systron® S 200 - S 250 - S 250c

✓ **45 mm width**
✓ **Flexible and expandable**
✓ **Easy to use software**
✓ **for bus connection (S 250/ S 250c)**

CPUs to the process modules

With these CPUs, the system works as a small modular PLC.
With its programming interface RS 232 the PLC is programmable with all PCs without need of a special interface.
Programming is done according to IEC 1131-3 with instruction list, function diagram or ladder diagram.
Program modules including counters, timers, PID loop controllers and many more are integrated in the operating system.

Stand-alone PLC

With S 200, the system works as a small, modular PLC.
Expandable with I/O modules, systron® PM is the solution for PLC applications where small mechanical size is critical.

Decentral intelligence at the fieldbus

Combining a bus module with a CPU S 250 or S 250c results in a fieldbus station with its own intelligence.

It is a slave at the bus, but able to process a separate program.
It is possible to preprocess data, to execute function parts, or to enable processes in case of bus failures.

Both CPUs can be used as stand-alone PLCs - for processes that require more complex performance.

S 250 and S 250c offer memory of 2 k instructions. S 250c additionally has indirect, retentive memory of over 6100 flag words - ideal in cases where a large data memory is needed.
S 250c additionally contains a real-time clock as a program module in its operating system.

Easy to use software according to IEC 1131-3
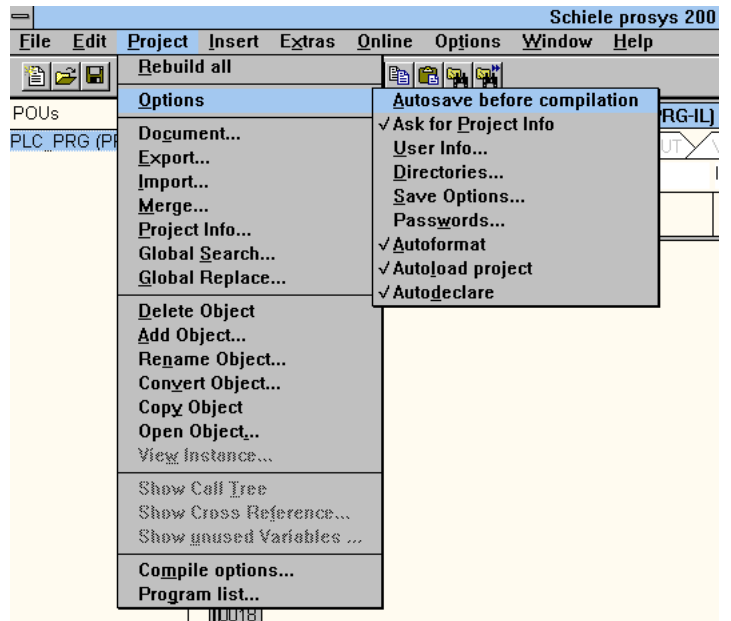
Programmable logic controller systron® S 200

CE

- Integrated EEPROM memory for 2048 instructions
- Expandable with up to 12 expansion modules systron® PM
- Programming interface RS 232
- High-speed counter input (max. 10 kHz)
- Electrical isolation between external supply, processor, programming interface and high-speed counter
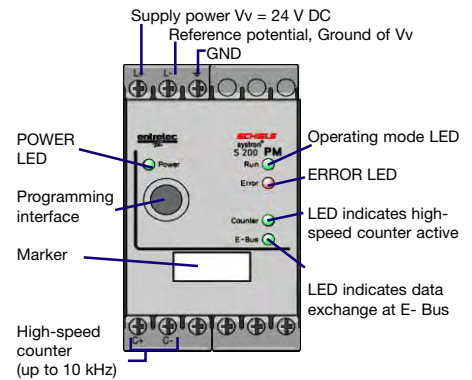
Operation

The S 200 is the CPU for process modules. Per application requirements, connect I/O modules and intelligent modules by a flat ribbon cable.
S 200 contains an operating memory (EEPROM) for 2k instructions and a full range of programming commands. The programming system is compatible with the WINDOWS operating system and complies with IEC 1131-3.

■ Approvals: Ⓤ Ⓢ

Design

Supply power Vv = 24 V DC
Reference potential, Ground of Vv GND
POWER LED
Programming interface
Marker
High-speed counter (up to 10 kHz)
Operating mode LED
ERROR LED
LED indicates high-speed counter active
LED indicates data exchange at E- Bus

Micro PLCs	P/N:
systron® S 200	2 423 410 00

Accessories		P/N:
Connection cable S 200 - PC		2 423 419 00
Programming software prosys200 acc. to IEC 1131-3	German	2 423 405 50
	English	2 423 405 51
	French	2 423 405 52
System Manual systron® S 200/ S 250	German	2 423 402 50
	English	2 423 402 51
	French	2 423 402 52

Technical data

Supply voltage		20...30 V DC
Power consumption		60...320 mA at 24 V, depending on configuration
Residual ripple		< 10%
Reverse polarity protection		diode
Supply for expansion modules		500 mA up to 45 °C
		400 mA up to 55 °C
Built-in memory		4 KByte EEPROM/2048 Instructions
Maximum configuration		
Inputs digital		48
Inputs analog		24
Outputs digital	Transistor	48
	Relay	24
Outputs analog		24
Timers		32
Counters		32
High-speed counter		1, 10 kHz
Instructions		2 K
Flags bit		512
Flags word		256
Retentive flag words		16
Cycle time	Bit/	2.4 ms/ K
	Word	4 ms/ K
Programming interface		RS 232, electrically isolated Socket, 8-pin, Mini-DIN
Display of operating status		
POWER		green LED
ERROR		red LED
Expansion bus (E-Bus)		green LED
High-speed counter (Counter)		green LED
RUN		green LED
Dielectric withstand		
External connections against internal connections		acc. to VDE 0160, 500 V AC
Vibration and shock acc. to IEC 68-2-6		10...57 Hz constant amplitude 0.15 mm
		57...150 Hz constant acceleration 2 G
Noise immunity		acc. to IEC 801-2
		acc. to IEC 801-4
Operating temperature		0 ... +55 °C
Storage temperature		- 25 ... +75 °C
Terminals, screw		max. 2 x 14 AWG (2 x 2.5 mm²)
Weight		0.44 lb (200 g)
Dimensions (W x H x D)		45 x 82.5 x 100 mm

Maximum configuration

⇨ 12 Expansion modules total
⇨ max. 6 of each type
⇨ internal supply for expansion modules 400 mA max.

Max. no. of expansion modules per S 200

48	digital inputs with 6 PMI modules
48	digital outputs with 6 PMO transistor modules
	or
	mixed configuration with PMO Relay, but 6 PMO modules maximum
24	digital outputs with 6 PMO Relay modules
24	analog inputs with 6 PMAI
24	analog outputs with 6 PMAO
4	high-speed counters PMC
8	BALLUFF linear displacement transducers with 2 PMT
24	potentiometers with 6 potentiometer modules PMP
24	values with 6 measuring and monitoring relays PMM

Integrated functions

- max. 48 inputs / 48 outputs digital
- max. 24 inputs/ 24 outputs analog
- 512 bit- and 256 word flags
- 32 timers, 32 counters
- cycle time 2.4 ms for 1024 binary instructions
- arithmetics and PID controller integrated in the operating system

systron® S 250 and S 250c - Intelligence at the bus

INTERBUS

PROFIBUS PROCESS FIELD BUS

CANopen

DeviceNet™

MODBUS

RS 232

RS 485

⇨ **Data pre-processing for bus communication**
⇨ **Continues processing if bus fails**

⇨ **Powerful PLC single station**

S 250:

⇨ 4 k instructions
⇨ up to 12 expansion modules to be connected
⇨ for use with or without fieldbus module

S 250c:

Also includes
⇨ real-time clock integrated as program module
⇨ high-capacitive retentive data storage
⇨ 10 years buffer time without external supply voltage

PLCs for bus connection systron® S 250 and S 250c CE

- Integrated EEPROM memory for 4096 instructions
- Can be connected to bus modules and interface modules systron® PM
- At S 250c: real-time clock integrated high-capacity retentive memory
- Expandable with up to 12 expansion modules systron® PM
- Programming interface RS 232
- High-speed counter input (max. 10 kHz)
- Electrical isolation between external supply, processor, programming interface, and high-speed counter

Operation

The CPUs S 250 and S 250c offer the same functions as the S 200 - and more: the ability to connect them to a bus system.
Further, both PLCs have a 4 k memory which makes them suitable also as a stand-alone PLC for more complex applications.

### S 250 - decentral intelligence at the bus

S 250 can preprocess data which makes bus communication much faster.
S 250 can also be used where processes must continue in case of bus failures.
Data exchange between bus module and PLC is done by a defined flag word range.

S 250c - with clock and high capacity data memory

S 250c additionally offers an integrated real-time clock and a retentive memory range of 5887 flag words - ideal for receipt management and similar applications.

- Approvals: (UL) (SP)
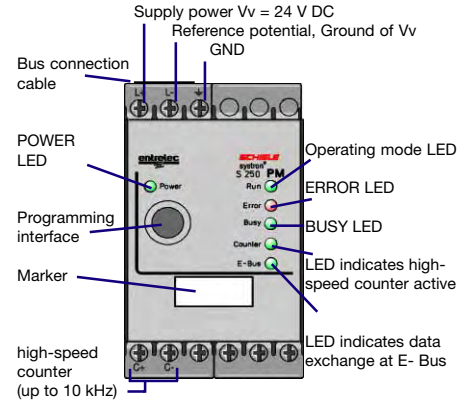
Micro PLCs	P/N:
systron® S 250	2 423 411 00
systron® S 250c	2 423 411 10
Accessories	**P/N:**
Connection cable S 200 - PC	2 423 419 00
Programming software prosys200 acc. to IEC 1131-3 German	2 423 405 50
English	2 423 405 51
French	2 423 405 52
System Manual systron® S 200/ S 250	
German	2 423 402 50
English	2 423 402 51
French	2 423 402 52

Design

Supply power Vv = 24 V DC
Reference potential, Ground of Vv
GND
Bus connection cable
POWER LED
Programming interface
Marker
high-speed counter (up to 10 kHz)
Operating mode LED
ERROR LED
BUSY LED
LED indicates high-speed counter active
LED indicates data exchange at E- Bus

Integrated functions

- max. 48 inputs/48 outputs digital
- max. 24 inputs/24 outputs analog
- 512 bit- and 256 word flags
- 32 timers, 32 counters
- cycle time 2.4 ms for 1024 binary instructions
- arithmetics and PID controller integrated in the operating system, S 250c has an additional clock module
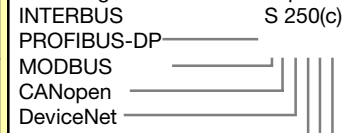
Bus systems and S 250/ S 250c

The combining of bus system <-> S 250/ S 250c is done by a bus module systron® PM.
Data to be exchanged are offered in a defined flag word range of the S 250.
It is therefore not possible to access directly to I/O modules. If this is neccessary, I/O modules can be placed between a bus module and a PLC. Following combinations are possible:

INTERBUS   S 250(c)
PROFIBUS-DP
MODBUS
CANopen
DeviceNet

Interface modules
RS 232 and
RS 485

Technical data

Technical data	
Supply voltage	
	20...30 V DC
Power consumption	60...320 mA at 24 V, depending on configuration
Residual ripple	< 10%
Reverse polarity protection	diode
Supply for expansion modules	500 mA up to 45 °C
	400 mA up to 55 °C
Built-in memory	8 KByte/4096 Instructions
Type of memory	S 250: EEPROM
	S 250c: NVSRAM (int. battery,life > 10 years)
Maximum configuration	
Inputs digital	48
Inputs analog	24
Outputs digital Transistor	48
Relay	24
Outputs analog	24
Timers	32
Counters	32
High-speed counter	1, 10 kHz
Instructions	4 K
Flags Bit / word	512 / 256
Retentive flag words	S 250: 48 S 250c: 6143 (5887 rem.)
Retentivity buffer	10 years without external supply power
Cycle time Bit/	2.4 ms/ K
Word	4 ms/ K
Programming interface	RS 232, electrically isolated
	Socket, 8-pin, Mini-DIN
Dielectric withstand	
External connections <-> internal connections	acc. to VDE 0160, 500 V AC
Vibration and shock acc. to IEC 68-2-6	10...57 Hz constant amplitude 0,15 mm
	57...150 Hz constant acceleration 2 G
Noise immunity	acc. to IEC 801-2
	acc. to IEC 801-4
Degree of protection Terminals	IP 20
Housing	IP 50
Ambient temperature	
Operating temperature	0 ... +55 °C
Storage temperature	- 25 ... +75 °C
Terminals, screw	max. 2 x 14 AWG (2 x 2.5 mm²)
Weight	0.44 lb (200 g)
Dimensions (W x H x D)	45 x 82.5 x 100 mm

Max. no. of expansion modules per S 250/ S 250c

12 Expansion modules maximum;
max. 6 expansion modules per type

PMI	6
PMO	6
PMAI	6
PMAO	6
PMC	4
PMT	2
PMM	6
PMP	6
PMSC	4 (only with S250c)
PMBM	1
PMCI	2

No. of modules also depend on power consumption.

Starter kit S 200 - IEC 1131-3

The automation kit ...

PLC S 200 provides:

- Simplicity of operation
- Minimum learning curve
- Low cost

The set contains...

Basic combination with the modular PLC systron® S 200 includes

- CPU S 200,
- one digital input module PMI with 8 inputs 24 V DC,
- one digital output module PMO with 8 transistor outputs,
- programming software according to IEC 1131-3,
- connection cable PC - S 200,
- operating manuals for PLC and software.

Required is an IBM compatible PC and a 24 V DC power supply. No special interfaces or plug-in cards are needed.

Programming is simple and easy to use; format can be an instruction list or ladder diagram.

	P/N:
Starter kit S 200 English	2 423 410 71
Starter kit S 200 German	2 423 410 70
Starter kit S 200 French	2 423 410 72

Programming

S 200, S 250 and S 250c offer a programming interface RS 232 and can be programmed with every PC (DOS/ WINDOWS).
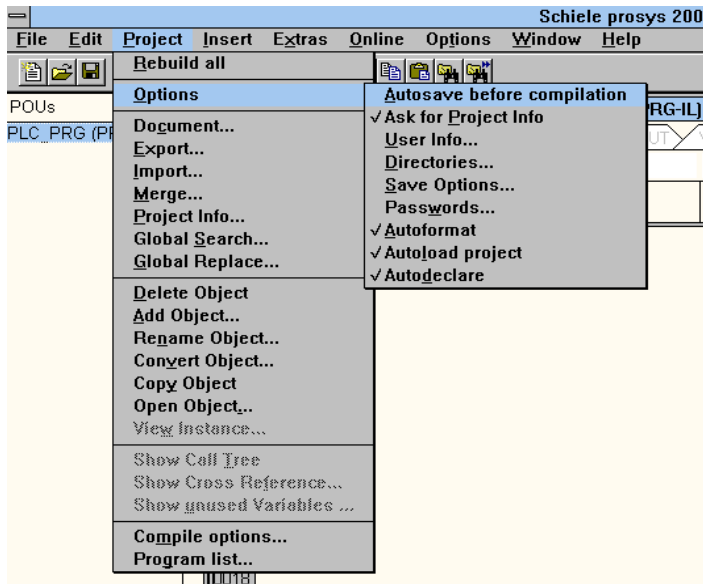
2 programming sets are available:

sh400

sh400 has easy to use software that runs directly under DOS. It offers programming in instruction list or ladder diagram.

IEC 1131-3-Software prosys200

IEC-Software prosys200 runs under MS-WINDOWS and offers programming in the format of instruction list, function list, or ladder diagram.

Software

prosys 200 acc. to IEC 1131-3	English	2 423 405 51
	German	2 423 405 50
	French	2 423 405 52
prosys 200 demo version	English	2 423 405 71
also available on internet:	German	2 423 405 70
www.entrelec.com	French	2 423 405 72
sh400	English	2 408 804 30
	German	2 408 804 10

Communication between PC/ WINDOWS and PLC

DDE driver for WINDOWS applications

The DDE driver enables communication between the PLCs S 200/S 250(c) or S 400 and WINDOWS applications supporting DDE functions, e. g. EXCEL.
It runs under Windows 3.1, ´95, ´98, and NT.
The connection is done with serial interface RS 232.
The software is in three languages; you can change the language while operating.

DDE - Access

Application

EXCEL.EXE C:\DDEDRV\MYFIRST.XLS

DDE Topic Name

EXCEL|MYFIRST.XLS

DDE-Timeout

0s   ☐ Start application

Language

Accept   Cancel

Press F1 for Help

Select symbol list

Filename

myfirst.dde

myfirst.dde

Directorie

C:\DDEDRV

📁 c:\
📁 ddedrv

Fileformat

*.DDE

Drives

💾 c:

Accept   Cancel

DDE - Driver

bol   **Language**   **Communication**   **Properties**   **?**

w symbol list
d symbol list   ication   **Received from PLC**

QUIT

DDE driver for WINDOWS (English, German and French)
3 disks and three-language user manual   2 423 406 50