

SIEMENS

SIMATIC

ET 200SP Server module (6ES7193-6PA00-0AA0)

Manual

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Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

 DANGER
indicates that death or severe personal injury will result if proper precautions are not taken.
 WARNING
indicates that death or severe personal injury may result if proper precautions are not taken.
 CAUTION
indicates that minor personal injury can result if proper precautions are not taken.
NOTICE
indicates that property damage can result if proper precautions are not taken.

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We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

Preface

Purpose of the documentation

This device manual complements the system manual ET 200SP distributed I/O system (<http://support.automation.siemens.com/WW/view/en/58649293>). Functions that generally relate to the system are described in this manual.

The information provided in this manual and in the system/function manuals supports you in commissioning the system.

Conventions

Please also observe notes marked as follows:

Note

A note contains important information on the product described in the documentation, on the handling of the product and on the section of the documentation to which particular attention should be paid.

Note on IT security

Siemens offers IT security mechanisms for its automation and drive product portfolio in order to support the safe operation of the plant/machine. We recommend that you inform yourself regularly on the IT security developments regarding your products. You can find information on this on the Internet (<http://support.automation.siemens.com>).

You can register for a product-specific newsletter here.

For the safe operation of a plant/machine, however, it is also necessary to integrate the automation components into an overall IT security concept for the entire plant/machine, which corresponds to the state-of-the-art IT technology. You can find information on this on the Internet (<http://www.siemens.com/industrialsecurity>).

Products used from other manufacturers should also be taken into account here.

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ET 200SP Documentation Guide

Introduction

This modular documentation of the SIMATIC products covers diverse topics concerning your automation system.

The complete documentation for the ET 200SP system consists of the respective system manual and device manuals.

The information system of STEP 7 (online help) also supports you during the configuration and programming of your automation system.

Overview of server module documentation

The following table shows additional documentation required for operation of the server module.

Table 1- 1 Server module documentation

Subject	Documentation	Key contents
System description	System Manual ET 200SP distributed I/O system (http://support.automation.siemens.com/WW/view/en/58649293)	• Application planning • Installation • Connecting • Commissioning

SIMATIC manuals

The current manuals for SIMATIC products are available to download free of charge on the Internet (<http://www.siemens.com/simatic-tech-doku-portal>).

Product overview

2.1 Properties of the server module

Order number

6ES7193-6PA00-0AA0

View of the module



Figure 2-1 View of the server module

Properties

- Technical properties
 - Closes off the backplane bus of the ET 200SP
 - Contains a support for 3 spare fuses (5 × 20 mm)
- Supported functions
 - Firmware update
 - I&M identification data
 - Representation of the statuses of supply voltage L+ and the feedback voltage (Page 16) per slot.

Parameters/address space

3.1 Parameters

GSD file parameters

Table 3- 1 Parameters for server module (GSD file)

Parameters	Value range	Default	Efficiency range
Group diagnostics: Missing supply voltage L+ ¹	Yes/No	No	ET 200SP

¹ This parameter is not available for PROFIBUS GSD configuration.

3.2 Description of parameters

Group diagnostics: Missing supply voltage L+

When you enable this parameter, the ET 200SP generates one diagnostic per potential group (as group information) when the supply voltage L+ fails.

This function does not depend on enabling the parameter "Diagnostics: Missing supply voltage L+" of the I/O modules.

The diagnostics is formed from the states of the supply voltage of the installed I/O modules within the potential group.

Requirements

- All I/O modules must be inserted, i.e. the current configuration must not have any empty slots.
- If no I/O module is inserted on light BaseUnits BU..D, the beginning of this potential group is not recognized. The I/O modules of this potential group are therefore part of the previous potential group. If the I/O module is installed on the light BaseUnit, the potential group is detected and the diagnostics data are reevaluated according to the potential group arrangement and a new diagnostics data may be reported. The position of the light BaseUnit remains stored in the structure until the supply voltage 1L+ of the interface module is turned off.

3.3 Address space

Introduction

You can read out the status of the supply voltage L+ and the feedback voltage of I/O modules via the address space of the server module:

- All I/O modules:
Missing supply voltage L+ or no I/O module available
- Additional digital output module HF:
feedback voltage present

Requirements

- The I/O module used must support monitoring of the supply voltage.
- The I/O module used must support monitoring of a feedback voltage.

Length of input data

The length of the input data depends on the interface module used:

- Interface module with 32 I/O modules maximum configuration: 4/8 bytes
- Interface module with 64 I/O modules maximum configuration: 8/16 bytes

Configurations

In the configuration software, you can select 3 configurations for the server module for operation with the interface module:

- Configuration with disabled "Status of the supply voltage L+" and disabled "Status of the feedback voltage":
 - The server module only has one diagnostics address.
- Configuration with enabled "Status of the supply voltage L+" and disabled "Status of the feedback voltage":
 - The server module has 4/8 bytes of input data for the display of the status of the supply voltage L+ of the inserted I/O modules.
 - Display in the input data of the server module:
 - Supply voltage L+ present/missing or I/O module available/not available
- Configuration with enabled "Status of the supply voltage L+" and enabled "Status of the feedback voltage":
 - The server module has 8/16 bytes of input data for the display of the status of the supply voltage L+ and the status of the feedback voltage of the inserted I/O modules.
 - Display in the input data of the server module:
 - Supply voltage L+ present/missing or I/O module available/not available
 - Feedback voltage present/missing

3.3.1 Input data for interface modules with maximum 32 I/O modules

Configuration with enabled status detection of the supply voltage L+ (4 bytes of input data)

You can read out the following status for each I/O module of the ET 200SP in the input data (byte 0 to 3):

- Supply voltage L+ present/missing or I/O module available/not available (4 bytes)

	7	6	5	4	3	2	1	0	Slots of I/O modules
Byte 0	8	7	6	5	4	3	2	1	Bit = 1: Supply voltage L+ present and I/O module available
Byte 1	16	15	14	13	12	11	10	9	Bit = 0: Missing supply voltage L+ or no I/O module available
Byte 2	24	23	22	21	20	19	18	17	
Byte 3	32	31	30	29	28	27	26	25	

Figure 3-1 Configuration with enabled status detection of the supply voltage L+ (4 bytes)

Configuration with enabled status detection of the supply voltage L+ and enabled status detection of the feedback voltage (8 bytes of input data)

You can read out the following status for each I/O module of the ET 200SP in the input data (byte 0 to 7):

- Supply voltage L+ present/missing or I/O module available/not available (4 bytes)
- Feedback voltage present/missing (4 bytes)

	7	6	5	4	3	2	1	0	Slots of I/O modules
Byte 0	8	7	6	5	4	3	2	1	Bit = 1: Supply voltage L+ present and I/O module available
Byte 1	16	15	14	13	12	11	10	9	Bit = 0: Missing supply voltage L+ or no I/O module available
Byte 2	24	23	22	21	20	19	18	17	
Byte 3	32	31	30	29	28	27	26	25	
Byte 4	8	7	6	5	4	3	2	1	Bit = 1: Feedback voltage available
Byte 5	16	15	14	13	12	11	10	9	Bit = 0: Feedback voltage not available
Byte 6	24	23	22	21	20	19	18	17	
Byte 7	32	31	30	29	28	27	26	25	

Figure 3-2 Configuration with enabled status detection of the supply voltage L+ and enabled status detection of the feedback voltage (8 bytes of input data)

Note

- An inserted or missing server module always signals bit=0 for the slot.
- If the server module is missing, the input data are invalid.
- For I/O modules without feedback voltage monitoring, the bit for the feedback voltage is the same as the bit for the missing supply voltage L+.

3.3.2 Input data for interface modules with maximum 64 I/O modules

Configuration with enabled status detection of the supply voltage L+ (8 bytes of input data)

You can read out the following status for each I/O module of the ET 200SP in the input data (byte 0 to 7):

- Supply voltage L+ present/missing or I/O module available/not available (8 bytes)

	7	6	5	4	3	2	1	0	Slots of I/O modules
Byte 0	8	7	6	5	4	3	2	1	Bit = 1:
Byte 1	16	15	14	13	12	11	10	9	Supply voltage L+ present and I/O module available
Byte 2	24	23	22	21	20	19	18	17	Bit = 0:
Byte 3	32	31	30	29	28	27	26	25	Missing supply voltage L+ or no I/O module available
Byte 4	40	39	38	37	36	35	34	33	
Byte 5	48	47	46	45	44	43	42	41	
Byte 6	56	55	54	53	52	51	50	49	
Byte 7	64	63	62	61	60	59	58	57	

Figure 3-3 Configuration with enabled status detection of the supply voltage L+ (8 bytes)

Configuration with enabled status detection of the supply voltage L+ and enabled status detection of the feedback voltage (16 bytes of input data)

You can read out the following status for each I/O module of the ET 200SP in the input data (byte 0 to 15):

- Supply voltage L+ present/missing or I/O module available/not available (8 bytes)
- Feedback voltage present/missing (8 bytes)

	7	6	5	4	3	2	1	0	Slots of I/O modules
Byte 0	8	7	6	5	4	3	2	1	Bit = 1:
Byte 1	16	15	14	13	12	11	10	9	Supply voltage L+ present and I/O module available
Byte 2	24	23	22	21	20	19	18	17	Bit = 0:
Byte 3	32	31	30	29	28	27	26	25	Missing supply voltage L+ or no I/O module available
Byte 4	40	39	38	37	36	35	34	33	
Byte 5	48	47	46	45	44	43	42	41	
Byte 6	56	55	54	53	52	51	50	49	
Byte 7	64	63	62	61	60	59	58	57	
Byte 8	8	7	6	5	4	3	2	1	Bit = 1:
Byte 9	16	15	14	13	12	11	10	9	Feedback voltage available
Byte 10	24	23	22	21	20	19	18	17	Bit = 0:
Byte 11	32	31	30	29	28	27	26	25	Feedback voltage not available
Byte 12	40	39	38	37	36	35	34	33	
Byte 13	48	47	46	45	44	43	42	41	
Byte 14	56	55	54	53	52	51	50	49	
Byte 15	64	63	62	61	60	59	58	57	

Figure 3-4 Configuration with enabled status detection of the supply voltage L+ and enabled status detection of the feedback voltage (16 bytes of input data)

Note

- An inserted or missing server module always signals bit=0 for the slot.
- If the server module is missing, the input data are invalid.
- For I/O modules without feedback voltage monitoring, the bit for the feedback voltage is the same as the bit for the missing supply voltage L+.

3.3.3 Evaluate feedback voltage

Ranges of error

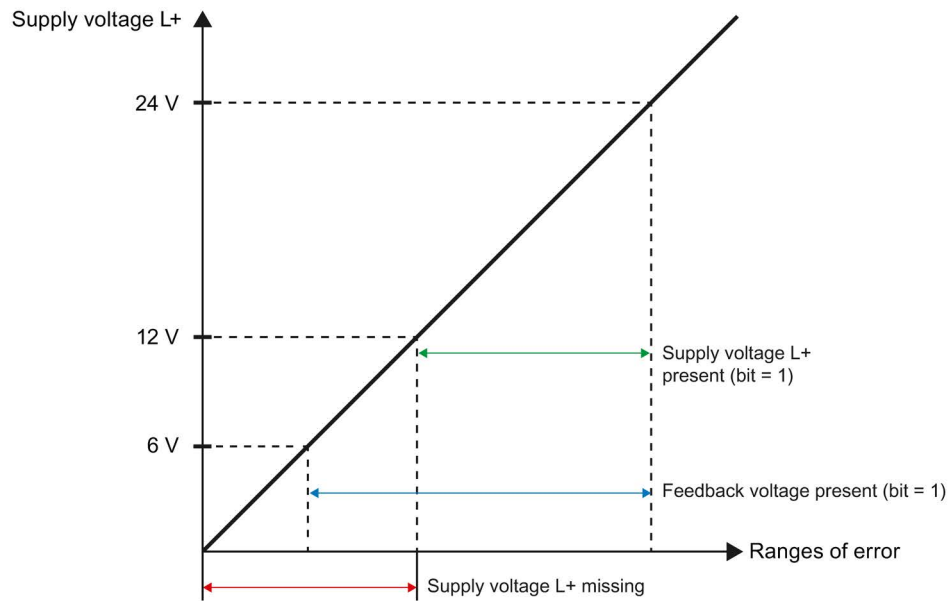


Figure 3-5 Ranges of error of the supply voltage L+ and the feedback voltage

Feedback voltage

A feedback may occur, for example, due to a crossover in a cable of a digital output module and depends on the target status of the supply voltage L+:

If the supply voltage L+ of the I/O module is greater than 6 V, this is entered in the input data in the respective bit.

- Byte 4 to 7 (for 32 I/O modules and 8 bytes of input data)
- Byte 8 to 15 (for 64 I/O modules and 16 bytes of input data)

The feedback voltage can be evaluated via the user program in the following cases:

Table 3- 2 Under what circumstances can the feedback voltage be evaluated via the user program?

Supply voltage L+ safely disconnected ¹	Status detection of supply voltage L+ (input data)	Status detection of feedback voltage (input data)	Explanation
Yes	Not available: Bit = 0	Available: Bit = 1	The feedback voltage detected is in the range 6 to < 12 V (e.g. in the event of a fault in the system)
Yes	Available: Bit = 1	Available: Bit = 1	The feedback voltage detected is > 12 V (e.g. in the event of a fault in the system)

¹ This does not refer to the supply voltage applied to the BaseUnit, but, for example, to the status information of a safety relay.

Technical specifications

4.1 Technical specifications

Technical specifications of the server module

Table 4- 1 Technical specifications of the server module

	6ES7193-6PA00-0AA0
Product type designation	Server module
Dimensions	
• Width	7 mm
• Height	117 mm
• Depth	36 mm
Weights	
• Weight, approx.	19 g

Parameter data record

5.1 Parameter assignment and structure of parameter data record

Parameter assignment in the user program

You can change the parameters of the module in RUN.

Changing parameters in RUN

The WRREC instruction is used to transfer the parameters to the module using data record 128. The parameters set in STEP 7 are not changed in the CPU, which means that the parameters set in STEP 7 will be valid again after a restart.

Output parameter STATUS

The module ignores errors that occur during the transfer of parameters with the WRREC instruction and continues operation with the previous parameter assignment. However, the STATUS output parameter contains a corresponding error code.

The description of the WRREC instruction and the error codes is available in the STEP 7 online Help.

Structure of data record 128

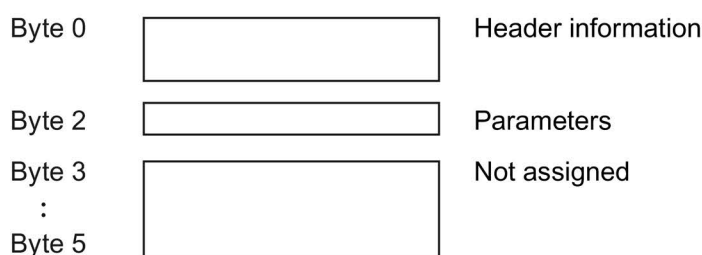


Figure 5-1 Structure of data record 128

Header information

The following diagram shows the structure of the header information.

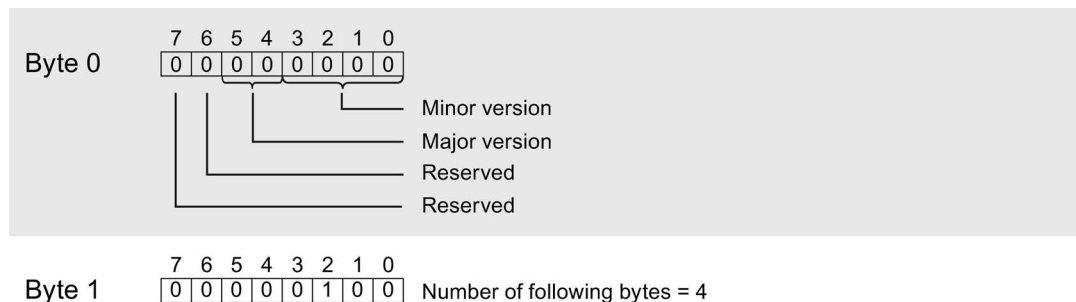


Figure 5-2 Header information

Parameters

The following diagram shows the structure of the parameter in byte 2.

Enable the parameter by setting the corresponding bit to "1".

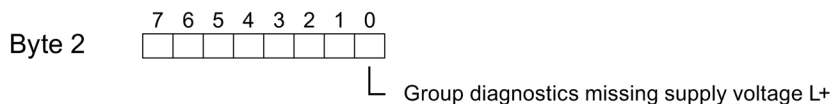


Figure 5-3 Structure of byte 2

Dimensional drawing

A.1 Server module

Dimensional drawing of the server module

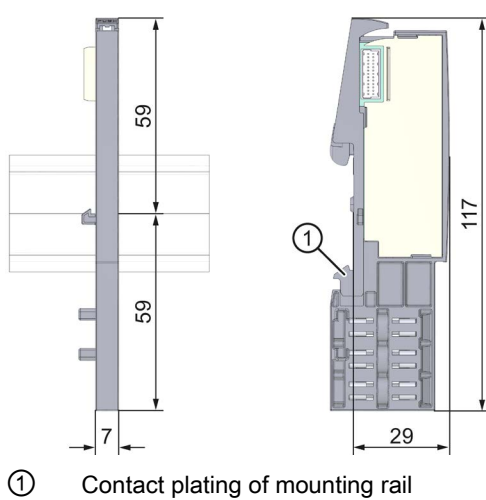


Figure A-1 Dimensional drawing of the server module

