SIEMENS

SIMATIC

ET 200S distributed I/O
Digital electronic module 2RO NO/NC DC24..48V/5A AC24..230V/5A (6ES7132-4HB12-0AB0)

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

with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.

CAUTION

without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.

NOTICE

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 product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation for the specific task, 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.

Proper use of Siemens products

Note the following:

⚠ WARNING

Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be adhered to. The information in the relevant documentation must be observed.

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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.

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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 (http://support.automation.siemens.com/WW/view/en/1144348).

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 this manual and do not find the answers in this document, please contact your local Siemens representative (http://www.siemens.com/automation/partners).

A guide to the technical documentation for the various SIMATIC products and systems is available on the Internet. (http://www.siemens.com/simatic-docu).

The online catalog and ordering systems are available on the Internet (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 (http://www.siemens.com/sitrain).

Technical Support

You can contact Technical Support for all Industry Automation products by means of the Internet Web form for the Support Request (http://www.siemens.com/automation/csi_en_WW/support_request).

Additional information about Siemens Technical Support is available on the Internet (http://www.siemens.com/automation/csi_en_WW/service).

Service & Support on the Internet

In addition to our documentation, we offer a comprehensive knowledge base on the Internet (http://www.siemens.com/automation/csi_en_WW/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, and lots more.

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Properties

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1.1 Digital electronic module 2RO NO/NC DC24..48V/5A AC24..230V/5A (6ES7132-4HB12-0AB0)

Properties

- Digital electronic module with two relay outputs
- Output current 5 A per output
- Replacement value
- Suitable for solenoid valves, DC contactors, and indicator lights
- Isolated from the supply voltage
- Normally opened and normally closed contacts

Note

If you connect an extra-low voltage system (SELV/PELF) on one channel of the relay subassembly, you can only use an extra-low voltage system (SELV/PELF) on the other channel.

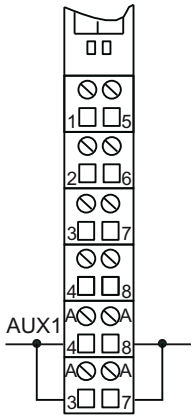
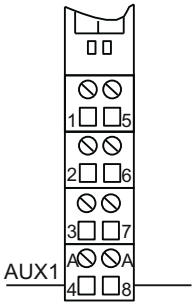
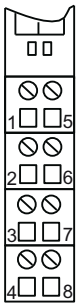
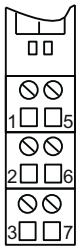
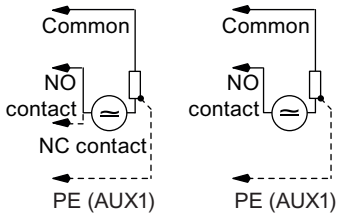
General terminal assignment

Note

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

Terminal assignment for 2RO NO/NC DC24..48V/5A AC24..230V/5A (6ES7132-4HB12-0AB0)				
Terminal	**Assignment**	**Terminal**	**Assignment**	**Notes**
1	$Common_0$	5	$Common_1$	• $Common_n$, NOC_n or NCC_n, channel n • n.c.: Not connected (max. 30 VDC can be connected) • AUX1: Protective-conductor terminal or potential bus (freely usable up to 230 VAC)
2	Normally open $contact_0$	6	Normally open $contact_1$	
3	Normally closed $contact_0$	7	Normally closed $contact_1$	
4	n.c.	8	n.c.	
A4	AUX1	A8	AUX1	
A3	AUX1	A7	AUX1	

Usable terminal modules

Usable terminal modules for 2RO NO/NC DC24..48V/5A AC24..230V/5A (6ES7132-4HB12-0AB0)				
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
				Connection examples 

Block diagram

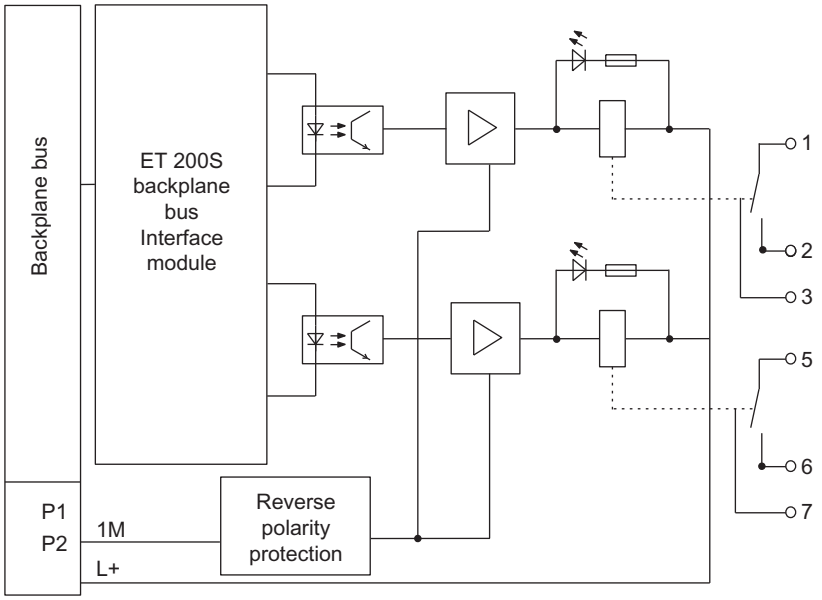


Figure 1-1 Block diagram of the 2RO NO/NC DC24..48V/5A AC24..230V/5A

Technical data 2RO NO/NC DC24..48V/5A AC24..230V/5A (6ES7132-4HB12-0AB0)

Dimensions and weight	
Width (mm)	15
Weight	Approx. 50 g
Module-specific data	
Supports isochronous operation	No
Number of outputs	2
Cable length	
• Unshielded	Max. 600 m
• Shielded	Max. 1000 m
Parameter length	3 bytes
Address space	1 byte
Address space (packed)	2 bits
Voltages, currents, potentials	
Rated supply voltage L+ (from the power module)	24 VDC
Reverse polarity protection Current per channel	Yes
• Up to 50°C	Max. 5 A
• Up to 60°C	Max. 4 A
Electrical isolation	
• Between the channels	Yes
• Between channels and backplane bus	Yes
• Between channels and supply voltage	Yes
• Between the supply voltage and backplane bus	Yes
Permissible potential difference	
• Between the supply voltage and backplane bus	75 VDC / 60 VAC
• Between channels and backplane bus	240 VAC
• Between channels and supply voltage	240 VAC
Insulation tested	
• Between the supply voltage and backplane bus	500 VDC
• Between channels and backplane bus	2500 VDC
• Between channels and supply voltage	2500 VDC
Current consumption	
• From the power supply L+	max. 30 mA
• From backplane bus	max. 10 mA
Power dissipation of the module	Typically 0.6 W

Status, interrupts, diagnostics	
Status display	Green LED per channel
Diagnostics function	No
Data for selecting an actuator	
Output current	
• Continuous thermal current	Max. 5 A
• Minimum load current	8 mA
Connecting two outputs in parallel	
• For redundant control of a load	No
• To increase performance	No
Control of a digital input	Yes
Switch rate	
• For resistive load	2 Hz
• On inductive load	0.5 Hz
• For lamp load	2 Hz
Limitation (internal) of the voltage induced on circuit interruption	No
Short-circuit protection of the output[1]	No

[1] The relay outputs must be fused externally with 6 A. For installation in a hazardous area as specified by the National Electric Code (NEC) the fuse must only be removed with a suitable tool if the subassembly is not in an explosive area.

Switching capacity and lifetime of the contacts

With an external protective circuit, the contacts will last longer than specified in the following table.

The normally open and normally closed contacts of the relay have a different lifetime. The table shows the switching capacity and lifetime of the contacts.

Table 1- 1 Switching capacity and lifetime of the contacts

Resistive load	Voltage	Current	Duty cycles (typ.) Normally open contact	Duty cycles (typ.) Normally closed contact
For resistive load	24 VDC	5.0 A	0.1 million	0.15 million
		4.0 A	0.2 million	0.175 million
		2.0 A	0.45 million	0.3 million
		0.5 A	1.4 million	1.1 million
		0.1 A	1.5 million	1.5 million
	48 VDC	2.0 A	0.15 million	0.11 million
		1.0 A	0.3 million	0.2 million
		0.5 A	0.6 million	0.6 million
		0.1 A	0.8 million	0.6 million
	48 VAC	2.0 A	0.45 million	0.35 million
	60 VAC	2.0 A	0.45 million	0.35 million
	120 VAC	5.0 A	0.1 million	0.1 million
		3.0 A	0.2 million	0.2 million
		2.0 A	0.4 million	0.3 million
		1.0 A	0.8 million	0.6 million
		0.5 A	1.5 million	1.0 million
	230 VAC	5.0 A	0.1 million	0.1 million
		3.0 A	0.2 million	0.2 million
		2.0 A	0.4 million	0.3 million
		1.0 A	0.8 million	0.6 million
		0.5 A	1.5 million	1.0 million
For inductive load in accordance with IEC 947-5-1 DC 13/ AC 15	24 VDC	2.0 A	0.1 million	0.1 million
		1.0 A	0.2 million	0.2 million
		0.5 A	0.5 million	0.5 million
	48 VDC	2.0 A	0.07 million	0.05 million
		1.0 A	0.15 million	0.1 million
		0.5 A	0.4 million	0.25 million
	48 VAC	1.0 A	0.5 million	0.3 million
	60 VAC	1.0 A	0.5 million	0.3 million
	120 VAC	2.0 A	0.1 million	0.1 million
		1.0 A	0.3 million	0.1 million
		0.5 A	0.9 million	0.6 million
		0.1 A	1.5 million	1.0 million
	230 VAC	2.0 A	0.1 million	0.1 million
		1.0 A	0.5 million	0.3 million
		0.5 A	0.9 million	0.6 million
		0.1 A	1.0 million	1.0 million

Parameters

2

2.1 Parameters

This table shows the parameters for digital output modules:

Table 2- 1 Parameters for digital output modules

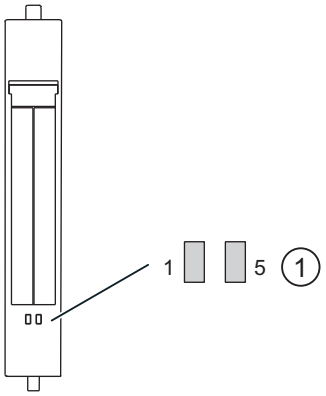
2RO NO NC DC24..48V/5A AC24..230V/5A	Range of values	Default setting	Applicability
Reaction to CPU-/master-STOP	• Substitute a value • Keep last value	Substitute a value	Module
Substitute value *	• "0" • "1"	"0"	Channel
* If the interface module or COMPACT module becomes deenergized, the digital output modules will not produce substitute values. Output value = 0.			

Diagnostics

3

3.1 Diagnostics using LED display

LED display



① Status display for output status (green)

Status and error displays

Event (LEDs)		Cause	Remedy
1	5		
On		Output on channel 0 activated.	—
	On	Output on channel 1 activated.	—

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