SIMATIC S7-300

Production line in the automobile industry – automated with the SIMATIC S7-300

SIMATIC S7-300: The modular controller for innovative system solutions in the manufacturing industry

SIMATIC S7-300 is the best-selling controller of the *Totally Integrated Automation* spectrum with a host of successful reference applications worldwide from the most varied industrial sectors, such as:

- Manufacturing engineering
- Automotive industry
- General machine construction
- Special-purpose machine manufacturing
- Standard mechanical equipment manufacture, OEMs
- Plastics processing
- Packaging industry
- Food, beverages and tobacco industries
- Process engineering

SIMATIC S7-300 for innovative system solutions in the manufacturing industry

Highlights

The SIMATIC S7-300 has been designed for innovative system solutions with the focus on manufacturing engineering, and as a universal automation system, it represents an optimal solution for applications in centralized and distributed configurations:

- The ability to integrate powerful CPUs with Industrial Ethernet/PROFINET interface, integrated technological functions, or fail-safe designs make additional investments unnecessary.
- The S7-300 can be set up in a modular configuration without the need for slot rules for I/O modules. There is a wide range of modules available both for the centralized and the distributed configuration with ET 200M.
- The Micro Memory Card as a data and program memory makes a backup battery superfluous and saves maintenance costs. In addition, an associated project, including symbols and comments, can be stored on this memory card to facilitate service calls.
- The Micro Memory Card also enables simple program or firmware updates without a programming device. In addition, the Micro Memory Card can be used during operation for storing and accessing data, e.g. for measured value archiving or recipe processing.
- In addition to standard automation, safety technology and motion control can also be integrated in an S7-300.
- Many S7-300 components are also available as a SIPLUS version for extreme ambient conditions, e.g. extended temperature ranges (-25 to +60 °C) and for use where there is corrosive atmosphere / condensation.

Further information at:
www.siemens.com/siplus

Design

Design

The S7-300 enables space-saving and modular configurations. In addition to the modules, only a DIN rail is required for hooking in the modules and screwing them into place. This results in a rugged and EMC-compatible design. The build-as-you-go backplane bus can be expanded by simply plugging in additional modules and bus connectors.

The comprehensive module range of the S7-300 can be used for central expansion as well as setting up distributed structures with ET 200M; this results in extremely cost-effective spare parts handling.
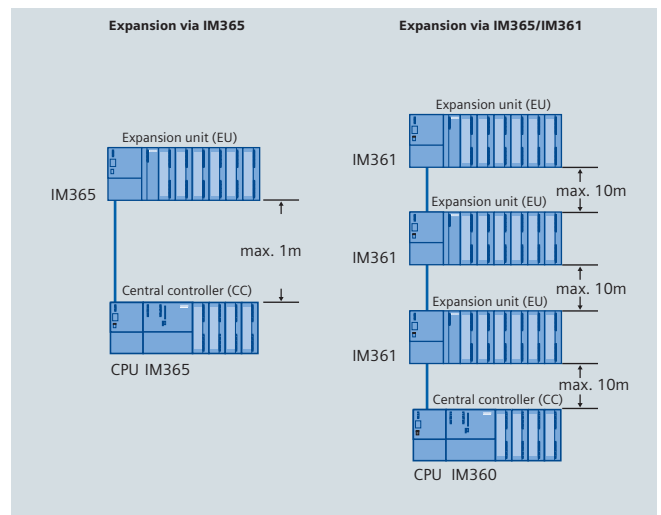
Expansion options

If the automation task requires more than 8 modules, the central controller (CC) of the S7-300 can be expanded using expansion units (EUs) Up to 32 modules can be used in the central rack and up to 8 per expansion unit. Interface modules (IMs) handle communication between the individual racks autonomously. In the case of plants covering wide areas, CCs/EUs can also be installed at greater distances from each other (up to 10 m).

In a single-tiered configuration, this results in a maximum configuration of 256 I/O, and in multi-tiered configurations up to 1024 I/O. In distributed configurations with PROFIBUS DP, 65536 I/O connections are possible (up to 125 stations, such as ET 200M via IM 153). The slots are freely addressable, that is, there are no slot rules.

The extensive range of S7-300 modules is also used in distributed automation solutions. The ET 200M distributed I/O system of the same construction as the S7-300 can be connected via interface modules to both PROFIBUS and to PROFINET.
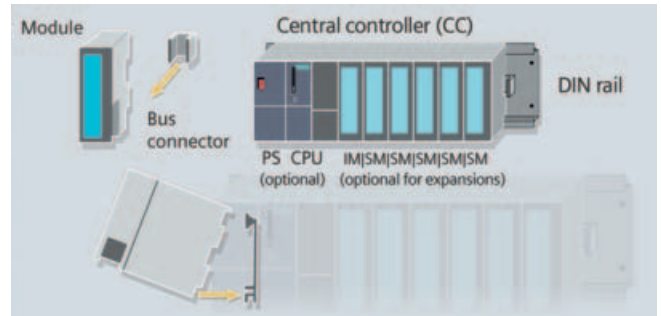
Structure of the S7-300: space-saving, modular and simple

Centralized expansion of the S7-300 with up to 32 modules

Construction components
for SIMATIC S7-300

|	Component	Special feature	Order No. group
Rack	Mounting rail	160 to 2000 mm	6ES7 390-1....
Interface	IM 360	Send IM for CC, for up to 3 EUs	6ES7 360-3A...
	IM 361	Receiver IM for EU, for connecting to IM 360	6ES7 360-3C...
	IM 365	Expansion with 1 EU	6ES7 365-0B...
Power Supply	PS 307 (2 A)	AC 120/230 V	6ES7 307-1BA..
	PS 305 (2 A) [1]	24 -110 V DC	6ES7 305-1BA..
	PS 307 (5 A) [1]	120/230 VAC	6ES7 307-1EA..
	PS 307 (10 A) [2]	120/230 VAC	6ES7 307-1KA..

[1] as SIPLUS component also for extended temperature range -25 to +60℃ and corrosive atmosphere/condensation [2] as SIPLUS component also for corrosive atmosphere/condensation (www.siemens.com/siplus)

CPU range

A graded CPU range with a wide performance range is available for configuring the controller. Thanks to their high processing speed, the CPUs enable short machine cycle times. The narrow module width results in a compact controller design or a small control cabinet.

The CPUs are available from a width of only 40 mm. Fail-safe CPUs are available for safety-oriented applications. The PROFIsafe profile for safe communication via PROFIBUS and PROFINET allows the integration of safety-related functions into standard automation environments.

Compact CPUs with widths of 80 or 120 mm also offer integral I/O and integral technological functions. This onboard I/O (digital/analog) and the technological functions save additional investments in other modules.
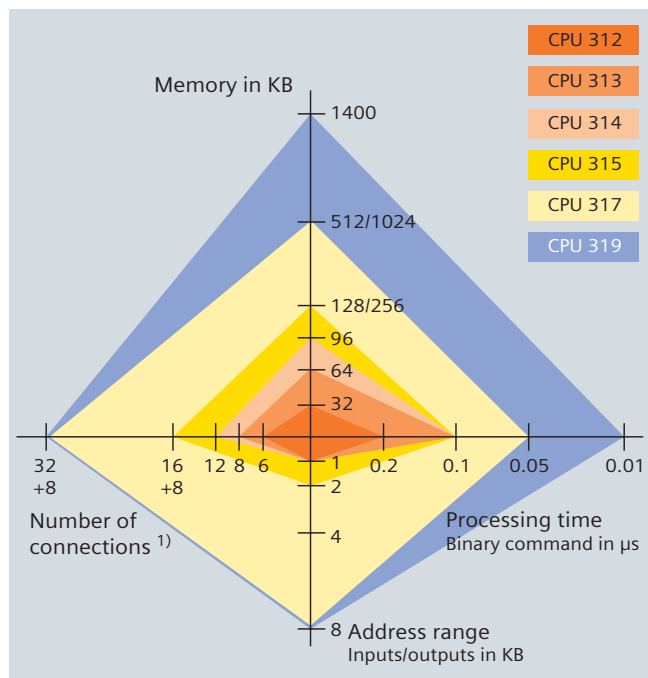
Six performance classes of the S7-300 CPUs

1) Connections stand for internal resources of the CPU for the communication with PGs/OPs and over blocks. The standard bus communication and the PtP coupling do not require connections. The PN-CPUs offer 8 additional connections for TCP/IP, UDP, and ISO-on-TCP.

Applications include the following:

- High-speed counting/measuring with direct access to the hardware counter
- Simple positioning with direct control of the MICRO-MASTER frequency inverter
- PID control with integral function block

This range is rounded off by a special technology CPU with powerful technological functions, especially for motion control.

Together with the integral digital I/O and equidistant and isochronous mode on PROFIBUS DP, off-the-shelf, PLCopen-compliant motion control functions enable the flexible motion control of several (even linked) axes.

Micro Memory Card

The Micro Memory Card is a compact medium that meets the highest industrial requirements, especially ESD protection and mechanical ruggedness.

The system-tested Micro Memory Card allows more write cycles than conventional memory cards and offers know-how protection because the serial number can be read out by the program.

High performance CPU 319-3 PN/DP with integrated PROFINET interface

Useful additional functions:

- Simpler and faster upgrade due to firmware update via network.
- Resetting of all settings to the factory settings using the hardware switch (Reset to Factory).

Version	CPU	Isochronous mode on the PROFIBUS	Integrated interfaces	Integrated I/O devices	Integrated technological functions
Standard CPUs					
	CPU 312, 314 [1]		MPI		
	CPU 315-2 DP [1]		MPI, DP		
	CPU 315-2 PN/DP [1]	■	DP/MPI, PROFINET		
	CPU 317-2 DP	■	DP/MPI, DP		
	CPU 317-2 PN/DP [1]	■	DP/MPI, PROFINET		
	CPU 319-3 PN/DP	■	DP/MPI, DP, PROFINET		
Failsafe CPUs					
	CPU 315F-2 DP [1]		MPI, DP		Fail safety with PROFIsafe profile
	CPU 315F-2 PN/DP	■	DP/MPI, PROFINET		
	CPU 317F-2 DP [1]	■	DP/MPI, DP		
	CPU 317F-2 PN/DP	■	DP/MPI, PROFINET		
	CPU 319F-3 PN/DP	■	DP/MPI, DP, PROFINET		
Compact CPUs					
	CPU 312C [1]		MPI	Digital	■ Counting
	CPU 313C [1]		MPI	Digital, Analog	■ PID Control
	CPU 313C-2 PtP		MPI, PtP	Digital	■ Frequency counting
	CPU 313C-2 DP [1]		MPI, DP	Digital	■ Pulse width modulation
					■ Pulse generator
	CPU 314C-2 PtP		MPI, PtP	Digital, Analog	As above, and additionally ■ Positioning
	CPU 314C-2 DP [1]		MPI, DP	Digital, Analog	
Technology CPUs					
	CPU 315T-2 DP		DP/MPI, DP(DRIVE)	Digital	■ Synchronous operation
	CPU 317T-2 DP		DP/MPI, DP(DRIVE)	Digital	■ Travel to fixed stop
					■ Print mark correction
					■ Cam control
					■ Controlled positioning

[1]) as SIPLUS component also for extended temperature range -25 to +60°C and corrosive atmosphere/condensation (www.siemens.com/siplus)

Technical specifications Standard CPUs

CPU	CPU 312	CPU 314 [1]	CPU 315-2 DP [1]	CPU 315-2 PN/DP [1]	CPU 317-2 DP	CPU 317-2 PN/DP [1]	CPU 319-3 PN/DP
Dimensions (mm)	40 x 125 x 130		40 x 125 x 130	80 x 125 x 130	80 x 125 x 130		120 x 125 x 130
Order No. group: 6ES7	312-1AE.	314-1AG.	315-2AG.	315-2EH.	317-2AJ.	317-2EK.	318-3EL.
Memory							
RAM	32 KB	96 KB	128 KB	256 KB	512 KB	1 MB	1.4 MB
Instructions	10 K	32 K	42 K	84 K	170 K	340 K	470 K
Execution times							
Bit operation	0.2 µs	0.1 µs	0.1 µs		0.05 µs		0.01 µs
Word operation	0.4 µs	0.2 µs	0.2 µs		0.2 µs		0.02 µs
Fixed-point operation	5 µs	2 µs	2 µs		0.2 µs		0.02 µs
Floating-point operation	6 µs	3 µs	3 µs		1 µs		0,04 µs
Bit memories/timers/counters							
Bit memories	128 byte	256 byte	2048 byte		4096 byte		8192 byte
S7 timers/counters	128/128	256/256	256/256		512/512		2048/2048
IEC timers/counters	■	■	■		■		■
Address areas							
I/O (bytes)	1024/1024	1024/1024	2048/2048		8192/8192	8192/8192	8192/8192
I/O process image (bytes)	128/128	128/128	128/128		256/256	2048/2048	2048/2048
Digital channels (central)	256	1024	1024		1024	1024	1024
Analog channels (central)	64	256	256		256	256	256
DP interfaces							
DP master systems internal / CP 342-5	–/ ■		■ / ■		■ / ■	■ / ■	■ / ■
DP slaves			■		■	■	■
PROFINET interface							
PROFINET CBA				■		■	■
PROFINET IO				■		■	■
TCP/IP				■		■	■
UDP				■		■	■
ISO-on-TCP (RFC 1006)				n		■	■
Web Server				n		■	■

[1] as SIPLUS component also for extended temperature range -25 to +60°C and corrosive atmosphere/condensation (www.siemens.com/siplus)

Technical specifications Compact CPUs

CPU	CPU 312C [1]	CPU 313C [1]	CPU 313C-2 PtP	CPU 313C-2 DP [1]	CPU 314C-2 PtP	CPU 314C-2 DP [1]
Dimensions (mm)	80 x 125 x 130	120 x 125 x 130			120 x 125 x 130	
Required front connector	1 x 40-pin	2 x 40-pin	1 x 40-pin		2 x 40-pin	
Order No. group: 6ES7	312-5BE.	313-5BF.	313-6BF.	313-6CF.	314-6BG.	314-6CG.
Memory						
RAM	32 KB	64 KB			96 KB	
Instructions	10 K	21 K			32 K	
Execution times						
Bit operation	0.2 µs	0.1 µs			0.1 µs	
Word operations/fixed-point operations/floating-point operations	0.4/5/6 µs	0.2/2/3 µs			0.2/2/3 µs	
Bit memories/timers/counters						
Bit memories	128 byte	256 byte			256 byte	
S7 timers/counters	128/128	256/256			256/256	
IEC timers/counters	■	■			■	
Address areas						
I/O (bytes)	1024/1024	1024/1024	1024/1024		1024/1024	
Process I/O image	128/128 bytes	128/128 bytes	128/128 bytes		128/128 bytes	
Digital channels (central)	266	1016	1008		1016	
Analog channels (central)	64	253	248		253	
Integrated functions						
Counter (incremental enc.)	2 incr.enc., 24 V/10 kHz	3 incr.enc., 24 V/30 kHz			4 incr.enc., 24 V/60 kHz	
Pulse outputs (PCM)	2 channels, max. 2.5 kHz	3 channels, max. 2.5 kHz			4 channels, max. 2.5 kHz	
Frequency counting	2 channels, max. 10 kHz	3 channels max. 30 kHz			4 channels max. 60 kHz	
Open-loop positioning					SFB for positioning, 1 axis via 2 DO, AO	
Integrated "Controlling" FB	PID controller	PID controller			PID controller	
Integrated I/O						
Digital inputs	10 x 24 V DC; all channels can be used for process interrupts	24 x 24 V DC; all channels can be used for process interrupts	16 x 24 V DC; all channels can be used for process interrupts		24 x 24 V DC; all channels can be used for process interrupts	
Digital outputs	6 x 24 VDC, 0.5 A	16 x 24 V DC, 0.5 A	16 x 24 VDC, 0.5 A		16 x 24 VDC, 0.5 A	
Analog inputs		4: ± 10 V, 0..10 V, ± 20mA, 0/4..20 mA; 1: 0..600 Ω, PT100			4: ± 10 V, 0..10 V, ± 20 mA, 0/4..20 mA; 1: 0..600 Ω, PT100	
Analog outputs		2: ± 10 V, 0..10 V, ± 20 mA, 0/4..20 mA			2: ± 10 V, 0..10 V, ± 20 mA, 0/4.-20 mA	
DP interface						
DP master systems int./ CP 342-5	–/ n	–/ n	–/ n	■ / n	–/ n	■ / n
DP slave				■		■
PtP interface						
Properties			RS485/422		RS485/422	
Protocol driver			3964 (R), RK512, ASCII		3964 (R), RK512, ASCII	

[1] as SIPLUS component also for extended temperature range -25 to +60°C and corrosive atmosphere/condensation (www.siemens.com/siplus)

Technical data for failsafe CPUs

Fail-safe CPU	CPU 315F-2 DP [1]	CPU 315F-2 PN/DP	CPU 317F-2 DP [1]	CPU 317F-2 PN/DP	CPU 319F-3 PN/DP
Dimensions (mm)	40 x 125 x 130	80 x 125 x 130	80 x 125 x 130		120 x125 x130
Order No. group: 6ES7	315-6FF.	315-2FH.	317-6FF.	317-2FK.	318-3FL.
Memory					
RAM	192 KB	256 KB	1 MB		1.4 MB
Instructions	36 K (F instr.)	50 K (F instr.)	200 K (F instructions)		280 K (F instr.)
Execution times					
Bit operation	0.1 µs		0.05 µs		0.01 µs
Word operation	0.2 µs		0.2 µs		0.02 µs
Fixed-point operation	2 µs		0.2 µs		0.02 µs
Floating-point operation	3 µs		1 µs		0.04 µs
Bit memories/timers/counters					
Bit memories	2048 byte		4096 byte		8182 byte
S7 timers/S7 counters	256/256		512/512		2048/2048
IEC timers/IEC counters	■		■		n
Address areas					
I/O (bytes)	2048/2048		8192/8192	8192/8192	8192/8192
I/O process image (bytes)	128/128		256/256	2048/2048	2048/2048
Digital channels (central)	1024		1024	1024	1024
Analog channels (central)	256		256	256	256
DP interfaces					
DP master systems inter-nally/CP	■ / n		■ / n		■ / n
DP slave	■		■		n
PROFINET interface					
PROFINET CBA		■		■	■
PROFINET IO		■		■	■
TCP/IP		■		■	■
UDP		■		■	■
ISO-on-TCP (RFC 1006)		■		■	■
Web Server		■		■	■

[1] as SIPLUS component also for extended temperature range -25 to +60°C and corrosive atmosphere/condensation (www.siemens.com/siplus)

Technical data technology CPUs

Technology CPU	CPU 315T-2 DP	CPU 317T-2 DP
Dimensions	160 x 125 x 130	160 x 125 x 130
Required front connector	1 x 40-pin	1 x 40-pin
Order No. group: 6ES7	315-6TG.	317-6TJ.
Memory		
RAM	128 KB	512 KB
Instructions	42 K	170 K
Execution times		
Bit operation	0.1 µs	0.05 µs
Word operations/fixed-point operations/floating-point operations	0.2/2/3 µs	0.2/0.2/1 µs
Bit memories/timers/counters		
Bit memories	4096 byte	4096 byte
S7 timers/S7 counters	256/256	512/512
IEC timers/IEC counters	■	■
Address areas		
I/O address area	2048/2048 bytes	8192/8192 bytes
Process I/O image	128/128 bytes	256/256 bytes
Digital channels (central)	256	256
Analog channels (central)	64	64
DP interfaces		
DP master systems internal / CP 342-5	■ / n	■ / ■
DP slave	■	■
Integrated I/O		
Digital inputs	4 x 24 V DC; for BERO evaluation, for example	
Digital outputs	8 x 24 V DC, 0.5 A: for high-speed cam switching functions	
Integrated functions	Gearbox synchronism and curve synchronism Travel to fixed stop Registration mark correction via measuring probe Path- or time-dependent cam switching Controlled positioning	

Module range

The multi-facetted module range of S7-300 allows modular customization to suit the most varied tasks. S7-300 supports multi-facetted technological tasks and offers exhaustive communication options. Apart from the CPUs with integrated functions and interfaces, there is a wide range of special modules in S7-300 design for technology and communication.

Technology

Function modules are intelligent assemblies that independently run the technological tasks and thus reduce the burden on the CPU. They are used when a high level of accuracy and dynamis response is required.
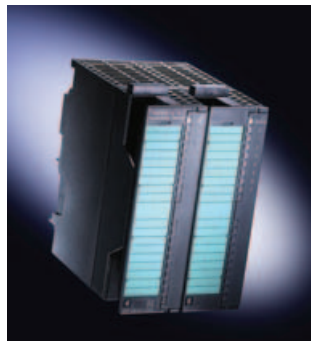
Controller module FM 355-2

Communication

Communication processors are used for connecting S7-300 to the different bus systems / communication networks as well for point-to-point coupling.

CP 343-1 communications processor

Function modules

Technological function	Channels / Axes	Module
Counting, measuring, proportioning, position detection (incremental)	1	FM 350-1
Counting, measuring, proportioning	8	FM 350-2 [3]
Cam controls	1	FM 352
High-speed binary logic operations	1	FM 352-2
PID control (continuous)	4	FM 355C
PID control (step/impulse)	4	FM 355S
Temperature control (continuous)	4	FM 355-2C
Temperature control (step/impulse)	4	FM 355-2S
Positioning (rapid traverse/creep feed)	2	FM 351
Position detection (SSI)	3	SM 338
Positioning (with stepper drives)	1	FM 353
Positioning (with servo drives)	1	FM 354
Positioning, path control, interpolation, synchronization	4	FM 357-2
Isochronous connection of drives via PROFIBUS	4	IM 174

Communications processors

Bus system / communication network	Module
AS-Interface (master) [2]	CP 343-2 CP 343-2 P
PROFIBUS DP [2]	CP 342-5
	CP 342-5 FO (for fiber-optic conductors)
PROFIBUS FMS [2]	CP 343-5
PROFINET / Industrial Ethernet [2]	CP 343-1 Lean
	CP 343-1
	CP 343-1 Advanced (with IT functionality)[1]
Point-to-point communication	CP 340 [4] CP 341 [4]
WAN	TIM 3V-IE TIM 3V-IE Advanced

[1] IT functionality offers

- Creation of proprietary Web pages with any HTML tool, with simple assignment of the process variables of the S7 to the HTML objects
- Monitoring of the S7 via Web pages with a standard browser
- Sending of e-mails from the user program of the S7 through function calls
- Remote programming, maintenance and diagnostics via the telephone system (e.g. ISDN)

Further information can be found in the brochure SIMATIC Technology or on the Internet at www.siemens.com/simatic-technology

[2] *Further information can be found in the brochure Industrial Communication for Automation and on the Internet under www.siemens.com/automation/simatic-net*

[3] as SIPLUS component also for corrosive atmosphere/condensation (www.siemens.com/siplus)

[4] as SIPLUS component also for extended temperature range -25 to +60°C and corrosive atmosphere/condensation

Point-to-point communication

Point-to-point connection via communications processors (CPs) is an extremely powerful and low-cost alternative to bus systems. The advantage of point-to-point connections over bus systems is especially pronounced when only a few (RS 485) devices are to be connected to the SIMATIC S7.
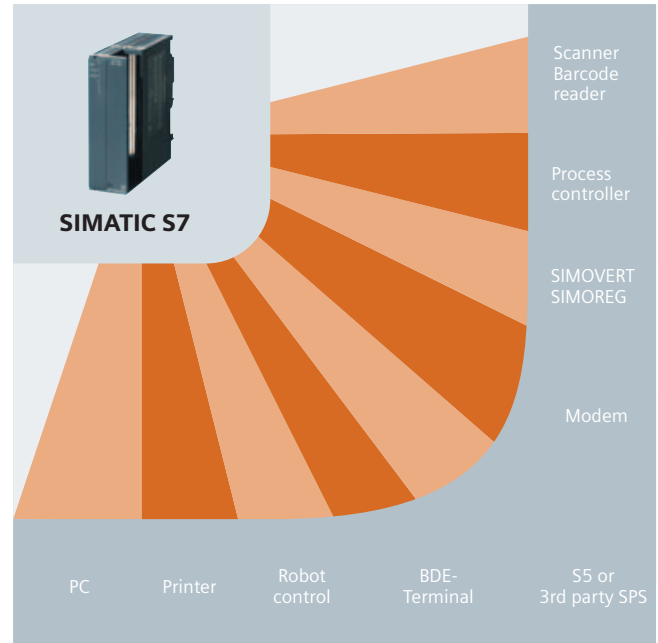
The CPs can also economically connect third-party systems to the SIMATIC S7. Thanks to the great flexibility of the CPs different physical transmission media, speeds or even customized transmission protocols can be implemented.

The CPs have a rugged plastic housing with LEDs for displaying operating states and faults.

For each CP, there is a configuring package on CD with electronic manual, parameterization screen forms and standard function blocks for communication between the CPU and the CP.

The configuring data are stored in a system data block stored in the CPU. When modules are replaced, the new module is therefore immediately ready for use.

The interface modules for the S7-300 are available in three versions, each with one interface for the different physical transmission media.

SIMATIC S7

Scanner
Barcode reader

Process controller

SIMOVERT SIMOREG

Modem

PC   Printer   Robot control   BDE-Terminal   S5 or 3rd party SPS

Point-to-point connections for SIMATIC S7-300

Technical specifications
Point-to-point communication

Application	Low-cost entry version	Powerful computer connection, loadable protocols
Transmission rate	Low (19200 bit/s)	High (76800 bit/s)
Loadable protocols		MODBUS master (6ES7340-1AA.), MODBUS slave (6ES7340-1AB.), Data highway (6ES7340-1AE.)
Module	**CP 340**	**CP 341**
Order No. group: 6ES7	340-1.	341-1.
Physical transmission media		
RS 232C (V.24)	CP 340-1A	CP 341-1A
20 mA (TTY)	CP 340-1B	CP 341-1B
RS 422/485 (X.27)	CP 340-1C	CP 341-1C
Integrated transmission protocols		
ASCII	■	■
Printer driver	■	■
3964 (R)	■	■
RK 512		■

Overview of point-to-point connections for S7-300

Module range

Signal modules

Signal modules are the interface of the SIMATIC S7-300 to the process. A host of different digital and analog modules provide exactly the inputs/outputs required for each task.

Digital and analog modules differ as regards the number of channels, voltage and current ranges, electrical isolation, diagnostics and alarm functions, etc.

In all the series of modules mentioned here, SIPLUS component are also available for the extended temperature range -25 to +60°C and corrosive atmosphere/condensation (www.siemens.com/siplus)

Easy installation

The sensors/actuators are connected through front connectors. These are available for the following connection technologies:

- Screw connection
- Spring loaded
- NEW Fast Connect (insulation displacement technology)

When a module is replaced, the connector is simply plugged to the new module of the same type; the wiring is retained. The coding of the front connector avoids mistakes.

Fast connection

Connection with SIMATIC TOP connect is even simpler and faster (not for the onboard I/O of the compact CPUs). Preas-sembled front connectors with single cores and a complete plug-in modular system comprising a front connector module, connecting cable and terminal block are available.

High packing density

The high number of channels on the modules provides for the space-saving design of the S7-300. Modules are available with 8 to 32 channels (digital) or 2 to 8 channels (analog) per module.

Simple parameterization

The modules are configured and parameterized using STEP 7, and there are no inconvenient switch settings to be made. The data are stored centrally and, following module replacement, they are automatically transferred to the new module so there are no setting errors. No software upgrade is required when using new modules. A configuration can be copied as often as required, e.g. for standard machines.

Diagnostics, interrupts

Many modules additionally monitor signal acquisition (diagnostics) and the signals from the process (process interrupt). This makes it possible to react immediately to process errors, e.g. wire breaks or short circuits, and any process event, e.g. rising or falling edge at a digital input. The response of the controller can easily be parameterized in STEP 7.
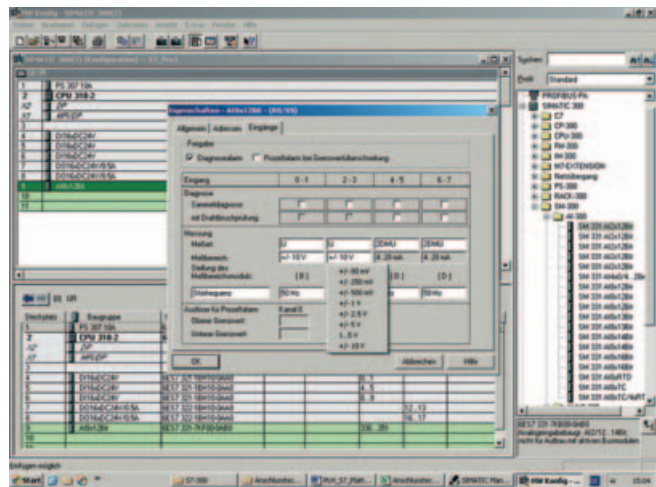
Parameterization of an analog input module

Special modules

For test and simulation, the simulation module can be plugged into the S7-300. It enables simulation of encoder signals via switches and indicates output signals via LEDs.

The module can be plugged in anywhere regardless of slot rules. The dummy module reserves a slot for an unconfigured signal module. When the module is installed later, the mechanical configuration and address assignment of the overall configuration remain unchanged.

On the following pages you will find criteria for selecting the appropriate signal module for each application.

Digital inputs

Module	Voltage range	Number of channels
SM 321	24 VDC	16, 32, **64** NEW
SM 321	48 to 125 VDC	16
SM 321	24/48 VUC	16
SM 321	120-230 VAC	8, 16, 32

Digital inputs/outputs

Module	Voltage range	Number of channels
SM 323	24 VDC	8 or 16 DI and DO
SM 327	24 VDC	8 DI and 8 DX (parameterized as input or output)

Digital outputs

Module	Voltage range	Current range	Number of channels
SM 322	24 VDC	0.5A	8, 16, **32, 64** NEW
SM 322	24 VDC	2A	8
SM 322	48 to 125 VDC	1.5A	8
SM 322	120/230 VAC	1A	8, 16, 32
SM 322	120/230 VAC	2A	8
SM 322	UC (relay)	0.5A-5A	8, 16

Analog inputs

Module	Range of measurement	Resolution	Number of channels
SM 331	Voltage	Up to 16 bits	2, 8
SM 331	Current (also HART)	Up to 16 bits	2, 8
SM 331	Resistance	Up to 16 bits	1, 4, 8
SM 331	Thermocouple elements	Up to 16 bits	2, 8
SM 331	Resistance thermometer	Up to 15 bit	1, 4, 8

Analog inputs/outputs

Module	Range of measurement	Resolution	Number of channels
SM 334	Voltage	Up to 13 bit	2, 4
SM 334	Current	8 bits	4
SM 334	Resistance	13 bits	4
SM 334	Resistance thermometer	15 Bit	4
SM 335	Voltage	14 bits	4
SM 335	Current	14 bits	4

Analog outputs

Module	Range of measurement	Resolution	Number of channels
SM 332	Voltage	Up to 16 bits	2, 4, 8
SM 332	Current (also HART)	Up to 16 bits	2, 4, 8

You can find detailed information on S7-300 signal modules in the appendix.

Signal module SM 332-1