

SIEMENS

SIMATIC

ET 200S distributed I/O
Digital electronic module
4DO DC24V/0.5A HF
(6ES7132-4BD00-0AB0)
Manual

Properties

1

Parameters

2




Diagnostics

3

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.


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, 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 complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

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.

Table of contents

1	Properties	5
1.1	Digital electronic module 4DO DC24V/0.5A HF (6ES7132-4BD00-0AB0).....	5
2	Parameters	11
2.1	Parameters.....	11
3	Diagnostics	13
3.1	Diagnostics by means of LED display	13
3.2	Fault types.....	14
	Index.....	15

Properties

1.1 Digital electronic module 4DO DC24V/0.5A HF (6ES7132-4BD00-0AB0)

Properties

- Digital electronic module with four outputs
- Output current 0.5 A per output
- Rated load voltage 24 VDC
- Diagnostics: short-circuit
- Short-circuit protection
- Suitable for solenoid valves, DC contactors, and indicator lights
- Extended temperature range from 0 to 55 °C with vertical installation

Peculiarity

When you connect the 24 VDC rated load voltage to the power module by means of a mechanical contact, the digital outputs feed the "1" signal for approximately 50 µs, depending on the circuit. You need to take this into account if you connect the module to fast counters.

Requirements for operation

It is possible to operate the 4DO DC24V 0.5A HF digital electronic module with the following interface modules, as of the specified order numbers.

Interface module	as of order number	Firmware version (or higher)
IM 151-1 STANDARD	6ES7151-1AA05-0AB0	V2.2.4
IM 151-1 FO STANDARD	6ES7151-1AB05-0AB0	---
IM 151-1 HIGH FEATURE	6ES7151-1BA02-0AB0	V2.2.3
IM 151-3 PN	6ES7151-3AA23-0AB0	V6.1
IM 151-3 PN FO	6ES7151-3BB23-0AB0	V6.1
IM 151-3 PN HIGH FEATURE	6ES7151-3BA23-0AB0	V6.1
IM 151-1 BASIC	6ES7151-1CA00-0AB0	---
IM151-1 COMPACT	6ES7151-1CA00-1BL0 6ES7151-1CA00-3BL0	---
IM 151-7 CPU	6ES7151-7AA20-0AB0	---
IM 151-7 CPU FO	6ES7151-7AB00-0AB0	---
IM 151-7 F-CPU	6ES7151-7FA20-0AB0	---
IM 151-8 PN/DP CPU	6ES7151-8AB00-0AB0	---
IM 151-8 PN/DP F-CPU	6ES7151-8FB00-0AB0	---

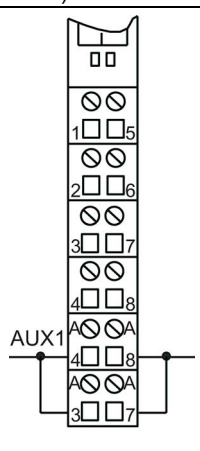
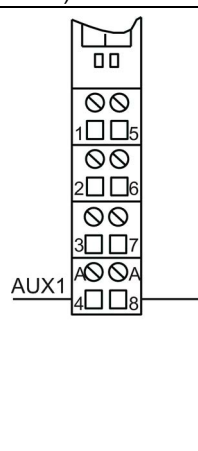
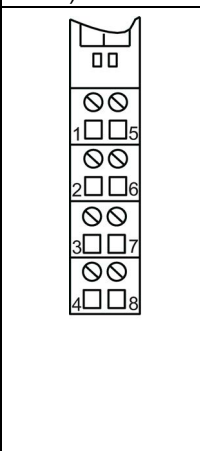
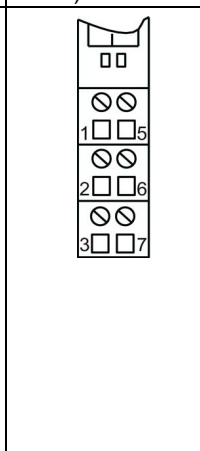
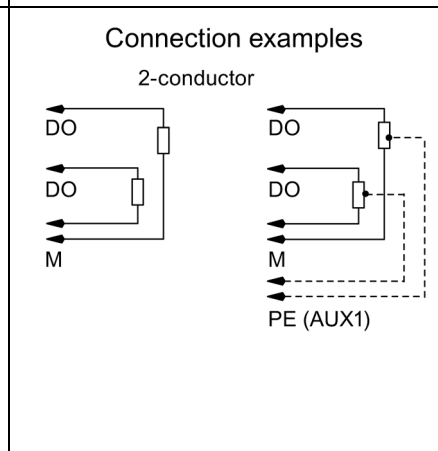
General terminal assignment

Note

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

Terminal assignment for 4DO DC24V/0.5A HF (6ES7132-4BD00-0AB0)				
Terminal	Assignment	Terminal	Assignment	Notes
1	DO ₀	5	DO ₁	<ul style="list-style-type: none"> DO_n: Output signal, Channel n M: Ground AUX1: Protective-conductor terminal or potential bus (freely usable up to 230 VAC)
2	DO ₂	6	DO ₃	
3	M	7	M	
4	M	8	M	
A4	AUX1	A8	AUX1	
A3	AUX1	A7	AUX1	

Usable terminal modules

Usable terminal modules for 4DO DC24V/0.5A HF (6ES7132-4BD00-0AB0)				
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
				<p>Connection examples</p> <p>2-conductor</p> 

Block diagram

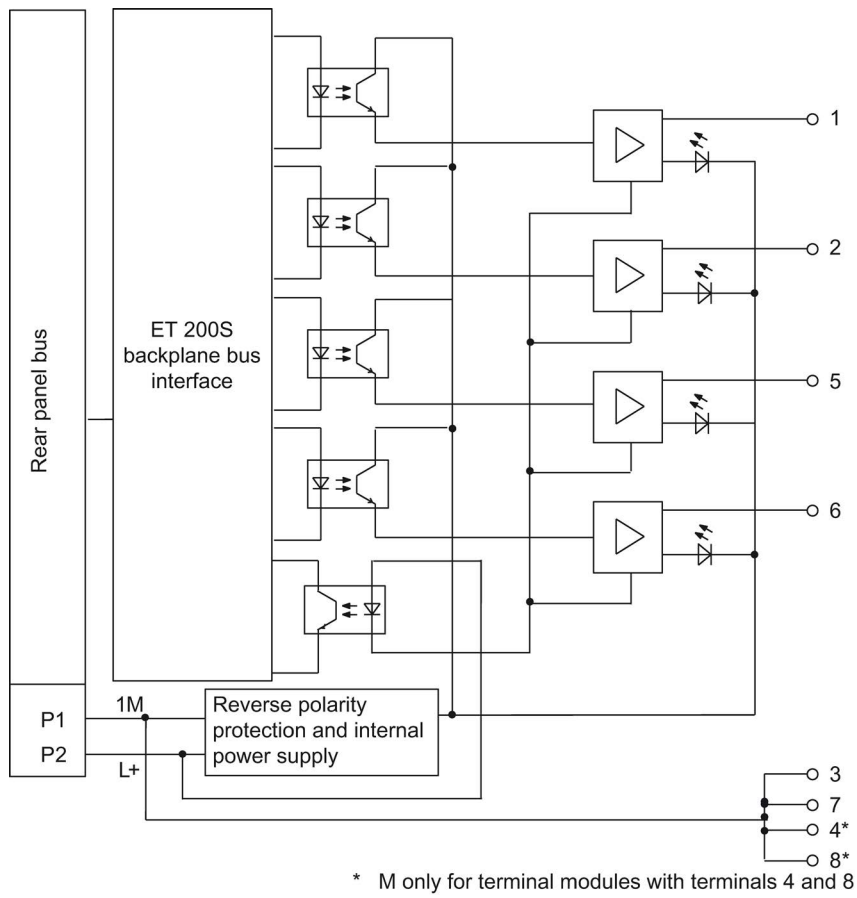


Figure 1-1 Block diagram 4DO DC24V/2A HF

Technical data 4DO DC24V/0.5A HF (6ES7132-4BD00-0AB0)

Dimensions and weight	
Width (mm)	15
Weight	Approx. 40 g
Module-specific data	
Supports isochronous operation	Yes
Number of outputs	4
Cable length	
• Unshielded	max. 600 m
• Shielded	max. 1000 m
Parameter length	3 byte
Address space	1 byte
Address space (packed)	4 bits
Voltages, currents, potentials	
Rated load voltage L+ (from the power module)	24 VDC
• Reverse polarity protection	Yes ¹
Total current of the outputs (per module)	2 A
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 tested	500 VDC
Current consumption	
• From the load voltage L+ (no load)	Max. 5 mA per channel
Power dissipation of the module	Typically 0.8 W
Status, interrupts, diagnostics	
Status display	Green LED per channel
Diagnostics function	
• Group error	Red "SF" LED
• Diagnostic functions readable	Yes
Data for selecting an actuator	
Output voltage	
• At signal "1"	Min. L+ (-1 V)

Properties

1.1 Digital electronic module 4DO DC24V/0.5A HF (6ES7132-4BD00-0AB0)

Output current	
• At signal "1"	
– Rated value	0.5 A
– Permitted range	7 mA to 0.6 A
• With signal "0" (leakage current)	max. 0.1 mA
Output delay (for resistive load)	
• At "0" to "1"	Max. 100 µs
• At "1" to "0"	Max. 300 µs
Load resistor range	48 Ω to 3.4 kΩ
Lamp load	Max. 5 W
Connecting two outputs in parallel	
• For redundant triggering of a load	Yes (per module)
• To increase performance	No
Control of a digital input	Yes
Switch rate	
• For resistive load	100 Hz ²
• On inductive load	2 Hz ²
• For lamp load	10 Hz ²
Limitation (internal) of the voltage induced on circuit interruption	typ. L + (-45 V)
Reverse-voltage proof	Yes, if using the same load voltage as at the power module ³
Short-circuit protection of the output	Yes (per channel) ⁴
¹ Polarity reversal can lead to the digital outputs being connected through.	
² The diagnostic message "short-circuit" is reported based on the thermal short-circuit detection in the output driver.	
³ The module must be supplied with voltage.	
⁴ limited to typ. 1 A	

Parameters

2.1 Parameters

This table shows the parameters for digital output modules:

Table 2- 1 Parameters for digital output modules

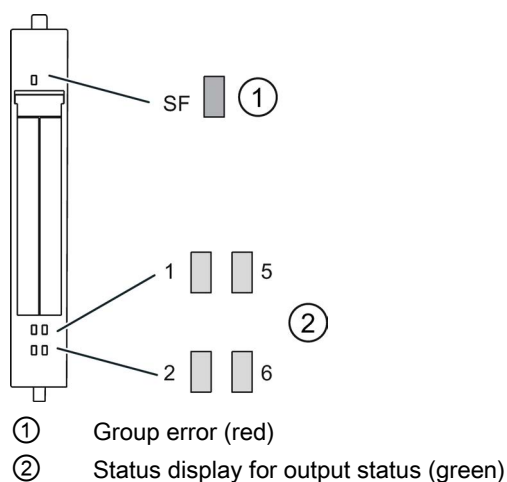
4DO DC24V/0.5A HF	Range of values	Default setting	Applicability
Response to CPU/master STOP	<ul style="list-style-type: none"> • Outputs zero current/voltage • Retain last value 	Outputs zero current/voltage	Module
Diagnostics	<ul style="list-style-type: none"> • Enable • Disable 	Disable	Module

Diagnostics

3.1 Diagnostics by means of LED display

Digital electronic modules

LED displays on digital electronic modules:



Status and error displays by means of LEDs on digital electronic modules

The table below shows the status and error displays on the digital electronic modules.

Event (LEDs)					Cause	Remedy
SF	1	5	2	6		
on					No configuration or incorrect module plugged in. There is a diagnostic message.	Check the parameter assignment. Evaluate the diagnostics.
	on				Output on channel 0 activated.	—
		on			Output on channel 1 activated.	—
			on		Output on channel 2 activated.	—
				on	Output on channel 3 activated.	—

3.2 Fault types

Digital electronic module error types

Table 3- 1 Error types

Error type		Meaning	Remedy
26 _D	11010: External error	Short circuit (on at least one channel) ¹	Correct the process wiring

¹ Diagnostic messages issued on channel 0. "Short circuit" is only detected in the switched output state.

Channel-specific diagnostics data

The assignments of bytes 36 and 37 in channel-based diagnostics of the electronic module is shown below:

Byte	Assignment
36	Channel type: 00 _B
	Number of channel providing the diagnostics: 00000 _B
37	Channel resolution: 001 _B (bit)
	Type of error: See above

Additional information on channel-based diagnostics is available in the device manuals of the ET 200S interface modules.

Index

D

Digital electronic module 4DO DC24V/0.5A HF

Block diagram, 8

Properties, 5, 5

Technical data, 9

Terminal assignment, 6

Digital electronic modules, 13

Error types, 14

P

Parameters

for 4DO DC24V/0.5A HF, 11

