

Preface

Purpose of the documentation

This manual supplements the system manual for the ET 200SP distributed I/O system. Functions that generally relate to the system are described in this manual.

The information contained in this product manual and the system / function manuals enable you put the CPU 1515SP PC (F) into operation.

Basic knowledge required

The system must be operated and used by qualified staff only.
The following knowledge is required:

- Installation guideline for SIMATIC ET 200SP
- Programming with STEP 7
- PC based automation with an S7-1500 software controller and with WinCC Runtime Advanced
- Basic knowledge of PC technology
- Windows Embedded Standard 7 operating system

Scope of validity of the documentation

This documentation is valid for the following devices:

ET 200SP Open Controller	Article number	
	System version WES7 E 32Bit 4GB RAM	System version WES7 P 64Bit 4GB RAM
CPU 1515SP PC	6ES7677-2AA31-0EB0	6ES7677-2AA41-0FB0
CPU 1515SP PC + HMI 128PT	--	6ES7677-2AA41-0FK0
CPU 1515SP PC + HMI 512PT	--	6ES7677-2AA41-0FL0
CPU 1515SP PC + HMI 2048PT	--	6ES7677-2AA41-0FM0
CPU 1515SP PC F	6ES7677-2FA31-0EB0	6ES7677-2FA41-0FB0
CPU 1515SP PC F + HMI 128PT	--	6ES7677-2FA41-0FK0
CPU 1515SP PC F + HMI 512PT	--	6ES7677-2FA41-0FL0
CPU 1515SP PC F + HMI 2048PT	--	6ES7677-2FA41-0FM0
CPU 1515SP PC, spare part, without CFast card, without software	6ES7677-2AA40-0AA0	

System versions and ordering options

System version	SIMATIC software	CFast card	Article number
WES7 E 32Bit	CPU 1505SP V2.1	30 GB	6ES7677-2AA31-0EB0
WES7 P 64Bit (multitouch functionality)	CPU 1505SP V2.1	30 GB	6ES7677-2AA41-0FB0
	CPU 1505SP V2.1 & WinCC Runtime Adv. V14 SP1 128PT	30 GB	6ES7677-2AA41-0FK0
	CPU 1505SP V2.1 & WinCC Runtime Adv. V14 SP1 512PT	30 GB	6ES7677-2AA41-0FL0
	CPU 1505SP V2.1 & WinCC Runtime Adv. V14 SP1 2048PT	30 GB	6ES7677-2AA41-0FM0
WES7 E 32Bit	CPU 1505SP F V2.1	30 GB	6ES7677-2FA31-0EB0
WES7 P 64Bit (multitouch functionality)	CPU 1505SP F V2.1	30 GB	6ES7677-2FA41-0FB0
	CPU 1505SP F V2.1 & WinCC Runtime Adv. V14 SP1 128PT	30 GB	6ES7677-2FA41-0FK0
	CPU 1505SP F V2.1 & WinCC Runtime Adv. V14 SP1 512PT	30 GB	6ES7677-2FA41-0FL0
	CPU 1505SP F V2.1 & WinCC Runtime Adv. V14 SP1 2048PT	30 GB	6ES7677-2FA41-0FM0
CPU 1515SP PC, spare part, without CFast card, without software			6ES7677-2AA40-0AA0

3.3 Sample configuration

Configuration

CPU 1515SP PC (F) is mounted on the mounting rail according to EN 60715. A modular system is formed with ET 200SP modules in the central rack.

You can use the CPU 1515SP PC (F) as PROFINET IO controller. The PROFINET IO devices are connected with the SIMATIC BusAdapter BA 2xRJ45 via the ports of the interface X1 PN (LAN).

Devices can be connected via Industrial Ethernet using the integrated interface X2 PN/IE (LAN).

The connection to PROFIBUS can be made using the DP master module.

3.7.2 Scope of delivery - System version WES7 E 32Bit 4GB RAM

Note

The designation **CPU 1515SP PC** with the article number **6ES7677-2AA40-0AA0** is always on the device regardless of the order option.

The following components are included in the scope of delivery of the CPU 1515SP PC:

Order option	CPU 1515SP PC	CPU 1515SP PC (spare part)
Article number	6ES7677-2AA31-0EB0	6ES7677-2AA40-0AA0
CPU	X	X
Strain relief with fixing screws	X	X
Server module	X	X
30 GB CFast card with the following pre-installations:		
• Windows Embedded Standard 7 E operating system	X	–
• S7-1500 Software Controller CPU 1505SP	X	–
• WinCC RT Advanced as of V14 SP1	–	–
Restore DVD for image restore	X	–
"Documentation and Drivers" DVD	X	–
Windows-Certificate of Authenticity (CoA)	X	–
Certificate of License (COL)	X	–
USB stick with SIMATIC license keys	X	–
Product information	X	–

10.7 Module data

	6ES7677-2FA31-0EB0
Ambient temperature during storage / transport	
Min.	-40 °C
Max.	70 °C
I/O / Options	
I/O	
• SD card	optional for additional mass storage
Dimensions	
Width	160 mm
Height	117 mm
Depth	75 mm
Weights	
Weight, approx.	0.83 kg

10.7.3 CPU 1515SP PC, system version WES7 E 32Bit 4GB RAM - spare part

CPU 1515SP PC, system version WES7 E 32Bit 4GB RAM - spare part

	6ES7677-2AA40-0AA0
General information	
Product type designation	CPU 1515SP PC
Engineering with	
STEP 7 TIA Portal can be configured/integrated as of version	as of STEP 7 V14
PC configuration	
Processor	Dual-Core 1 GHz, AMD G Series APU T40E
Main memory	4 GB RAM
Installed SW	
Visualization	No
Controller	No
Operator controls	
Mode selector	1
Supply voltage	
Type of supply voltage	24 V DC
Low limit of permitted range (DC)	19.2 V
High limit of permitted range (DC)	28.8 V
Reverse polarity protection	Yes
Power and voltage failure backup	
Power/voltage failure backup time	5 ms

	6ES7677-2AA40-0AA0
Input current	
Current consumption (rated value)	1.5 A; full processor load, incl. ET 200SP modules and USB use
Current consumption (in no-load operation), typ.	0.6 A
Inrush current, max.	4.7 A; rated value
Power	
Power consumption, max.	36 W; incl. ET 200SP modules and USB use
Incoming power to the backplane bus	8.75 W
Power loss	
Power loss, typ.	15 W; without ET 200SP modules and without USB use
Memory	
Type of memory	DDR3-SDRAM
CFAST memory card	No
Work memory	
Integrated	4 GB
Hardware configuration	
integrated power supply	Yes
Number of DP masters	
Via CM	1
Racks	
Modules per rack, max.	64; CPU + 64 Module + server module (mounting width max. 1 m)
Number of rows, max.	1
Time-of-day	
Clock	
Type	Hardware clock
Buffering time	6 wk; at 40 °C ambient temperature, typ.
Deviation per day, max.	10 s; typ.: 2 s
Interfaces	
Number of Industrial Ethernet interfaces	2
Number of PROFINET interfaces	1
Number of PROFIBUS interfaces	1; via CM DP module
Number of interfaces RS 485	1; via CM DP module
Number of USB interfaces	3; 3x USB 2.0 front, 500 mA each – of which 2 x 500 mA and 1 x 100 mA simultaneously
Number of SD card slots	1
Video interfaces	
Graphics interface	1x DVI-I

	6ES7677-2AA40-0AA0
1st interface	
Interface hardware	
Number of ports	2
integrated switch	Yes
RJ 45 (Ethernet)	Yes; via BusAdapter BA 2x RJ45
• Transmission rate, max.	100 Mbps
• Industrial Ethernet status LED	Yes
2nd interface	
Interface hardware	
Number of ports	1
RJ 45 (Ethernet)	Yes; integrated
• Transmission rate, max.	1000 Mbps
• Industrial Ethernet status LED	No
3rd interface	
Interface hardware	
RS 485	Yes; via CM DP module
Interface hardware	
RJ 45 (Ethernet)	
100 Mbps	Yes; for 1st Interface X1
1000 Mbps	Yes; for 2nd Interface X2
Autonegotiation	Yes
Autocrossing	Yes
RS 485	
Transmission rate, max.	12 Mbps
Ambient conditions	
Ambient temperature in operation	
Min.	0 °C
Max.	Up to 60 °C with max. 32 ET 200SP modules and 3x 100 mA USB load; up to 55 °C with max 64 ET 200SP modules and 2x max. 500 mA and 1x max. 100 mA USB load
Horizontal installation, min.	0 °C
Horizontal installation, max.	60 °C
Vertical installation, min.	0 °C
Vertical installation, max.	50 °C; with max. 32 ET 200SP modules and 3x 100 mA USB load
Ambient temperature during storage / transport	
Min.	-40 °C
Max.	70 °C

	6ES7677-2AA40-0AA0
I/O / Options	
I/O	
• SD card	optional for additional mass storage
Dimensions	
Width	160 mm
Height	117 mm
Depth	75 mm
Weights	
Weight, approx.	0.83 kg

10.7.4 CPU 1515SP PC, system version WES7 P 64Bit 4GB RAM

CPU 1515SP PC, system version WES7 P 64Bit 4GB RAM

	6ES7677-2AA41-0FB0
General information	
Product type designation	CPU 1515SP PC
HW release number	FS05
Firmware version	V2.1
Engineering with	
STEP 7 TIA Portal can be configured/integrated as of version	V14 SP1
PC configuration	
Processor	Dual-Core 1 GHz, AMD G Series APU T40E
Main memory	4 GB RAM
Flash disk	30 GB
Operating systems	Windows Embedded Standard 7 P 64 bit
Installed SW	
Visualization	No
Controller	S7-1500 Software Controller CPU 1505SP V2.1
Operator controls	
Mode selector	1
Supply voltage	
Type of supply voltage	24 V DC
Low limit of permitted range (DC)	19.2 V
High limit of permitted range (DC)	28.8 V
Reverse polarity protection	Yes
Power and voltage failure backup	
Power/voltage failure backup time	5 ms

Accessories/spare parts

Ordering options and accessories for CPU 1515SP PC (F)

Table A- 1 Order options for CPU 1515SP PC

Description	Article number
System version	
WES7 E 32Bit 4GB RAM ¹	
CPU 1515SP PC, 30 GB CFast card with pre-installed S7-1500 Software Controller CPU 1505SP	6ES7677-2AA31-0EB0
CPU 1515SP PC, 30 GB CFast card with pre-installed S7-1500 Software Controller CPU 1505SP F	6ES7677-2FA31-0EB0
CPU 1515SP PC 4 GB, spare part (without CFast card, without software)	6ES7677-2AA40-0AA0
System version	
WES7 P 64Bit 4GB RAM ¹	
CPU 1515SP PC, 30 GB CFast card with pre-installed S7-1500 Software Controller CPU 1505SP	6ES7677-2AA41-0FB0
CPU 1515SP PC, 30 GB CFast card with pre-installed S7-1500 Software Controller CPU 1505SP and WinCC Runtime Advanced as of V14	
• CPU 1515SP PC + HMI 128PT	6ES7677-2AA41-0FK0
• CPU 1515SP PC + HMI 512PT	6ES7677-2AA41-0FL0
• CPU 1515SP PC + HMI 2048PT	6ES7677-2AA41-0FM0
CPU 1515SP PC F, 30 GB CFast card with pre-installed S7-1500 Software Controller CPU 1505SP	6ES7677-2FA41-0FB0
CPU 1515SP PC, 30 GB CFast card with pre-installed S7-1500 Software Controller CPU 1505SP F and WinCC Runtime Advanced as of V14	
• CPU 1515SP PC F + HMI 128PT	6ES7677-2FA41-0FK0
• CPU 1515SP PC F + HMI 512PT	6ES7677-2FA41-0FL0
• CPU 1515SP PC F + HMI 2048PT	6ES7677-2FA41-0FM0

¹ Windows Embedded Standard 7