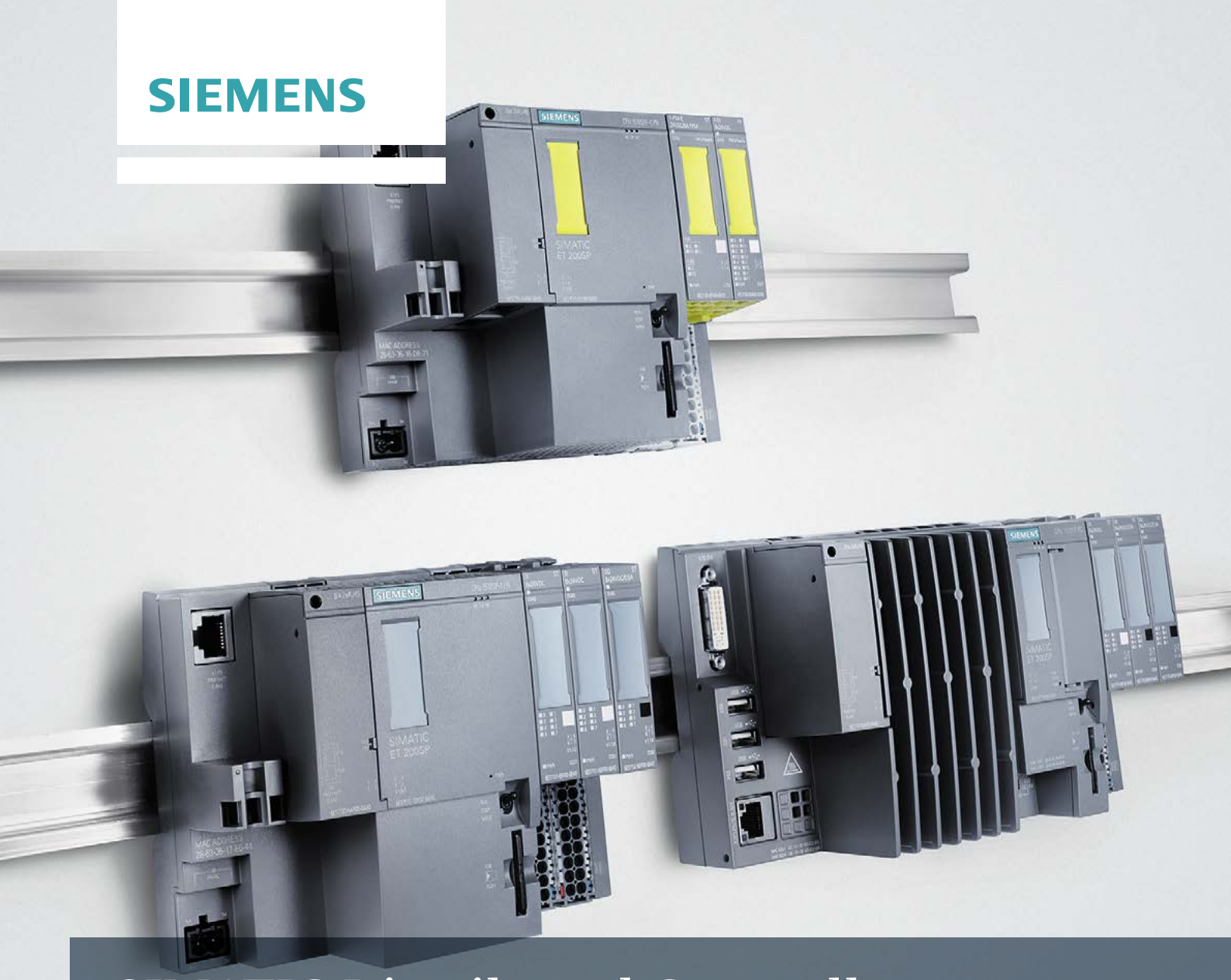
SIEMENS



SIMATIC Distributed Controllers

Increased intelligence in machine-level applications

Intuitive, efficient, proven –
The TIA Portal redefines engineering

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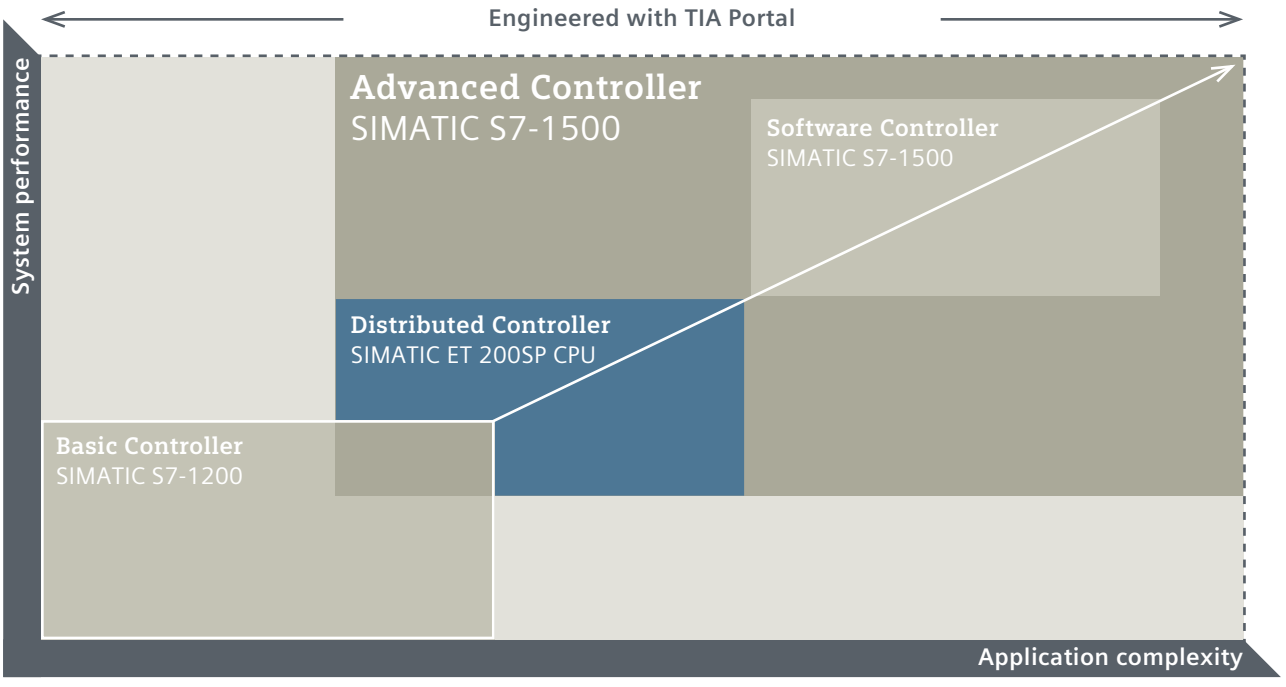
Distributed Controllers – the ET 200 CPUs

SIMATIC controllers leave a lasting impression thanks to their ease-of-use, scalability and continuous functionality. The portfolio contains the ideal controller for every application.

Distributed Controllers for series machines with little available space and machines with distributed architecture

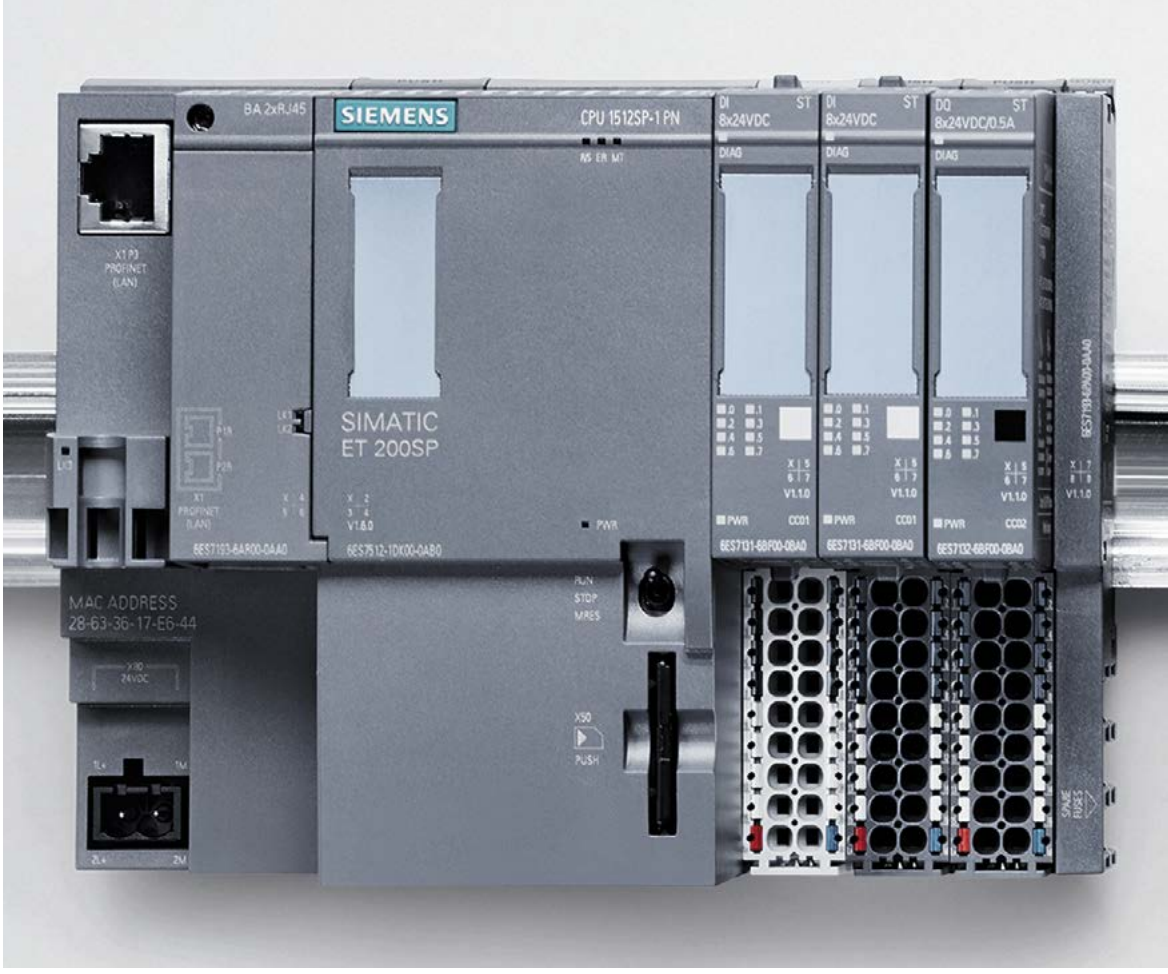
The ET 200 CPU Distributed Controllers combine a compact design with flexibility. The Distributed Controllers are the perfect solution for standard and failsafe, in particular in the medium-performance range for machines with distributed intelligence or series machines with little available space. In addition to the SIMATIC ET 200SP CPUs and the new PC-based SIMATIC ET 200SP Open Controller, you also have the choice of the proven SIMATIC ET 200S and ET 200pro CPUs when deciding on the distributed controller for your application.

Due to their compact design, Distributed Controllers are particularly suitable for the manufacture of series machines. They can be mounted directly on the machine in small control boxes. In networked plants, connection to a production line's central control cabinet is realized via PROFINET. The relocation of intelligence from the central control cabinet to Distributed Controllers on the individual stations has a positive effect on a plant's availability. Faults on one station can be rectified without leading to a standstill of the entire plant.



Siemens offers the right controller for an extremely wide range of automation requirements. The new generation of SIMATIC Controllers comprising Basic, Advanced, Distributed and Software Controller leaves a lasting impression with its scalability and continuous functionality.

The ET 200SP CPU Distributed Controllers combine compactness with flexibility for machines with distributed intelligence or for series machines with little space available.

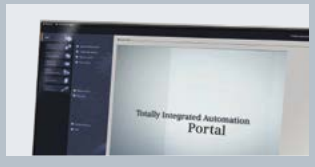


Flexible bus connection

The ET 200SP CPU and the ET 200SP Open Controller have a total of 3 Ethernet ports suitable for PROFINET communication. One port is intended as a programming interface or HMI connection and is always available as RJ45. The 2 other Ethernet ports can be realized as standard RJ45 or, with exposure to shock up 5 g, via Fast Connect or via fiber optic for the ET 200SP CPU if the length of the connection is over 100 m fiber optic.

I/O range

The ET 200SP CPUs, just like the ET 200SP Open Controller, are flexibly expandable with the ET 200SP modules. In addition to the digital input and output and analogous input and output modules among other things the following modules are available: Energy Meter, weighing module, Hart, Namur, counting and positioning module. Single-line expansion is possible with up to 64 modules.



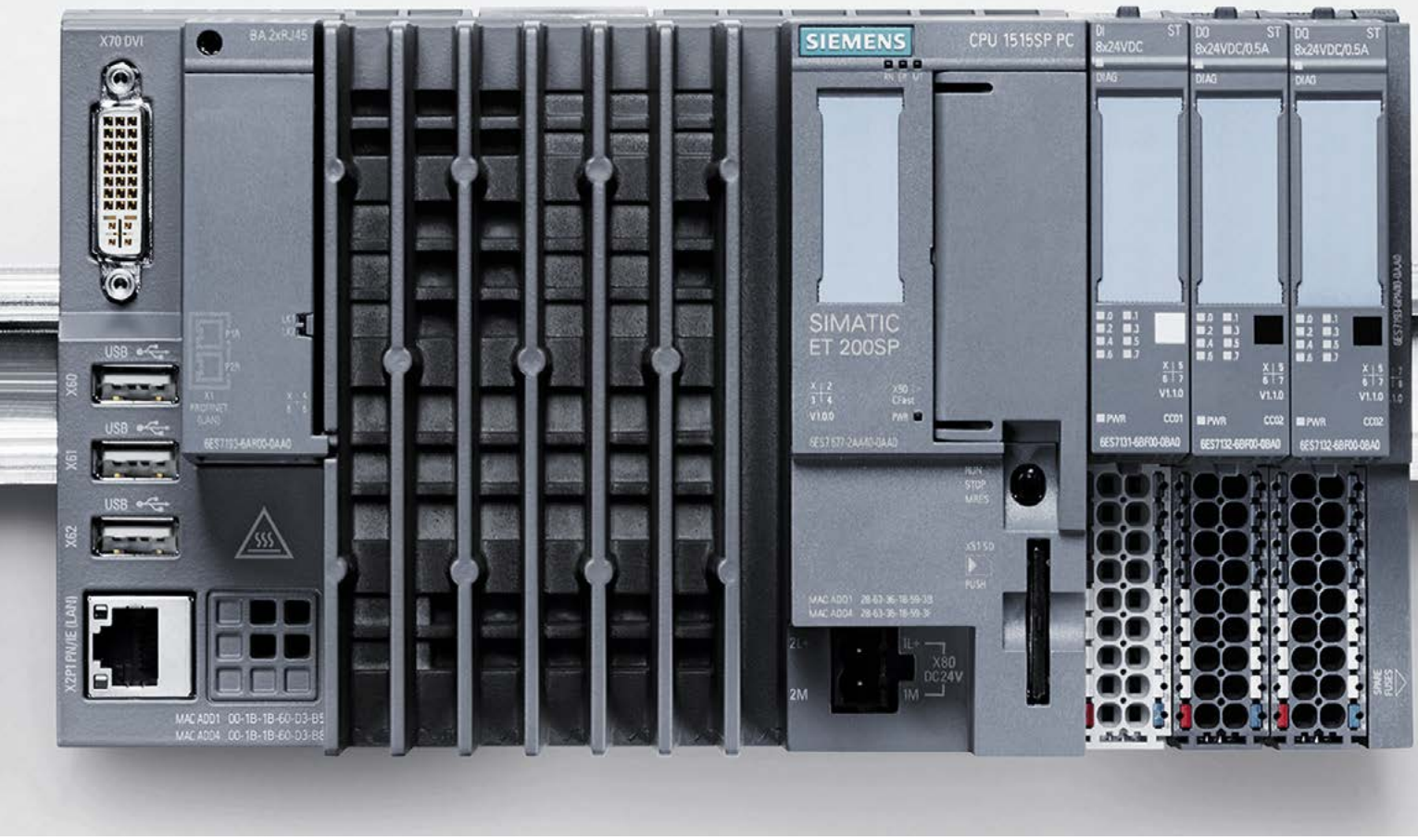
Integrated engineering

The ET 200SP CPU and ET 200SP Open Controllers can be programmed using the TIA Portal V13 (SP1). The controllers support the following programming languages: LAD/FBD/STL/SCL and S7-Graph. Blocks and programs can therefore be exchanged direct with other S7-1500 controllers.

Active backplane bus

The active backplane bus allows a high degree of flexibility in configuration

- Configuration control with option handling for complete modules
- Configuration control in run for characteristics of the individual modules
- Simple expandability thanks to configuration with dummy modules
- Fast replacement of modules with multi hot swapping



Openness for PC applications

In addition to the 5 standard programming languages, high-level language applications in C and C++ or VB can be integrated asynchronously in the control program of the ET 200SP Open Controller. Synchronous integration is also possible with programs in C and C++.

Integrated visualization

The ET 200SP Open Controller is optionally supplied with pre-installed WinCC Runtime Advanced for additional HMI functionality. Visualization can be simply realized via a SIMATIC Industrial Flat Panel connected via the graphics interface, optionally also with multitouch functionality. For commissioning purposes, mouse and keyboard can be directly connected via USB interfaces. At the same time, the Gigabit Ethernet interface supports high-performance connection to higher-level networks.

Communication

Communication is realized via the PROFINET Industrial Ethernet standard.
The ET 200SP CPU and ET 200SP Open Controller can communicate via PROFIBUS, IO-Link, Modbus RTU, Modbus TCP, PtP, ASCII, 3964R and USS.

The CM DP module adds a PROFIBUS DP interface to the ET 200SP CPUs as well as to the ET 200SP Open Controller. This allows the configuration of a lower-level PROFIBUS DP line, thereby relieving the central controller thanks to distributed preprocessing.

Distributed safety

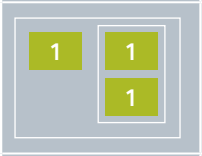
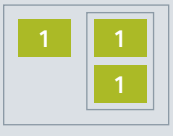
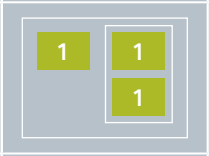
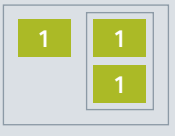
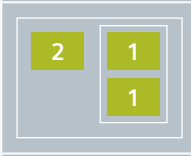
The fail-safe ET 200SP CPUs enable processing of standard and safety programs. They are certified according to EN 61508 (2nd Edition) for functional safety, and are suitable for use in safety-related applications up to SIL 3 according to IEC 62061 and PL e according to ISO 13849.

Motion Integrated – number of supported axes

The Motion Control functionality encompasses all control tasks for the operation of drives as well as the acquisition of position values using position encoders. The tasks range from control of single axes to control of multiple coordinated axes. The motion instructions are based on the international PLCopen standard, thereby providing users with a flexible means of programming their motion application without prior know-how. Applications can be programmed in all standard programming languages of IEC 61131.

Compactness

SIMATIC ET 200SP is around 50 % slimmer than other I/O systems. With a height of approx. 115 mm, the system provides space for 16 channels with single-conductor connection (without AUX terminals). The height is 140 mm for eight channels for a 3-wire connection with AUX terminals. The depth is approx. 75 mm. SIMATIC ET 200SP leaves sufficient space to the control cabinet door, thereby complying with the standardized bending radii in the 80-mm deep control boxes.

	SIMATIC ET 200SP CPU 1510SP	SIMATIC ET 200SP CPU 1510SP F	SIMATIC ET 200SP CPU 1512SP	SIMATIC ET 200SP CPU 1512SP F	SIMATIC ET 200SP Open Controller CPU 1515SP PC
Flexible bus connection	●	●	●	●	●
I/O range	●	●	●	●	●
Integrated engineering	●	●	●	●	●
Active backplane bus	●	●	●	●	●
Openness for PC applications					●
Integrated visualization					●
Communication (PROFINET, PROFIBUS, IO-Link, Modbus RTU, Modbus TCP, PtP, ASCII, 3964R, USS)	●	●	●	●	●
Distributed safety		●		●	
Motion Integrated – number of supported axes	**6**	**6**	**6**	**6**	**30**
Compactness	●	●	●	●	●
CPU type	1510SP-1PN	1510SP F-1PN	1512SP-1PN	1512SP F-1PN	1515SP PC
PROFINET interfaces					
Program/ data memory	100 KB 750 KB	150 KB 750 KB	200 KB 1 MB	300 KB 1 MB	1 MB 5 MB
Bit performance	72 ns	72 ns	48 ns	48 ns	10 ns
Width	100 mm	100 mm	100 mm	100 mm	159 mm

Controller for the ET 200SP I/O system with IP20 degree of protection

SIMATIC ET 200SP is the new generation of I/O systems with the compact ET 200SP CPU and ET 200SP Open Controller.

Controller for the ET 200S I/O system with IP20 degree of protection

The SIMATIC ET 200S is a multi-functional and highly modular I/O system with interface modules with CPU functionality.

Controller for the ET 200pro I/O system with IP67 degree of protection

The SIMATIC ET 200pro is a particularly small, extremely rugged and high-performance I/O system with IP65/67 degree of protection.

ET 200SP CPU:

SIMATIC ET 200SP is the new generation of distributed I/O. CPUs with PROFINET connection are available for SIMATIC ET 200SP. The functionality of the CPUs corresponds to that of the S7-1500. Various connection techniques can be realized thanks to the 3 integrated Ethernet ports. Thanks to the I-Device functionality, connection to a higher-level CPU can be implemented in exactly the same way as with a standard interface module. The fail-safe ET 200SP CPUs enable the processing of standard and safety programs. They are certified according to EN 61508 (2nd Edition) for functional safety and are suitable for use in safety-relevant applications up to SIL 3 according to IEC 62061 and PL e according to ISO 13849.

ET 200SP PC Open Controller:

The SIMATIC ET 200SP Open Controller is the first controller of this type to combine the functions of a PC-based software controller with visualization, PC applications and central I/Os (input/output) in a compact device.

The software controller is operated independently of Windows and thus offers a high level of system availability: this facilitates the controller's rapid start-up and enables Windows updates and reboot during ongoing operation.

The SIMATIC ET 200SP Open Controller provides know-how and access protection and features important automation functions, for example for axis positioning, integrated system diagnostics or interfaces to PROFINET. The Open Controller can be expanded flexibly with the ET 200SP modules, and it is optimized for series machine manufacturing as well as for machines with distributed architecture.

ET 200pro:

The SIMATIC ET 200pro is an especially small, extremely rugged and high-performance I/O system with IP65/67 degree of protection. It also features interface modules for connecting to PROFINET or PROFIBUS with standard as well as fail-safe functionality. A comprehensive range of modules is also available. In addition to power modules and digital and analog I/O modules, there is also a motor starter and an RFID module. Due to its rugged design, the ET 200pro can also be used when mechanical load is high.

Find out more:

www.siemens.com/distributed-controllers

Learn more about the SIMATIC Distributed Controllers:

- Everything about the TIA Portal: www.siemens.com/tia-portal
- Everything about PRONETA at www.siemens.com/proneta
- Everything about the TIA Selection Tool at www.siemens.com/tia-selection-tool
- Everything about Safety Integrated: www.siemens.com/safety-integrated

SIMATIC ... – Take a look!

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P.O. Box 4848
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