b>SIMATIC HMI KTP1200 Basic</b>  Operation using touchscreen + keys, 12" TFT widescreen display, 65,536 colors, PROFINET or PROFIBUS	<b>PROFINET 6AV2 123-2MB03-0AX0</b> <b>PROFIBUS 6AV2 123-2MA03-0AX0</b>

For more information, see [www.siemens.com/basic-panels](http://www.siemens.com/basic-panels)

## Identification systems

	Article No.
<b>SIMATIC RF120C</b>  Communications module for direct connection of SIMATIC identification systems to the SIMATIC S7-1200	<b>6GT2002-0LA00</b>
<b>SIMATIC RF200</b>  RFID system in the HF range, compact and cost-efficient, easy connection to the automation system	<b>6GT2821-</b> For more information, see <a href="http://www.siemens.com/rf200">www.siemens.com/rf200</a>
<b>SIMATIC RF300</b>  RFID system in the HF range, high-capacity data memory and high-speed recording, easy connection to the automation system	<b>6GT2801-</b> For more information, see <a href="http://www.siemens.com/rf300">www.siemens.com/rf300</a>
<b>SIMATIC MV400</b>  Optical code reading system for barcodes, data matrix codes (DMC), text recognition (OCR), verification	<b>6GF34-</b> For more information, see <a href="http://www.siemens.com/codereader">www.siemens.com/codereader</a>

## This is what the S7-1200 controllers offer you:

- **Innovative design and easy operation**  
Compact construction with integrated IOs 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

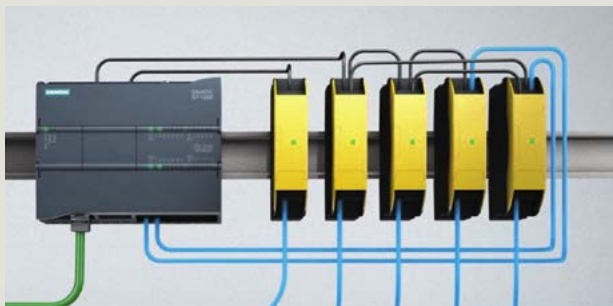
### The first microcontroller in both standard and safety versions

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

Publisher  
Siemens AG 2016

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

Article No.: DFFA-B10053-02-7600  
Printed in Germany  
Dispo 06336  
79626 BR 111610.

Subject to changes and errors.

The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

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)

Follow us at  
[twitter.com/siemensindustry](https://twitter.com/siemensindustry)  
[youtube.com/siemens](https://youtube.com/siemens)

## 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)

### 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.