

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Selected official pages for procurement and maintenance review

PRODUCT BRAND

Siemens

PRODUCT MODEL

6ES7155-5BA00-0AB0

SIMATIC ET 200MP IM 155-5 DP ST interface module. PROFIBUS DP connection for a compatible distributed I/O station.

OFFICIAL SOURCE

Siemens: IM 155-5 DP ST interface module
A5E32346748-AA | Manual, 08/2013

Open the original Siemens manual

Eleven original pages follow: safety and preface, documentation guide, properties, terminal assignments, address setting, LED diagnostics, module status and configuration faults. Source pp. 2-3, 7, 10-13, 15-16, 22 and 24 retain original pagination.

This is a dated extract, not the complete manual or a current-rating certificate. Older rating tables are not included. Consult the full source for dimension drawings (pp. 37-38), and use current applicable specifications and system instructions.

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Amikon prepared this independent reference package. Siemens is the author of the appended original pages.

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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.
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indicates that property damage can result if proper precautions are not taken.

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The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

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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 technical manual supplements the ET 200MP distributed I/O system (<http://support.automation.siemens.com/WW/view/en/59193214>) system manual. Functions that generally relate to the system are described in this manual.

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

Conventions

Please also observe notes marked as follows:

Note

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

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Documentation guide

Introduction

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

The complete documentation for the ET 200MP distributed I/O system consists of a system manual, function manuals and product manuals.

The STEP 7 information system (Online Help) also helps you configure and program your automation system.

Overview of the documentation for the IM 155-5 DP ST interface module

Table 1- 1 Documentation for the IM 155-5 DP ST interface module

Topic	Documentation	Most important contents
System description	System manual ET 200MP distributed I/O system (http://support.automation.siemens.com/WW/view/en/59193214)	• Application planning • Installation • Wiring • Commissioning • Maintenance
Communication	Function manual: PROFIBUS with STEP 7 V12 (http://support.automation.siemens.com/WW/view/en/59193579)	• PROFIBUS basics • PROFIBUS functions • PROFIBUS diagnostics

SIMATIC manuals

All current manuals for the SIMATIC products are available for download free of charge from the Internet (<http://www.siemens.com/automation/service&support>).

Properties

- Technical properties
 - Connects the ET 200MP distributed I/O system with PROFIBUS DP
 - Bus connection via RS485 interface
 - 24V DC power supply (SELV/PELV)
 - Supports ET 200MP I/O modules
- Supported system functions
 - PROFIBUS DP
 - Identification data I&M 0 to 3
 - Operation as DPV1 slave
 - Firmware update via PROFIBUS DP. You can find additional information in the ET 200MP Distributed I/O System (<http://support.automation.siemens.com/WW/view/en/59193214>) system manual.

Maximum configuration

- 244 bytes I/O data per station
- The integrated power supply of the interface module feeds 14 W into the backplane bus. The interface module can supply up to 12 I/O modules. The exact number of operable modules is determined by the power budget (see relevant section in the ET 200MP distributed I/O system (<http://support.automation.siemens.com/WW/view/en/59193214>) system manual).

PROFIBUS connector

The 9-pin sub D PROFIBUS connector is included in the product package of the IM 155-5 DP ST interface module and available as accessory.

You can find additional information in the function manual, Designing interference-free controllers (<http://support.automation.siemens.com/WW/view/en/59193566>) in the section Connecting the bus shield for bus cables.

See also

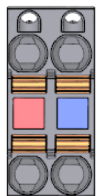
GSD file (<http://support.automation.siemens.com/WW/view/en/10805317/133300>)

Wiring

3.1 Terminal assignment

24V DC power supply

Table 3- 1 Terminal assignment 24V DC power supply

View	Signal name ¹⁾	Designation
	1L+	24 V DC
	2L+	24V DC (for looping through) ²⁾
	1M	Ground
	2M	Ground (for looping through) ²⁾

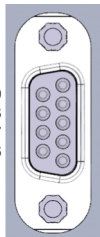
¹⁾ 1L+ and 2L+, as well as 1M and 2M are bridged internally.

²⁾ Permitted value 10 A

PROFIBUS DP with RS485 interface

The following table shows the signal names and the designations of the terminal assignment for the PROFIBUS DP interface.

Table 3- 2 Terminal assignment PROFIBUS DP with RS485 interface

View	Signal name	Designation
	1	-
	2	-
	3	RxD/TxD-P
	4	RTS
	5	M5V2
	6	P5V2
	7	-
	8	RxD/TxD-N
	9	-

Additional information

You can find additional information on connecting the interface module and on the accessories in the ET 200MP Distributed I/O System (<http://support.automation.siemens.com/WW/view/en/59193214>) system manual.

3.2 Block diagram

Block diagram

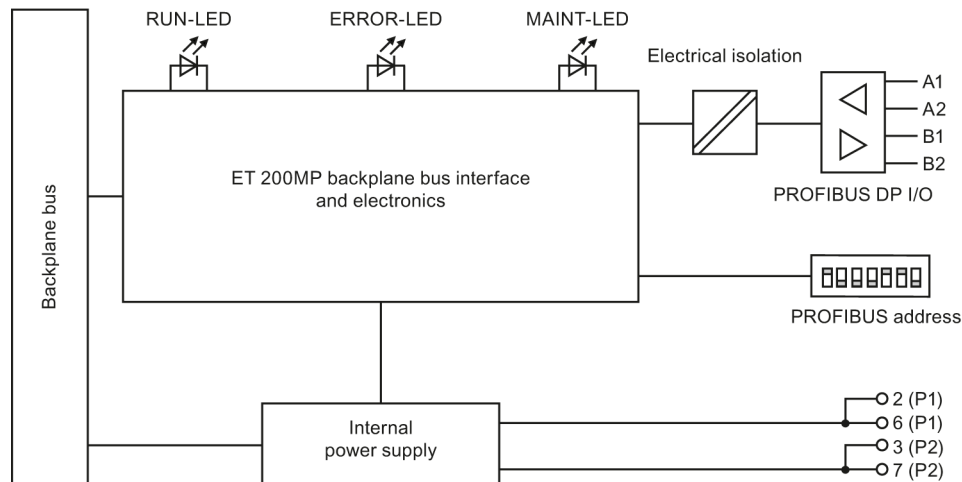


Figure 3-1 Block diagram of the IM155-5 DP ST interface module

3.3 Setting the PROFIBUS DP address

Introduction

Set the PROFIBUS DP address for the PROFIBUS DP on the IM 155-5 DP ST interface module. By setting the PROFIBUS DP address, you specify where the ET 200MP is to be addressed on the PROFIBUS DP.

Requirements

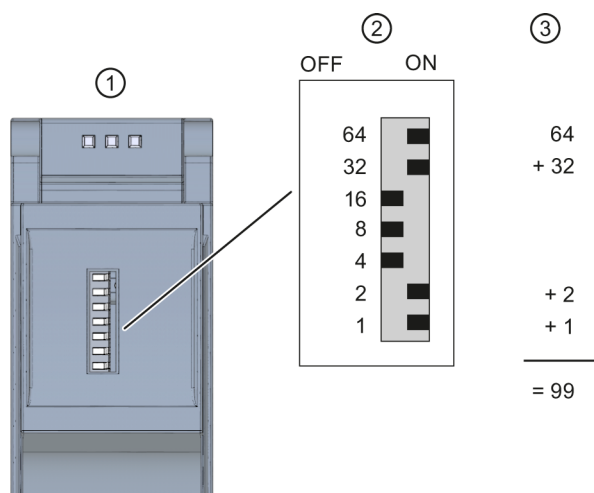
- Valid PROFIBUS DP addresses are 1 to 125.
- Each PROFIBUS DP address may be assigned only once on the PROFIBUS DP.
- The set PROFIBUS DP address must match the PROFIBUS DP address specified for the ET 200MP in the configuration software.

Required tools

Screwdriver 3 - 3.5 mm

Setting the PROFIBUS DP address

1. Open the front cover of the interface module.
2. Use a screwdriver to set the required PROFIBUS address via the DIP switch.
3. Close the front cover.



- ① Interface module IM 155-5 DP ST
 ② PROFIBUS DP address
 ③ Example: PROFIBUS DP address

Figure 3-2 Setting the PROFIBUS DP address

Note

Validity of the PROFIBUS DP address

The IM 155-5 DP ST interface module does not apply a configured PROFIBUS DP address until after a POWER OFF/POWER ON transition.

Changing the PROFIBUS DP address

You can change the PROFIBUS DP address in exactly the same way as you set it. A change to the PROFIBUS DP address only takes effect for the ET 200MP after a POWER OFF/POWER ON transition on the interface module.

Interrupts, diagnostics, error and system messages

4.1 Diagnostics via LED display

Introduction

Diagnostics by means of LED display is an initial tool for error localization. In order to localize errors still further, you usually need to evaluate the display of the module status in STEP 7 or the diagnostics buffer of the CPU. The diagnostics buffer contains plain text information on the error that has occurred. For example, you can find the number of the relevant error OB in the plain text information.

LED display

The figure below shows the LED display on the interface module.

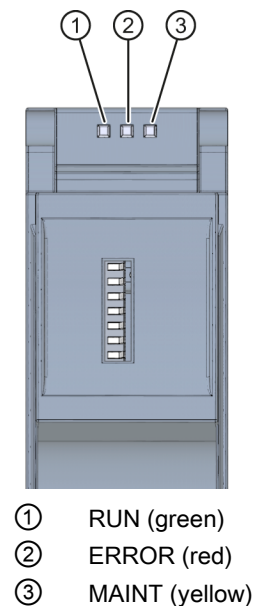


Figure 4-1 LED display on the interface module

Meaning of the RUN/ERROR/MAINT LED displays on the interface module

Table 4- 1 Meaning of the RUN/ERROR/MAINT LED displays on the interface module

LEDs			Meaning	Remedy
RUN	ERROR	MAINT		
 Off	 Off	 Off	Supply voltage at interface module missing or too low	Check the supply voltage or switch it on on the interface module.
 On	 On	 On	Test of LEDs during startup: The three LEDs light up simultaneously for approximately 0.25 s.	-
 Flashes	 Off	 Off	Interface module is deactivated.	Activate the interface module with the configuration software or the user program.
			Interface module is not configured.	Configure the interface module with the configuration software.
			ET 200MP starts up.	-
			ET 200MP is configured.	-
 On	Not relevant	Not relevant	ET 200MP is currently exchanging data with the DP master.	-
Not relevant	 Flashes	Not relevant	Group error and group error channels	Evaluate the diagnostics data and correct the error.
			The set configuration does not correspond to the actual configuration of the ET 200MP.	Check the configuration of the ET 200MP to determine whether a module is missing or faulty, or whether a non-configured module has been plugged in.
			Invalid configuration states	See section Invalid configuration states of the ET 200MP on PROFINET DP (Page 24).
 On	 On	 Off	Invalid PROFIBUS address (0,126,127)	Set the configured PROFIBUS address at the DIP switch and then switch on the interface module again.

Note

Parameter assignment error in the I/O module

If incorrect parameters are assigned for an I/O module (for example, substitute value outside the value range), the I/O module switches to non-configured state. The RUN LED (green) flashes on the I/O module.

The IM 155-5 DP ST interface module does not indicate a parameter assignment error in the I/O module.

4.2.6 Module status

The module status indicates the status of the configured modules and provides more information on the identifier-related diagnostics with respect to the configuration. The module status begins after the identifier-related diagnostics and comprises 8 bytes.

The following figure shows the structure of the module status of the IM 155-5 DP ST interface module

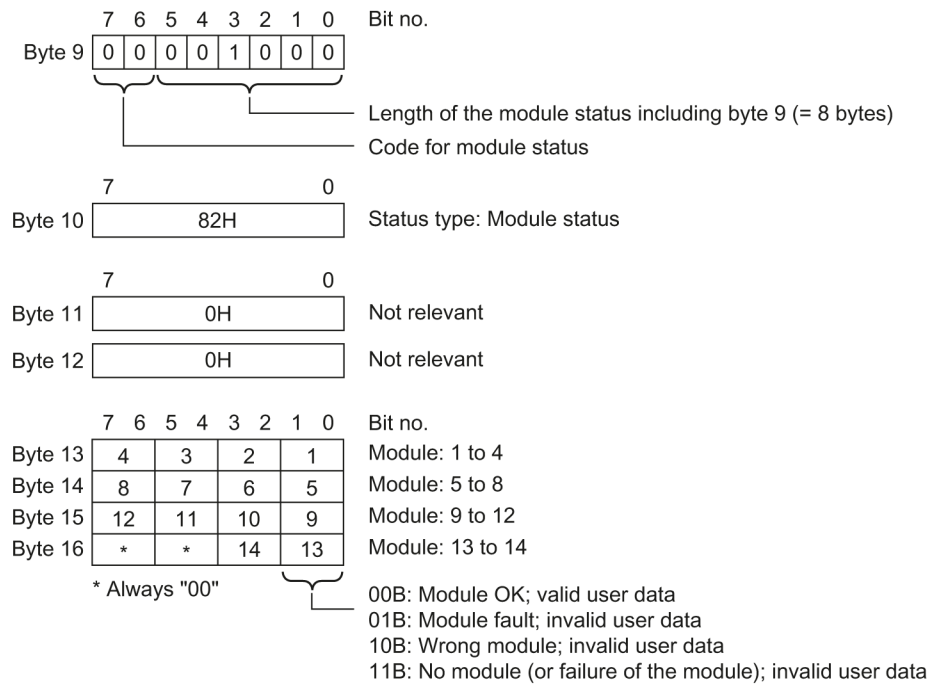


Figure 4-4 Module status structure

4.2.8 Invalid configuration states of the ET 200MP on PROFIBUS DP

Invalid configuration states

The following tables shows invalid configuration states of the ET 200MP distributed I/O system. The incorrect configuration states lead to the failure of the interface module or prevent the exchange of user data with the I/O modules. Invalid configuration states are mapped to the module status of slot 1 (power status) or slot 2 (interface module).

Table 4- 6 Invalid configuration states on the ET 200MP

Invalid configuration states	Signaling	
	Module status	Slot
Power budget fault (overload)	Module fault (01)	Slot 1 (power status)
Power supply module detected	Wrong module (10)	Slot 1 (power status)
Permitted number of I/O modules exceeded	Module fault (01)	Slot 2 (interface module)
No U connector detected on an IM port	Module fault (01)	Slot 2 (interface module)
More than one bus master module (IM/CPU) detected	Module fault (01)	Slot 2 (interface module)
Communication has failed with slot x	Module fault (01)	Slot 2 (interface module)

You can find additional information on the module status in the section Module status (Page 22).

Additional information

You can find additional information on maximum configuration and on power budget in the ET 200MP Distributed I/O System (<http://support.automation.siemens.com/WW/view/en/59193214>) system manual.