ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Siemens 6ES7 315-2AF03-0AB0* at our website: *Click HERE*

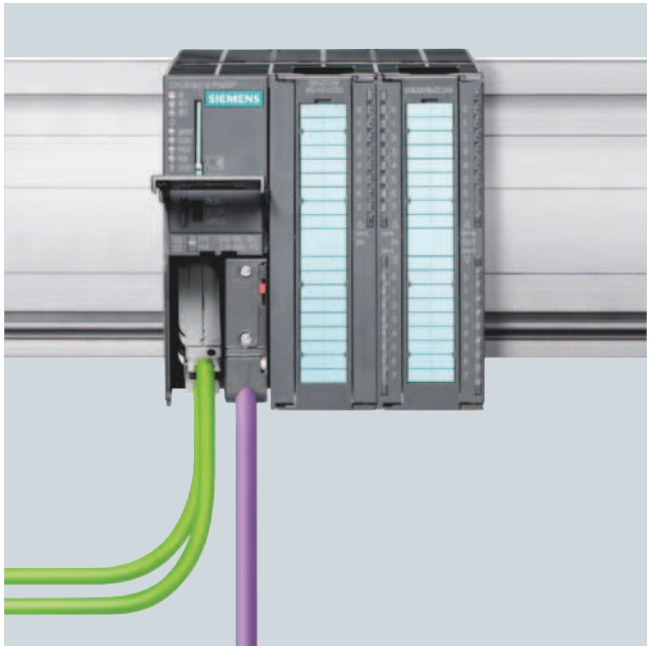
© Siemens AG 2011

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 CPU 314C-2 PN/DP - the new PROFINET-capable compact CPU for the manufacturing industry with PROFINET and PROFIBUS interfaces

New for SIMATIC S7-300

The SIMATIC S7-300 is subject to a continuous development process – especially in the area of CPUs. The PROFINET-capable, compact CPU 314C-2 PN/DP with 192 KB memory and 0.06 µs per bit operation is completely new, as well as the familiar technology functions and onboard IOs. From firmware version V3.2, the PN CPUs are capable of processing all the new PROFINET functions, e.g. I-Device, Shared Device, MRP (Media Redundant Protocol), IRT (Isochronous Real-Time) and user-defined web pages. All the compact CPUs as well as the CPU 317F-2DP have been redesigned: with a new firmware version, more work memory and shorter execution times.

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. The Micro Memory Card can also 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 of the S7-300 components are also available in a SIPLUS extreme version for extreme environmental conditions, e.g. extended temperature range (-40/-25 ... +60/+70 °C) and for use where there is corrosive atmosphere/condensation.
  For further information, see page 102 or
  www.siemens.com/siplus-extreme

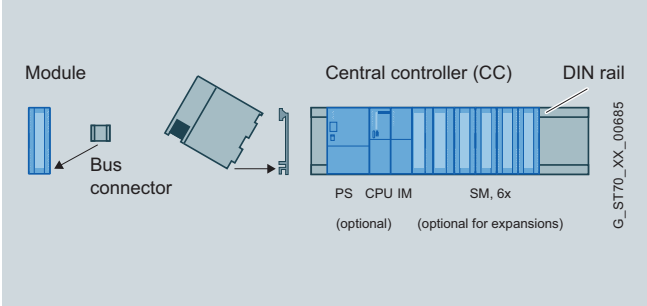
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

© Siemens AG 2011

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 varied range of the S7-300 can also be used for central expansions or the construction of distributed structures with ET 200M; thereby producing very cost-effective spare parts handling.



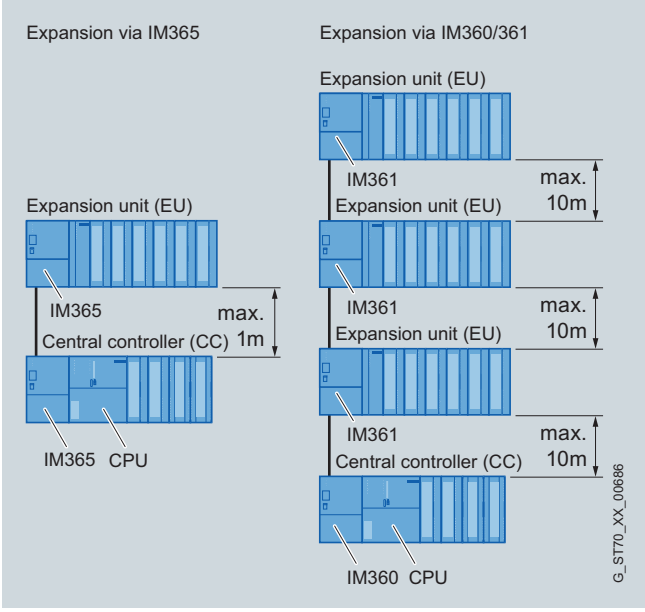
Structure of the S7-300: space-saving, modular and simple

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, 65 536 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 I/O system that has the same construction as the S7-300 can be connected via Interface modules not only to PROFIBUS but also to PROFINET.



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

Components for SIMATIC S7-300			
	Component	**Special feature**	**Order No. group**
Racks	Mounting rail	160 to 2 000 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)	120/230 V AC	6ES7 307-1BA..
	PS 305 (2 A) [1]	24-110 V DC	6ES7 305-1BA..
	PS 307 (5 A) [1]	120/230 V AC	6ES7 307-1EA..
	PS 307 (10 A) [1]	120/230 V AC	6ES7 307-1KA..

[1] As SIPLUS extreme component also for extended temperature range -25 ... +70 °C and corrosive atmosphere/condensation (for further details, see page 102 or **www.siemens.com/siplus-extreme**)

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

© Siemens AG 2011

CPU range

Standard CPUs

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.



Portfolio of standard CPUs from 312 to 319-3 PN/DP

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.

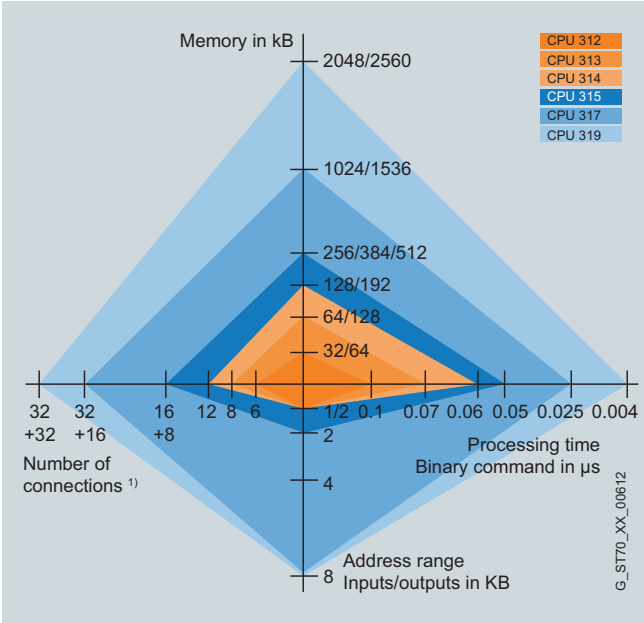
Compact CPUs

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.

The PROFINET-capable, compact CPU 314C-2 PN/DP is the PROFINET-capable controller in the performance class below the CPU 315.



Portfolio of compact CPUs from 312C to 314C-2 PN/DP



Six performance classes of the S7-300 CPUs (firmware V3.x and higher)

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, 16 or 32 (CPU 319) additional connections for TCP/IP, UDP, and ISO-on-TCP.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

© Siemens AG 2011

Application cases for compact controllers

- High-speed counting/measuring with direct access to the hardware counter
- Simple positioning with direct control of the MICROMASTER 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.

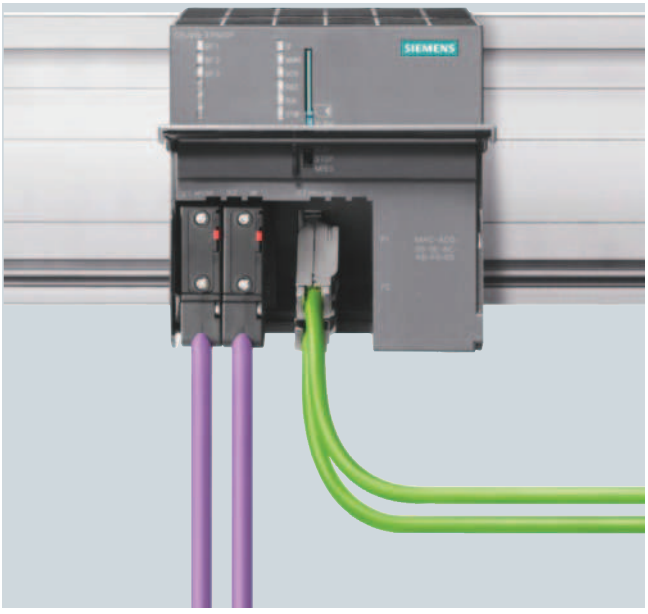
The system-tested Micro Memory Card allows more write cycles than conventional memory cards and offers know-how protection because the serial number can be read out by the program.

Useful additional functions of the Micro Memory Card:

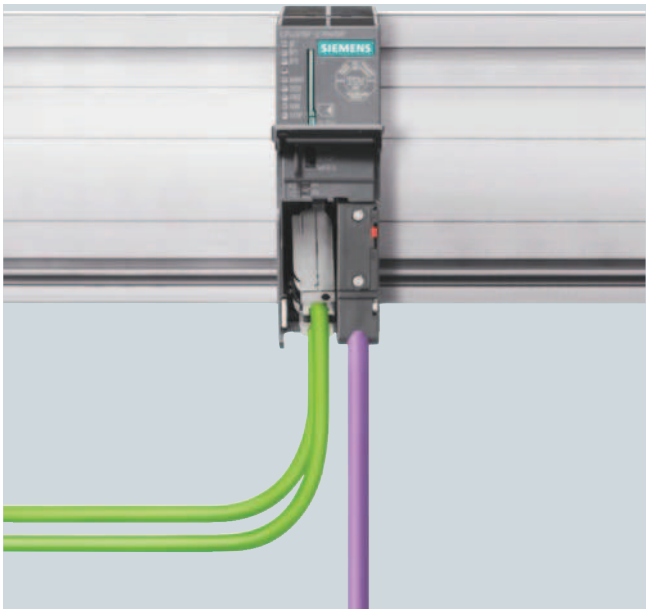
- Simpler and faster upgrade due to firmware update via network.
- Resetting of all settings to the factory settings using the hardware switch (Reset to Factory)
- Online view of two blocks
  - Status of two blocks simultaneously on one PG
  - Status of one block on two PGs simultaneously



Standard-CPU 315-2 DP



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



Fail-safe CPU 315F-2 PN/DP with integrated PROFINET and PROFIBUS interface

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

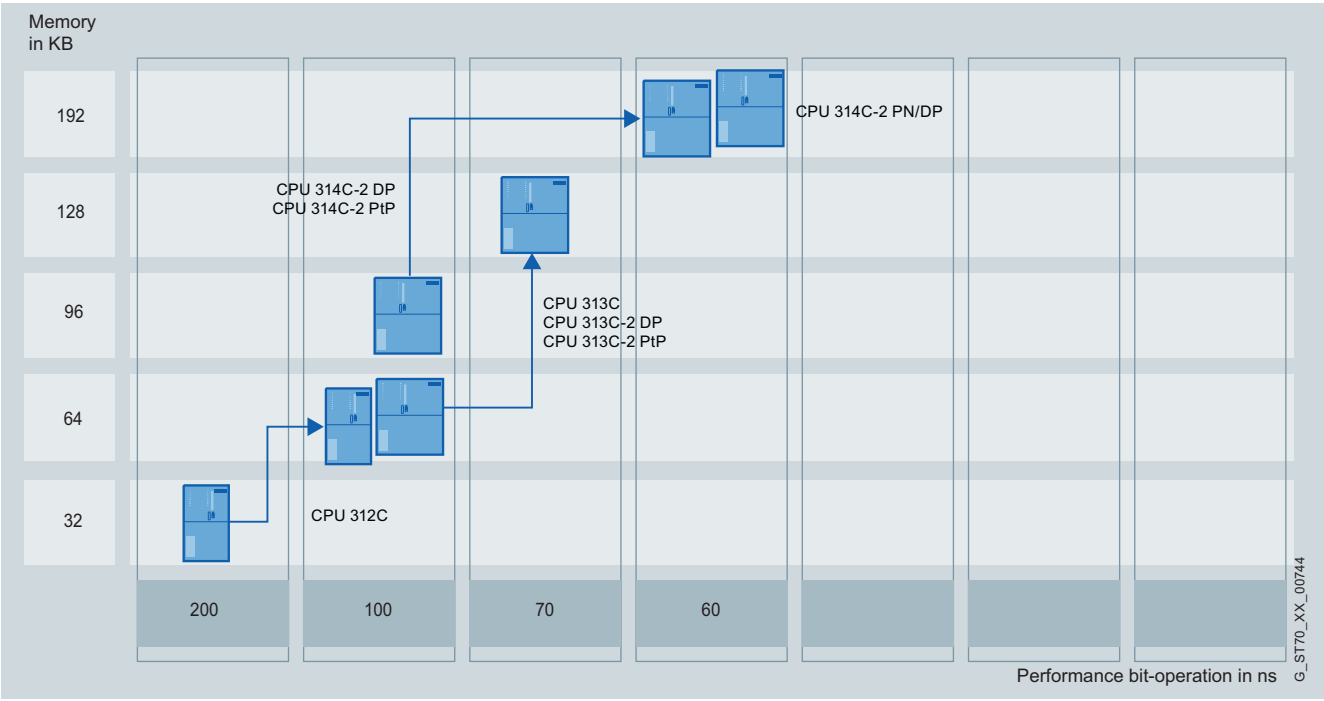
© Siemens AG 2011

CPU range

Version	CPU	Isochronous mode on PROFIBUS/ PROFINET	Integrated interfaces	Integrated I/O	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 [2]		
Compact CPUs					
	CPU 312C [1]		MPI	Digital	• Counting • Rules • Frequency measurement • Pulse width modulation • Pulse generator
	CPU 313C [1]		MPI	Digital, analog	
	CPU 313C-2 PtP		MPI, PtP	Digital	
	CPU 313C-2 DP [1]		MPI, DP	Digital	
	CPU 314C-2 PtP[1]		MPI, PtP	Digital, analog	As above, and additionally • Positioning
	CPU 314C-2 DP [1]		MPI, DP	Digital, analog	
	CPU 314C-2 PN/DP	● / ●	DP/MPI, PROFINET	Digital, analog	
Fail-safe CPUs					
	CPU 315F-2 DP [1]	● / –	MPI, DP		Fail safety with PROFIsafe profile
	CPU 315F-2 PN/DP [1]	● / ●	DP/MPI, PROFINET		
	CPU 317F-2 DP [1]	● / –	DP/MPI, DP		
	CPU 317F-2 PN/DP [1]	● / ●	DP/MPI, PROFINET		
	CPU 319F-3 PN/DP	● / ●	DP/MPI, DP, PROFINET [2]		
Technology CPUs					
	CPU 315T-2 DP	● / –	DP/MPI, DP(DRIVE)	Digital	• Synchronous operation • Traversing to fixed stop • Pressure mark correction • Cam control • Controlled positioning
	CPU 317T-2 DP	● / –	DP/MPI, DP(DRIVE)	Digital	
	CPU 317TF-2 DP	● / –	DP/MPI, DP(DRIVE)	Digital	

[1] As SIPLUS extreme component also for extended temperature range -25 ... +60/+70 °C and corrosive atmosphere/condensation (for further details, see page 102 or **www.siemens.com/siplus-extreme**)

[2] Two PN ports (switch)



The graphic shows the innovations of the compact CPUs. They have twice as much memory capacity and shorter processing times. The CPUs with point-to-point or PROFIBUS communication in the 313C series are no longer 120 mm but only 80 mm wide.

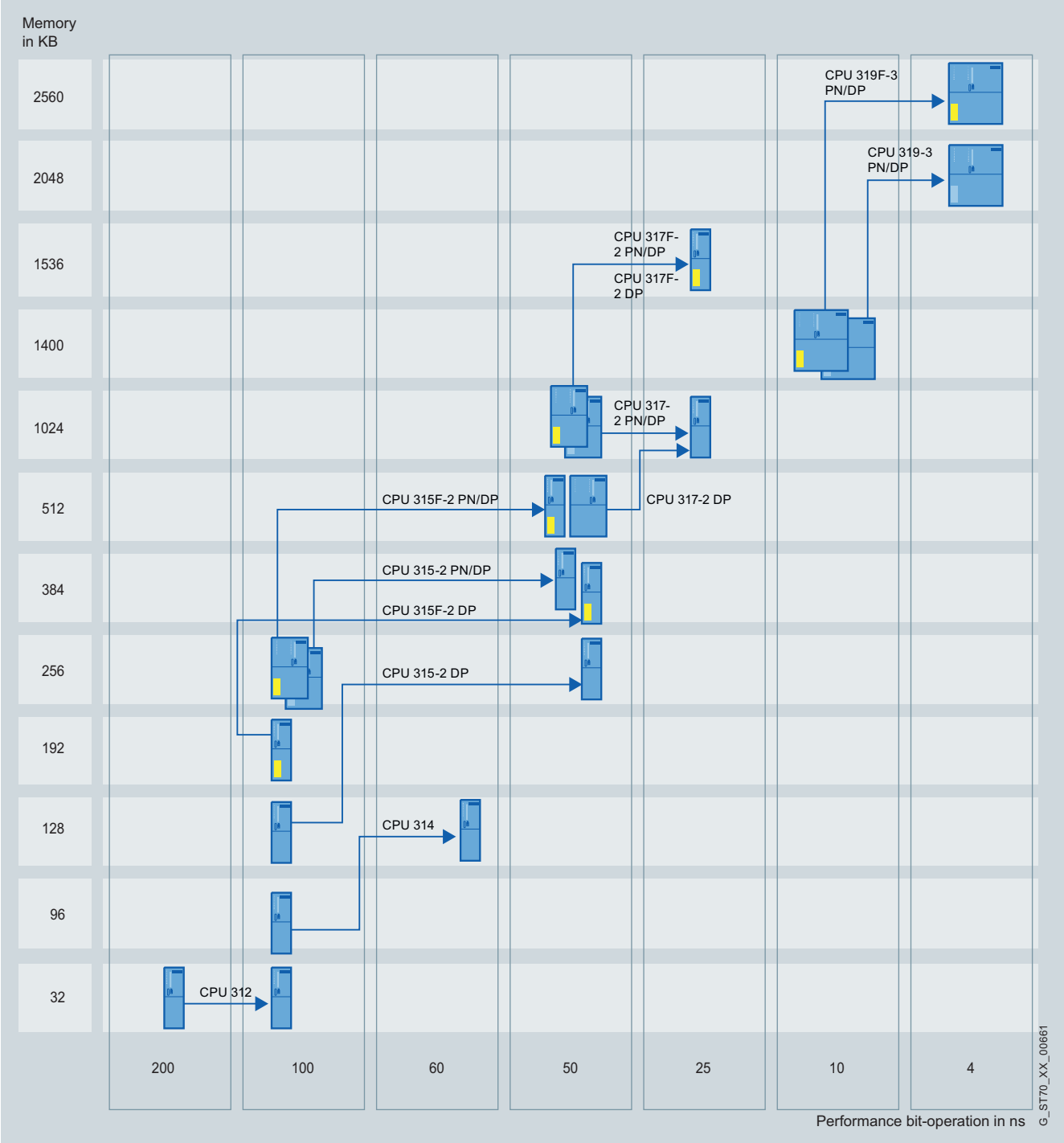
Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

© Siemens AG 2011

Memory and performance innovations of the S7-300 CPUs

The following graphic shows the standard and fail-safe CPU innovations. They have an increased memory capacity and/or shorter processing times.

The CPUs 315-2 PN/DP, 317-2 DP, 317-2 PN/DP and the corresponding fail-safe versions are only 40 mm wide. Furthermore, all PROFINET CPUs feature two PN ports.



Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

© Siemens AG 2011

Technical data: 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	40 x 125 x 130	40 x 125 x 130	40 x 125 x 130	40 x 125 x 130	120 x 125 x 130
Order No. group: 6ES7	312-1AE.	314-1AG.	315-2AH.	315-2EH.	317-2AK.	317-2EK.	318-3EL.
Firmware	V3.3			V3.2	V3.3	V3.2	V3.2
Memory							
Work memory	32 KB	128 KB	256 KB	384 KB	1 MB	1 MB	2 MB
Instructions	10 K	42 K	85 K	128 K	340 K	340 K	680 K
Processing times							
Bit operation	0.1 µs	0.06 µs	0.05 µs		0.025 µs	0.025 µs	0.004 µs
Word operation	0.24 µs	0.12 µs	0.09 µs		0.03 µs	0.03 µs	0.01 µs
Fixed-point operation	0.32 µs	0.16 µs	0.12 µs		0.04 µs	0.04 µs	0.01 µs
Floating-point operation	1.1 µs	0.59 µs	0.45 µs		0.16 µs	0.16 µs	0.04 µs
Bit memories/timers/counters							
Bit memory	256 bytes		2 048 bytes		4 096 bytes		8 192 bytes
S7 timers/counters	256 / 256				512 / 512		2 048 / 2 048
IEC timers/counters	● *)						
Address ranges							
Number of I/Os (bytes)	1 024 / 1 024		2 048 / 2 048		8 192 / 8 192		
Process image I/O (bytes), max.	1 024 / 1 024		2 048 / 2 048		8 192 / 8 192		
Digital channels (central)	256	1 024					
Analog channels (central)	64	256					
DP interfaces							
DP master systems internal / CP 342-5	○ / ●		● / ●				
DP slaves			●				
Data set gateway [2]			●	●	●	●	
PROFINET interface							
PROFINET CBA				●		●	
PROFINET IO				●		●	
PROFINET with IRT				● [3]		● [3]	
Open User Communication (OUC)							
• TCP/IP				●		●	
• UDP				●		●	
• ISO-on-TCP (RFC 1006)				●		●	
Web server				●		●	

[1] As SIPLUS extreme component also for extended temperature range -25 ... +60/+70 °C and corrosive atmosphere/condensation (for further details, see page 102 or **www.siemens.com/siplus-extreme**)

[2] For explanation, see page 56 bottom right

*) Via SFB, number unlimited or limited by main memory

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

© Siemens AG 2011

Technical data: Compact CPUs

CPU	CPU 312C [1]	CPU 313C [1]	CPU 313C-2 PtP	CPU 313C-2 DP [1]	CPU 314C-2 PtP [1]	CPU 314C-2 DP [1]	CPU 314C-2 PN/DP
Dimensions (mm)	80 x 125 x 130	120 x 125 x 130	80 x 125 x 130	80 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	312-5BF.	313-5BG.	313-6BG.	313-6CG.	314-6BH.	314-6CH.	314-6EH.
Firmware	V3.3	V3.3	V3.3	V3.3	V3.3	V3.3	V3.3
Memory							
Work memory	64 KB	128 KB			192 KB		
Instructions	21 K	42 K			64 K		
Processing times							
Bit operation	0.1 µs	0.07 µs			0.06 µs		
Word operations	0.24 µs	0,15 µs			0.12 µs		
Fixed-point operations	0.32 µs	0.2 µs			0.16 µs		
Floating-point operations	1.1 µs	0.72 µs			0.59 µs		
Bit memories/timers/counters							
Bit memory	256 bytes						
S7 timers/counters	256 / 256						
IEC timers/counters	● *)						
Address ranges							
Number of I/Os (bytes)	1 024 / 1 024			2 048 / 2 048	1 024 / 1 024	2 048 / 2 048	
I/O process image	1 024 / 1 024			2 048 / 2 048	1 024 / 1 024	2 048 / 2 048	
Digital channels (central)	266	1 016	1 008		1 016		
Analog channels (central)	64	253	248		253		
Integrated functions							
Counter (incremental enc.)	2, 24 V/10 kHz	3, 24 V/30 kHz			4, 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 measurement	2 channels max. 10 kHz	3 channels, max. 30 kHz			4 channels max. 60 kHz		
Controlled positioning					SFB for positioning, 1 axis via 2 DO, AO		
Integrated "Control" FB		PID controllers					
Integrated inputs/outputs							
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 V DC, 0.5 A	16 x 24 V DC, 0.5 A					
Analog inputs		4 : ± 10 V, 0 ... 10 V, ± 20 mA, 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	○ / ●			● / ●	○ / ●	● / ●	● / ●
DP slave				●		●	●
Data set gateway [2]				●		●	●
PROFINET interface							
PROFINET CBA							●
PROFINET IO							●
PROFINET with IRT							●
Open User Communication (OUC)							
• TCP/IP							●
• UDP							●
• ISO-on-TCP (RFC 1006)							●
Web server							●
PtP interface							
Physics			RS485/422		RS485/422		
Protocol driver			3964 (R), RK512, ASCII		3964 (R), RK512, ASCII		

[1] As SIPLUS extreme component also for extended temperature range -25 ...+60/+70 °C and corrosive atmosphere/condensation (for further details, see page 102 or www.siemens.com/siplus-extreme)
[2] For explanation, see page 56 bottom right *) Via SFB, number unlimited or limited by main memory

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

© Siemens AG 2011

Technical data: Fail-safe CPUs

Fail-safe CPU	CPU 315F-2 DP [1]	CPU 315F-2 [1] PN/DP	CPU 317F-2 DP [1]	CPU 317F-2 [1] PN/DP	CPU 319F-3 PN/DP
Dimensions (mm)	40 x 125 x 130		40 x 125 x 130	40 x 125 x 130	120 x125 x130
Order No. group: 6ES7	315-6FF.	315-2FJ.	317-6FF.	317-2FK.	318-3FL.
Firmware	V3.3	V3.2 [3]	V3.3	V3.2 [3]	V3.2 [3]
Memory					
Work memory	384 KB	512 KB	1.5 MB	1.5 MB	2.5 MB
Processing times					
Bit operation	0.05 µs		0.025 µs	0.025 µs	0.004 µs
Word operation	0.09 µs		0.03 µs	0.03 µs	0.01 µs
Fixed-point operation	0.12 µs		0.04 µs	0.04 µs	0.01 µs
Floating-point operation	0.45 µs		0.16 µs	0.16 µs	0.04 µs
Bit memories/timers/counters					
Bit memory	2 048 bytes		4 096 bytes		8 182 bytes
S7 timers/S7 counters	256 / 256		512 / 512		2 048 / 2 048
IEC timers/IEC counters	● *)				
Address ranges					
Number of I/Os (bytes)	2 048 / 2 048		8 192 / 8 192		
Process image I/O (bytes), max.	2 048 / 2 048		8 192 / 8 192		
Digital channels (central)	1 024				
Analog channels (central)	256				
DP interfaces					
DP master systems (int./CP)	● / ●				
DP slave	●				
Data set gateway [2]		●	●	●	
PROFINET interface					
PROFINET CBA		●		●	
PROFINET IO		●		●	
PROFINET with IRT		●		●	
Open User Communication (OUC)					
• TCP/IP		●		●	
• UDP		●		●	
• ISO-on-TCP (RFC 1006)		●		●	
Web server		●		●	

[1] As SIPLUS extreme component also for extended temperature range -25 ... +60/+70 °C and corrosive atmosphere/condensation (for further details, see page 102 or **www.siemens.com/siplus-extreme**)

[2] Explanation, see page 56 bottom right

[3] Available soon

*) Via SFB, number unlimited or limited only by main memory

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

© Siemens AG 2011

Technical data: Technology CPUs

Technology CPU	CPU 315T-2 DP	CPU 317T-2 DP	CPU 317TF-2 DP
Dimensions	160 x 125 x 130		
Required front connector	1 x 40-pin		
Order No. group:			
- CPU 6ES7	315-6TH.	317-6TK.	317-6TF.
- S7-Technology 6ES7	864-1CC.		
Memory			
Work memory	256 KB	1 MB	1.5 MB
Instructions	84 K	333 K	400 K
Processing times			
Bit operation	0.1 µs	0.05 µs	
Word operation	0.2 µs		
Fixed-point operation	2 µs	0.2 µs	
Floating-point operation	3 µs	1 µs	
Bit memories/timers/counters			
Bit memory	4 096 bytes		
S7 timers/S7 counters	256 / 256	512 / 512	
IEC timers/IEC counters	● *)		
Address ranges			
I/O address area	2 048 / 2 048 bytes	8 192 / 8 192 bytes	
I/O process image	2 048 / 2 048 bytes		
Digital channels (central)	512		
Analog channels (central)	64		
DP interfaces			
DP master systems internal / CP 342-5	● / ●		
DP slave	●		
Integrated inputs/outputs			
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 Traversing to fixed stop Registration mark correction via measuring probe Path- or time-dependent cam switching Controlled positioning		
Fail-safety			●
Maximum quantity structure for technology			
Axes	8	32	
Cam disks	16	32	
Cams	16	32	
Measuring probes	8	16	
External encoders	8	16	
Used simultaneously	32	64	

*) Via SFB, number unlimited or limited only by main memory

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

© Siemens AG 2011

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 modules that independently execute the technological tasks and thus reduce the load on the CPU. They are used when a high level of accuracy and dynamic response is required.



Controller module FM 355-2

Communications

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



CP 343-1 Advanced communications processor with Gigabit interface

Function modules

Technological function	Channels / Axes	Module
Counting, measuring, proportioning, position detection (incremental)	1	FM 350-1 3)
Counting, measuring, proportioning	8	FM 350-2 2)
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) 1)	CP 343-2 CP 343-2 P
PROFIBUS DP 1)	CP 342-5 2) 3) CP 342-5 FO (for fiber-optic conductors)
PROFIBUS FMS 1)	CP 343-5
PROFINET/Industrial Ethernet 1)	CP 343-1 Lean 2) 3) CP 343-1 2) 3) CP 343-1 Advanced 2)
Point-to-point connection	CP 340 3) CP 341 3)
Wide Area Networks (WAN) for telecontrol	TIM 3V-IE 3) TIM 3V-IE Advanced

1) Further information can be found in the Industrial Communications brochure and on the Internet at **www.siemens.com/automation/simatic-net**

2) As SIPLUS extreme component also for corrosive atmosphere/condensation (for further details, see page 102 or **www.siemens.com/siplus-extreme**)

3) As SIPLUS extreme component also for extended temperature range -25 ... +60/+70 °C and corrosive atmosphere/condensation (for further details, see page 102 or **www.siemens.com/siplus-extreme**)

The CP 343-1 Advanced provides the following additional functions:

- HTTP communication for access to process data via user-configured web pages
- E-mail client function for sending of e-mails direct from the user program
- FTP communication for program-controlled FTP client communication as well as access to blocks via an FTP server
- Gigabit connection including IP routing functionality for network separation
- Access protection by means of IP access list

You can find further information in the SIMATIC Technology brochure and on the Internet at **www.siemens.com/simatic-technology**

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

© Siemens AG 2011

Point-to-point connection

Point-to-point link via communications processors (CPs) is an extremely powerful and low-cost alternative to bus systems. The advantage of point-to-point links over bus systems is especially pronounced when only a few (RS 485) devices are to be connected to the SIMATIC S7.

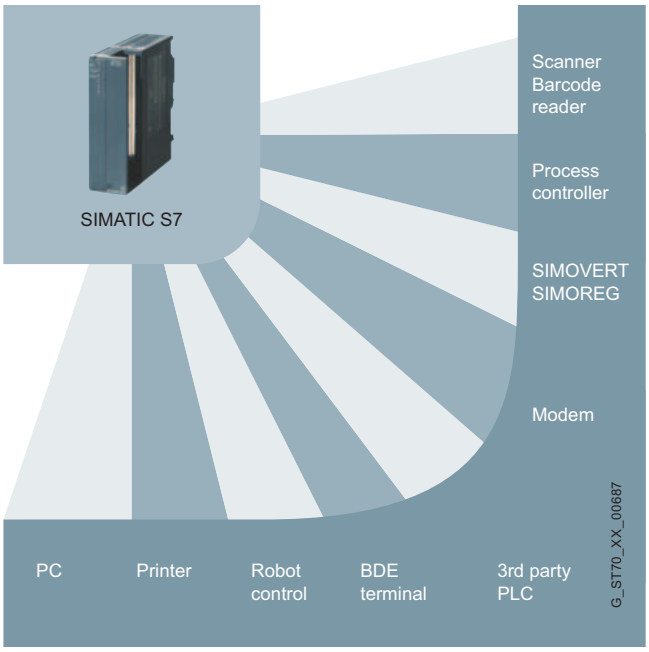
The CPs can also economically connect third-party systems to the SIMATIC S7. Thanks to the great flexibility of the CPs different physical transmission media, speeds or even customized transmission protocols can be implemented.

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 configuration data are stored in a system block and backed up 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.



Point-to-point links for SIMATIC S7-300

Technical data: Point-to-point connection		
Application	**Low-cost entry version**	**Powerful computer connection, loadable protocols**
Transmission rate	Low (19 200 bit/s)	High (76 800 bit/s)
Loadable protocols		MODBUS master (6ES7 340-1AA.), MODBUS slave (6ES7 340-1AB.), Data highway (6ES7 340-1AE.)
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 [1]	CP 341-1C [1]
Integrated transmission protocols		
ASCII	●	
Printer driver	●	
3964 (R)	●	
RK 512		●

[1] As SIPLUS extreme component also for extended temperature range -25 ... +60/+70 °C and corrosive atmosphere/condensation (for further details, see page 102 or **www.siemens.com/siplus-extreme**)

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

© Siemens AG 2011

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 module ranges listed here, SIPLUS extreme components are also available for extended temperature range -25 ... +60/+70 °C and corrosive atmosphere/condensation ((for further details, see page 102 or **www.siemens.com/siplus-extreme**). In addition, there are fail-safe modules for safety-oriented applications.

Easy installation

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

- Screw-type terminals
- Spring loaded
- Fast Connect (insulation displacement)

When a module is replaced, the connector is simply plugged into 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). Preassembled 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

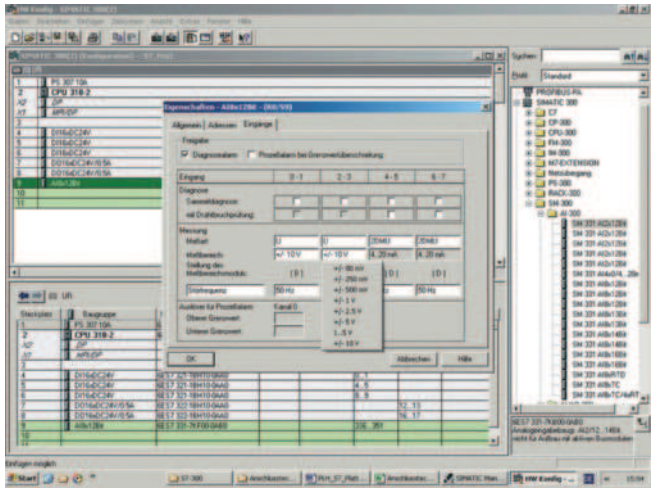
The high number of channels on the modules provides for the space-saving design of the S7-300. Modules are available with 8 to 64 channels (digital) or 2 to 8 channels (analog) per module.

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 that no setting errors can occur. No software upgrade is required when using new modules. A configuration can be copied as often as required, e.g. for series 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 programmed with 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 page you will find criteria for selecting the appropriate signal module for each application.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

© Siemens AG 2011

Digital inputs *)

Module	Voltage range	Number of channels
SM 321 1)	24 V DC	16, 32, 64
SM 321 3)	48 ... 125 V DC	16
SM 321	24/48 V UC	16
SM 321 2)	120/230 V AC	8, 16, 32

Digital inputs/outputs

Module	Voltage range	Number of channels
SM 323 2)	24 V DC	8 or 16 DI and DO
SM 327	24 V DC	8 DI and 8 DX (parameterized as input or output)

Digital outputs *)

Module	Voltage range	Current range	Number of channels
SM 322 5)	24 V DC	0.5 A	8, 16, 32, 64
SM 322 3)	24 V DC	2 A	8
SM 322 3)	48 ... 125 V DC	1.5 A	8
SM 322 3)	120/230 V AC	1 A	8, 16, 32
SM 322	120/230 V AC	2 A	8
SM 322	UC (relay)	0.5 A ... 5 A	8, 16

*) Fail-safe digital inputs, digital outputs and analog inputs available.

1) Available with 16 and 32 channels as SIPLUS extreme
2) Available with 8 channels as SIPLUS extreme
3) Available as SIPLUS extreme
4) Available with 2 and 4 channels as SIPLUS extreme
5) Available with 8, 16 and 32 channels as SIPLUS extreme
6) Available with 4 and 8 channels as SIPLUS extreme.
(For further details, see page 102 or **www.siemens.com/siplus-extreme**)

Analog inputs *)

Module	Measuring range	Resolution	Number of channels
SM 331 2)	Power	Up to 16 bit	2, 8
SM 331 2)	Current (also HART)	Up to 16 bit	2, 8
SM 331 2)	Resistance	Up to 16 bit	1, 4, 8
SM 331 2)	Thermocouples	Up to 16 bit	2, 6, 8
SM 331	Resistance thermometer	Up to 15 bits	1, 4, 8

Analog inputs/outputs

Module	Measuring range	Resolution	Number of channels
SM 334 4)	Power	Up to 13 bit	2, 4
SM 334 3)	Current	8 bit	4
SM 334 3)	Resistance	13 bit	4
SM 334 3)	Resistance thermometer	15 bit	4
SM 335 3)	Power	14 bit	4
SM 335 3)	Current	14 bit	4

Analog outputs

Module	Measuring range	Resolution	Number of channels
SM 332 6)	Power	Up to 16 bit	2, 4, 8
SM 332 2)	Current (also HART)	Up to 16 bit	2, 4, 8

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



Signal module SM 332-1

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP