

# SIEMENS

## SIMATIC

ET 200S distributed I/O  
Digital electronic module  
4DI DC24V ST  
(6ES7131-4BD01-0AA0)  
Manual

Preface

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## Safety Guidelines

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.

<b>⚠ DANGER</b>
indicates that death or severe personal injury <b>will</b> result if proper precautions are not taken.
<b>⚠ WARNING</b>
indicates that death or severe personal injury <b>may</b> result if proper precautions are not taken.
<b>⚠ CAUTION</b>
with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.
<b>CAUTION</b>
without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.
<b>NOTICE</b>
indicates that an unintended result or situation can occur if the corresponding information is not taken into account.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

## Qualified Personnel

The device/system may only be set up and used in conjunction with this documentation. Commissioning and operation of a device/system may only be performed by **qualified personnel**. Within the context of the safety notes in this documentation qualified persons are defined as persons who are authorized to commission, ground and label devices, systems and circuits in accordance with established safety practices and standards.

## Prescribed Usage

Note the following:

<b>⚠ WARNING</b>
This device may only be used for the applications described in the catalog or the technical description and only in connection with devices or components from other manufacturers which have been approved or recommended by Siemens. Correct, reliable operation of the product requires proper transport, storage, positioning and assembly as well as careful operation and maintenance.

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## Disclaimer of Liability

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.

이 기기는 업무용(A급) 전자파 적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며 가정 외의 지역에서 사용하는 것을 목적으로 합니다.

# Preface

## Purpose of the manual

This manual supplements the *ET 200S Distributed I/O System* Operating Instructions. General functions for the ET 200S are described in the *ET 200S Distributed I/O System* Operating Instructions.

The information in this document along with the operating instructions enables you to commission the ET 200S.

## Basic knowledge requirements

To understand these operating instructions you should have general knowledge of automation engineering.

## Scope of the manual

This manual applies to this ET 200S module. It describes the components that are valid at the time of publication.

## Recycling and disposal

Thanks to the fact that it is low in contaminants, this ET 200S module is recyclable. For environmentally compliant recycling and disposal of your electronic waste, please contact a company certified for the disposal of electronic waste.

## Additional support

If you have any questions relating to the products described in these operating instructions, and do not find the answers in this document, please contact your local Siemens representative.

<http://www.siemens.com/automation/partner>

The portal to our technical documentation for the various SIMATIC products and systems is available at:

<http://www.siemens.com/automation/simatic/portal>

The online catalog and ordering system are available at:

<http://www.siemens.com/automation/mall>

## Training center

We offer courses to help you get started with the ET 200S and the SIMATIC S7 automation system. Please contact your regional training center or the central training center in D -90327, Nuremberg, Germany.

Phone: +49 (911) 895-3200.

<http://www.siemens.com/sitrain>

## Technical Support

You can reach technical support for all A&D projects

- using the support request web form:  
<http://www.siemens.com/automation/support-request>
- Phone: + 49 180 5050 222
- Fax: + 49 180 5050 223

For more information about our technical support, refer to our Web site at

<http://www.siemens.de/automation/service>

## Service & Support on the Internet

In addition to our documentation services, you can also make use of our comprehensive online knowledge base on the Internet.

<http://www.siemens.com/automation/service&support>

There you will find:

- Our Newsletter, which constantly provides you with the latest information about your products.
- The right documentation for you using our Service & Support search engine.
- The bulletin board, a worldwide knowledge exchange for users and experts.
- Your local contact for Automation & Drives in our contact database.
- Information about on-site services, repairs, spare parts. Lots more can be found on our "Services" pages.

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## Properties

### 1.1 Digital electronic module 4DI DC24V ST (6ES7131-4BD01-0AA0)

#### Properties

- Digital electronic module with four inputs
- Nominal input voltage 24 VDC
- Suitable for switches and proximity switches (BEROs)
- Extended temperature range from 0 to 55 °C with vertical installation

#### General terminal assignment

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##### Note

Terminals 4, 8, A4, A8, A3 and A7 are only available at specified terminal modules.

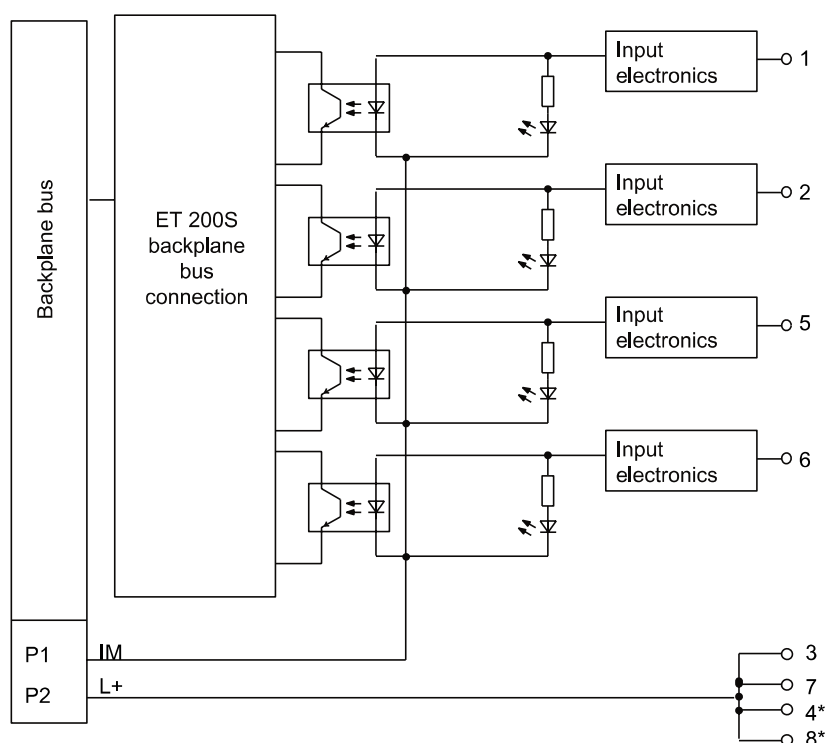
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Terminal assignment for the 4DI DC24V ST (6ES7131-4BD01-0AA0)				
Terminal	Assignment	Terminal	Assignment	Notes
1	DI <sub>0</sub>	5	DI <sub>1</sub>	<ul style="list-style-type: none"> <li>• DI<sub>n</sub>: Input signal, Channel n</li> <li>• L+: Sensor power supply 24 VDC</li> <li>• AUX1: Protective-conductor terminal or potential bus (freely usable up to 230 VAC)</li> </ul>
2	DI <sub>2</sub>	6	DI <sub>3</sub>	
3	L+	7	L+	
4	L+	8	L+	
A4	AUX1	A8	AUX1	
A3	AUX1	A7	AUX1	

Usable terminal modules

Usable terminal modules for the 4DI DC24V ST (6ES7131-4BD01-0AA0)				
TM-E15C26-A1 (6ES7193-4CA50-0AA0)	TM-E15C24-A1 (6ES7193-4CA30-0AA0)	TM-E15C24-01 (6ES7193-4CB30-0AA0)	TM-E15C23-01 (6ES7193-4CB10-0AA0)	← Spring terminal
TM-E15S26-A1 (6ES7193-4CA40-0AA0)	TM-E15S24-A1 (6ES7193-4CA20-0AA0)	TM-E15S24-01 (6ES7193-4CB20-0AA0)	TM-E15S23-01 (6ES7193-4CB00-0AA0)	← Screw-type terminal
TM-E15N26-A1 (6ES7193-4CA80-0AA0)	TM-E15N24-A1 (6ES7193-4CA70-0AA0)	TM-E15N24-01 (6ES7193-4CB70-0AA0)	TM-E15N23-01 (6ES7193-4CB60-0AA0)	← Fast Connect
				<p>Wiring examples</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>2-wire</p> </div> <div style="text-align: center;"> <p>3-wire</p> </div> </div> <p>* connect to Terminal 3 or 7 at TM-E15x23-01</p>

Block diagram



\* M only for terminal modules with terminal 4 and 8

Figure 1-1 Block diagram of the 4DI DC24V ST

Technical data 4DI DC24V ST (6ES7131-4BD01-0AA0)

Dimensions and weight	
Width (mm)	15
Weight	Approx. 35 g
Module-specific data	
Supports isochronous operation	No
Number of inputs	4
Length of cable	
• Unshielded	Max. 600 m
• Shielded	Max. 1,000 m
Parameter length	1 byte
Address space	1 byte
Address space (packed)	4 bits

## Properties

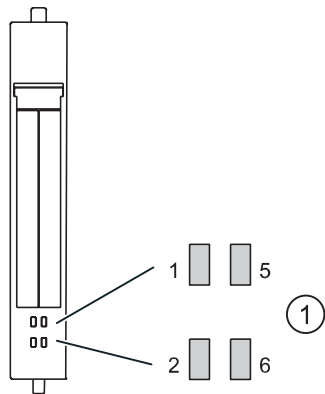
### 1.1 Digital electronic module 4DI DC24V ST (6ES7131-4BD01-0AA0)

<b>Voltages, currents, potentials</b>	
Rated supply voltage (from the power module)	24 VDC
• Reverse polarity protection	Yes
Electrical isolation	
• Between the channels	No
• Between the channels and backplane bus	Yes
Permissible potential difference	
• Between the different circuits	75 VDC / 60 VAC
Insulation test voltage	500 VDC
Current consumption	
• From supply voltage	Dependent on the sensor
Power dissipation of the module	Typically 0.7 W
<b>Status, interrupts, diagnostics</b>	
Status display	Green LED per channel
Diagnostics function	No
<b>Sensor power supply output</b>	
Output voltage	
• With load	Min. L+ (-0.5 V)
Output current	
• Rated value	500 mA
• Permitted range	0 to 500 mA
<b>Data for selecting a sensor</b>	
Input voltage	
• Rated value	24 VDC
• For signal "1"	15 V to 30 V
• For signal "0"	-30 V to 5 V
Input current	
• At signal "1"	Typ. 7 mA (for 24 V)
Input delay	
• At "0" to "1"	Typ. 3 ms (2.0 to 4.5 ms)
• At "1" to "0"	Typ. 3 ms (2.0 to 4.5 ms)
Input characteristic curve	According to IEC 61131, Type 1
Connection of 2-wire BEROs	
• Permitted bias current	Max. 1.5 mA

## Diagnostics

### 2.1 Diagnostics using LED display

#### LED display



① Status display for input status (green)

#### Status displays

Event (LEDs)				Cause	Remedy
1	5	2	6		
On				Input on channel 0 activated.	—
	On			Input on channel 1 activated.	—
		On		Input on channel 2 activated.	—
			On	Input on channel 3 activated.	—