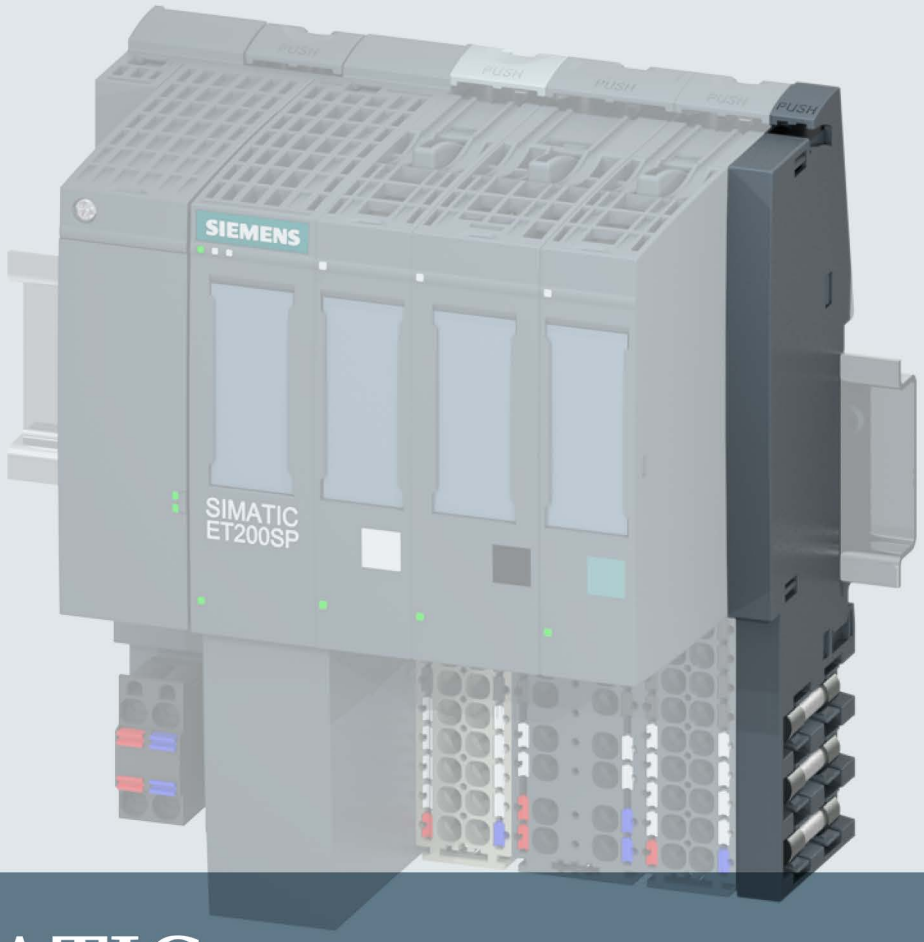
SIEMENS



SIMATIC

ET 200SP

Server module (6ES7193-6PA00-0AA0)

Manual

Edition 03/2015

Answers for industry.

Product overview

2

2.1 Properties

Article number

6ES7193-6PA00-0AA0

View of the module

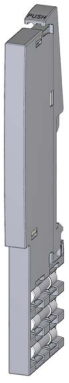


Figure 2-1 View of the server module

Properties

The module has the following technical properties:

- Closes off the backplane bus of the ET 200SP
- Contains a support for 3 spare fuses (5 × 20 mm)

The module supports the following functions:

- Firmware update
- I&M identification data
- Reconfiguration in RUN
- Representation of the statuses of supply voltage L+ and the feedback voltage (Page 15) per slot.
- Retentive storage of device name for device replacement without topological configuration of the IM 155-6 PN BA.

You can configure the module with STEP 7 (TIA Portal) and with a GSD file.

Function and properties	Product version of the module as of	Firmware version of the module as of
Support of the IM 155-6 PN BA	1	V1.1.1

Parameters/address space

3

3.1 Parameters

Parameters for the server module

The effective range of the configurable parameter depends on the type of configuration. Possible configuration: Distributed operation on PROFINET IO in an ET 200SP system.

When assigning parameters in the user program, use the "WRREC" instruction to transfer the parameter to the module by means of data records, see section Parameter assignment and structure of parameter data record (Page 19).

The following parameter settings are possible:

Table 3- 1 Configurable parameter and its default (GSD file)

Parameters	Range of values	Default	Reconfiguration in RUN	Effective range with configuration software, e.g., STEP 7 (TIA Portal)	
				GSD file PROFINET IO	GSD file PROFIBUS DP
Group diagnostics: No supply voltage L+	• Disable • Enable	No	Yes	ET 200SP	---

3.2 Explanation of the parameters

Group diagnostics: No 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: No 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 modules are inserted on light-colored 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-colored BaseUnit, the potential group is detected, the diagnostics is reevaluated according to the potential group arrangement and new diagnostics may be reported. The position of the light-colored BaseUnit remains stored in the structure until the supply voltage 1L+ of the CPU/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:
  No 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 CPU/interface module:

- Interface module with 12 I/O modules maximum configuration: 2/4 bytes
- Interface module with 32 I/O modules maximum configuration: 4/8 bytes
- CPU/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 on the CPU/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 2/4/8 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 4/8/16 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

Table 3- 2 Data length depending on configuration and maximum configuration

Maximum configuration	"Status supply voltage" deactivated	Activated	Activated
	"Status feedback voltage" deactivated	Deactivated	Activated
12 slots	0	2	4
32 slots	0	4	8
64 slots	0	8	16

3.3.1 Input data for interface modules with maximum 12 I/O modules

Configuration with enabled status detection of the supply voltage L+ (2 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 1):

- Supply voltage L+ present/missing or I/O module available/not available (2 bytes)

	7	6	5	4	3	2	1	0
Byte 0	8	7	6	5	4	3	2	1
Byte 1	x	x	x	x	12	11	10	9

Slots of the I/O modules
Bit = 1:
Supply voltage L+ available and I/O module available
Bit = 0:
Missing supply voltage L+ or no I/O module available
X = 0

Figure 3-1 Configuration with enabled status detection of the supply voltage L+ (2 bytes)

Configuration with enabled status detection of the supply voltage L+ and enabled status detection of the feedback voltage (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 (2 bytes)
- Feedback voltage present/missing (2 bytes)

	7	6	5	4	3	2	1	0
Byte 0	8	7	6	5	4	3	2	1
Byte 1	x	x	x	x	12	11	10	9

Slots of the I/O modules
Bit = 1:
Supply voltage L+ available and I/O module available
Bit = 0:
Missing supply voltage L+ or I/O module not available
x = 0

	8	7	6	5	4	3	2	1
Byte 2	8	7	6	5	4	3	2	1
Byte 3	x	x	x	x	12	11	10	9

Bit = 1:
Feedback voltage present
Bit = 0:
Feedback voltage missing
x = 0

Figure 3-2 Configuration with enabled status detection of the supply voltage L+ and enabled status detection of the feedback voltage (4 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 is 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 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
Byte 0	8	7	6	5	4	3	2	1
Byte 1	16	15	14	13	12	11	10	9
Byte 2	24	23	22	21	20	19	18	17
Byte 3	32	31	30	29	28	27	26	25

Slots of the I/O modules
Bit = 1:
Supply voltage L+ available and I/O module available
Bit = 0:
Missing supply voltage L+ or no I/O module available

Figure 3-3 Supply voltage L+ missing or I/O module not available (4 bytes); feedback voltage not available

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
Byte 0	8	7	6	5	4	3	2	1
Byte 1	16	15	14	13	12	11	10	9
Byte 2	24	23	22	21	20	19	18	17
Byte 3	32	31	30	29	28	27	26	25

Slots of the I/O modules
Bit = 1:
Supply voltage L+ available and I/O module available
Bit = 0:
Missing supply voltage L+ or I/O module not available

Byte 4	8	7	6	5	4	3	2	1
Byte 5	16	15	14	13	12	11	10	9
Byte 6	24	23	22	21	20	19	18	17
Byte 7	32	31	30	29	28	27	26	25

Bit = 1:
Feedback voltage present
Bit = 0:
Feedback voltage missing

Figure 3-4 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 is 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 Input data for CPU/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
Byte 0	8	7	6	5	4	3	2	1
Byte 1	16	15	14	13	12	11	10	9
Byte 2	24	23	22	21	20	19	18	17
Byte 3	32	31	30	29	28	27	26	25
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

Slots of I/O modules
Bit = 1:
Supply voltage L+ present and I/O module available
Bit = 0:
Missing supply voltage L+ or no I/O module available

Figure 3-5 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
Byte 0	8	7	6	5	4	3	2	1
Byte 1	16	15	14	13	12	11	10	9
Byte 2	24	23	22	21	20	19	18	17
Byte 3	32	31	30	29	28	27	26	25
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

Slots of I/O modules
Bit = 1:
Supply voltage L+ present and I/O module available
Bit = 0:
Missing supply voltage L+ or no I/O module available

	8	7	6	5	4	3	2	1
Byte 8	8	7	6	5	4	3	2	1
Byte 9	16	15	14	13	12	11	10	9
Byte 10	24	23	22	21	20	19	18	17
Byte 11	32	31	30	29	28	27	26	25
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

Bit = 1:
Feedback voltage available
Bit = 0:
Feedback voltage not available

Figure 3-6 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 is 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+.

3.3.4 Evaluating feedback voltage

Ranges of error

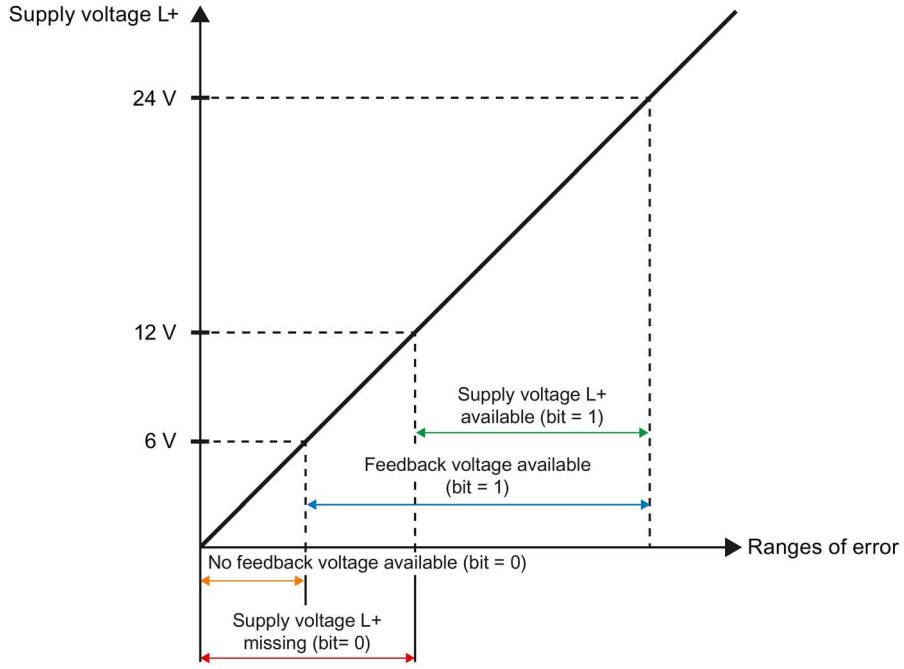


Figure 3-7 Ranges of error of the supply voltage L+ and the feedback voltage

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 2 and 3 (for 12 I/O modules and 4 bytes of input data)
- 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- 3 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.

Diagnostics alarms

4

A diagnostics alarm is output for each diagnostics event. The diagnostics alarms can, for example, be read out in the diagnostics buffer of the CPU. You can evaluate the error codes with the user program.

Table 4- 1 Diagnostics alarms, their meanings and corrective measures

Diagnostics alarm	Error code	Meaning	Solution
Server module with invalid firmware version (< V1.1.1)	$1B_H$	General error	• Replace the server module. • Firmware update of the server module.

Technical specifications

5

5.1 Technical specifications

Technical specifications of the server module

	6ES7193-6PA00-0AA0
Dimensions	
Width	7 mm
Height	117 mm
Depth	36 mm
Weights	
Weight, approx.	19 g