

SIEMENS

Properties

1

Parameters

2

Diagnostics

3

SIMATIC

ET 200S distributed I/O
Digital electronic module 8DO
DC24V/0.5A HF (6ES7132-4BF00-
0AB0)

Manual

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.

Table of contents

| | | |
|----------|--|-----------|
| 1 | Properties | 5 |
| 1.1 | Digital electronic module 8DO DC24V/0.5A HF (6ES7132-4BF00-0AB0) | 5 |
| 2 | Parameters | 11 |
| 2.1 | Parameters..... | 11 |
| 3 | Diagnostics | 13 |
| 3.1 | Diagnostics using LED display..... | 13 |
| 3.2 | Error types..... | 14 |

Properties

1.1 Digital electronic module 8DO DC24V/0.5A HF (6ES7132-4BF00-0AB0)

Properties

- Digital electronic module with eight outputs
- Output current 0.5 A per output, aggregate current 4 A
- Rated load voltage 24 VDC
- Diagnostics: wire break
- Short-circuit protection
- Suitable for solenoid valves, DC contactors, and indicator lights
- Supports isochronous operation

Requirements for operation

It is possible to operate the 8DO 24 V DC/0.5 A HF digital electronic module with the following interface modules, as of the specified order numbers:

| Interface module | Order number (or higher) | 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 | --- |

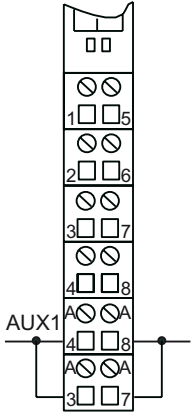
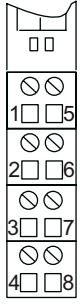
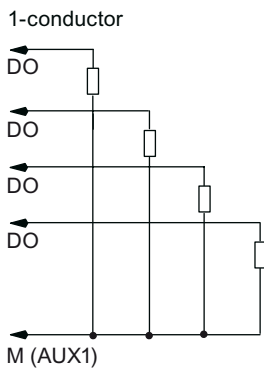
General terminal assignment

Note

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

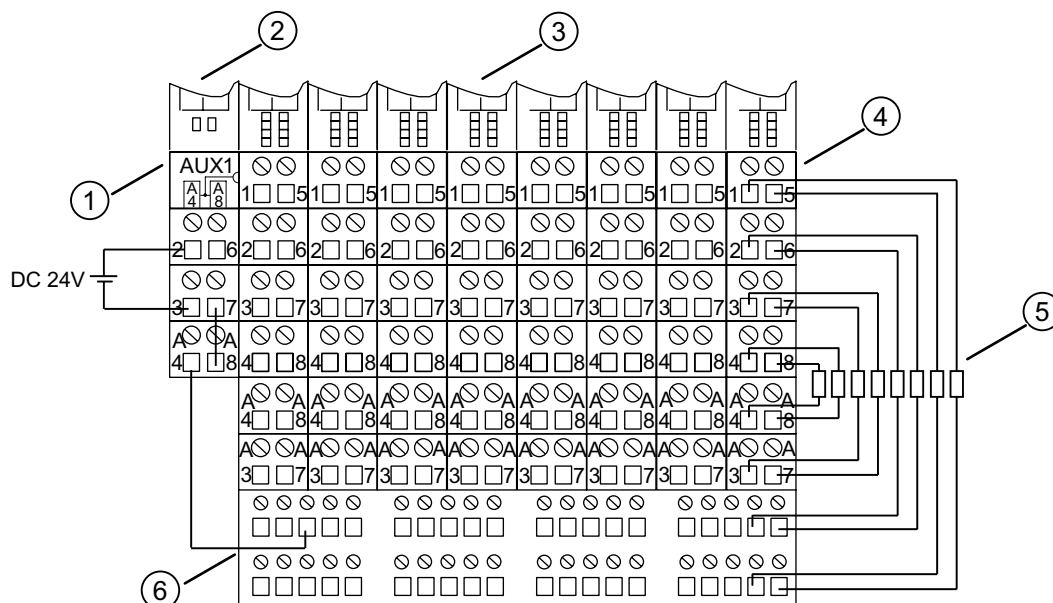
| Terminal assignment for 8DO DC24V/0.5A HF (6ES7132-4BF00-0AB0) | | | | |
|--|-----------------|----------|-----------------|---|
| Terminal | Assignment | Terminal | Assignment | Notes |
| 1 | DO ₀ | 5 | DO ₁ | <ul style="list-style-type: none"> DO_n: Output signal, Channel n AUX1: M chassis ground (from power module) or potential bus (freely usable up to 230 VAC) |
| 2 | DO ₂ | 6 | DO ₃ | |
| 3 | DO ₄ | 7 | DO ₅ | |
| 4 | DO ₆ | 8 | DO ₇ | |
| A4 | AUX1 | A8 | AUX1 | |
| A3 | AUX1 | A7 | AUX1 | |

Usable terminal modules

| Terminal assignment for 8DO DC24V/0.5A HF (6ES7132-4BF00-0AB0) | | |
|---|---|--|
| TM-E15C26-A1 (6ES7193-4CA50-0AA0) | TM-E15C24-01 (6ES7193-4CB30-0AA0) | ← Spring terminal |
| TM-E15S26-A1 (6ES7193-4CA40-0AA0) | TM-E15S24-01 (6ES7193-4CB20-0AA0) | ← Screw-type terminal |
| TM-E15N26-A1 (6ES7193-4CA80-0AA0) | TM-E15N24-01 (6ES7193-4CB70-0AA0) | ← Fast Connect |
|  |  | <p>Connection examples</p>  |

Two-wire connection

The following configuration example shows a 2-wire connection with the electronic modules 8DO DC24V. You require further terminals so that sufficient terminals are available for the chassis ground connection M when the TM-E15S26-A1 terminal modules are used. In the example this is implemented by the add-on terminal TE-U120S4x10 that can be mounted as from a width of 120 mm (8 EMs). You can naturally also use other terminals for this configuration (for example, ET 200S potential distribution module 4POTDIS).



- ① Terminal module TM-P15S23-A0
- ② Power module PM-E 24 VDC
- ③ Electronic modules 8DI DC24V
- ④ Terminal modules TM-E15S26-A1
- ⑤ Actuators in 2-wire connection
- ⑥ Add-on terminal TE-U120S4x10

Block diagram

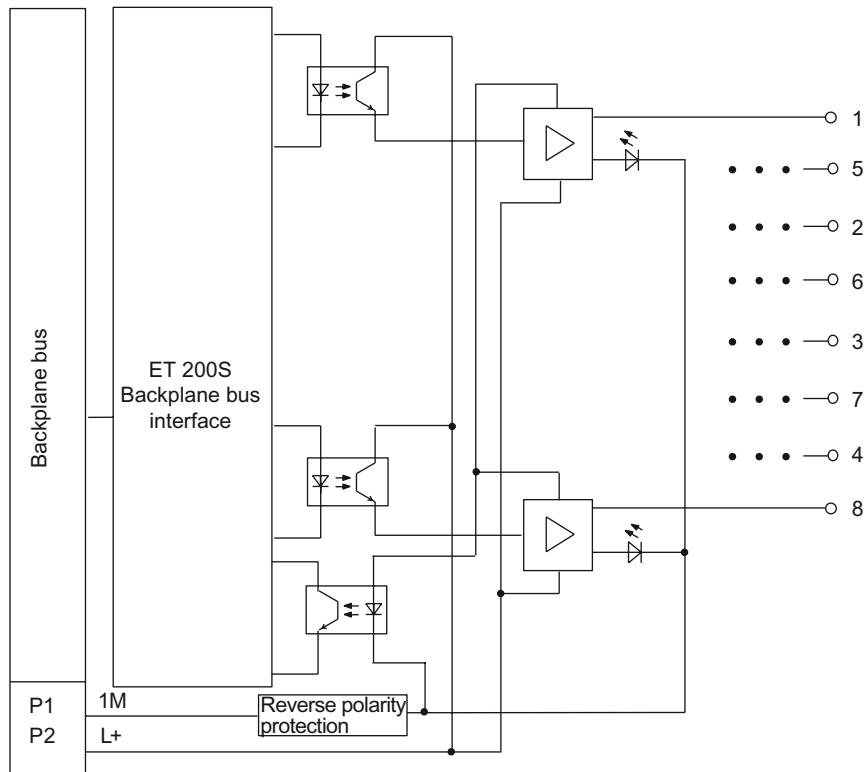


Figure 1-1 Block diagram 8DO DC24V/0.5A HF

Technical data 8DO DC24V/0.5A HF (6ES7132-4BF00-0AB0)

| Dimensions and weight | |
|---|-----------------------|
| Width (mm) | 15 |
| Weight | Approx. 40 g |
| Module-specific data | |
| Supports isochronous operation | Yes |
| Number of outputs | 8 |
| Length of cable | |
| • Unshielded | max. 600 m |
| • Shielded | max. 1,000 m |
| Parameter length | 3 bytes |
| Address space | 1 byte |
| 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) | 4 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 rated load voltage L+ (no load) | Max. 5 mA per channel |
| Power dissipation of the module | Typically 1.5 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) |
| Output current | |
| • At signal "1" | |
| – Rated value | 0.5 A |
| – Permitted range | 7 mA up to 0.6 A |
| • With signal "0" (leakage current) | max. 0.3 mA |
| Output delay (for resistive load) | |

Properties

1.1 Digital electronic module 8DO DC24V/0.5A HF (6ES7132-4BF00-0AB0)

| | |
|--|--|
| • At "0" to "1" | max. 300 μ s |
| • At "1" to "0" | max. 600 μ s |
| Load resistor range | 48 Ω to 3.4 k Ω |
| 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 + (-55 V) |
| Reverse-voltage proof | Yes, if using the same load voltage as at the power module |
| Short-circuit protection of the output | Yes (per channel) ³ |

¹ Polarity reversal can lead to the digital outputs being connected through.

² The diagnostic message "short circuit" is based on the thermal short-circuit detection in the output driver.

³ limited to typ. 1.5 A

Parameters

2.1 Parameters

This table shows the parameters for the digital output modules:

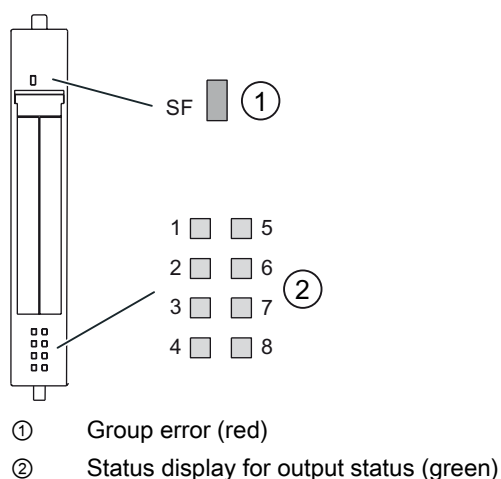
Table 2- 1 Parameters for digital output modules

| 8DO DC24V/0.5A HF | Range of values | Default setting | Applicability |
|--|---|--------------------|---------------|
| Response to CPU/master STOP | <ul style="list-style-type: none"> • Substitute a value • Retain last value | Substitute a value | Module |
| Substitute value ¹ | <ul style="list-style-type: none"> • 0 • 1 | 0 | Channel |
| Diagnostics | <ul style="list-style-type: none"> • Enable • Disable | Disable | Module |
| ¹ If the interface module or COMPACT module becomes deenergized, the digital output modules will not produce substitute values. Output value = 0. | | | |

Diagnostics

3.1 Diagnostics using LED display

LED display



Status and error displays

| Event (LEDs) | | | | | | | | | Cause | Remedy |
|--------------|----|----|----|----|----|----|----|----|--|---|
| SF | 1 | 5 | 2 | 6 | 3 | 7 | 4 | 8 | | |
| On | | | | | | | | | No configuration or incorrect module plugged in. Diagnostic message. | Check the parameter settings. Evaluate the diagnosis. |
| | On | | | | | | | | Output on channel 0 activated. | --- |
| | | On | | | | | | | Output on channel 1 activated. | — |
| | | | On | | | | | | Output on channel 2 activated. | — |
| | | | | On | | | | | Output on channel 3 activated. | — |
| | | | | | On | | | | Output on channel 4 activated. | — |
| | | | | | | On | | | Output on channel 5 activated. | — |
| | | | | | | | On | | Output on channel 6 activated. | — |
| | | | | | | | | On | Output on channel 7 activated. | — |

3.2 Error 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 message will be issued on channel 0. "Short circuit" is only reported in the switched output state.

Diagnostic interrupt byte x + 10 and byte x + 11

The following is a representation of the assignment of bytes x+10 and x+11 in the diagnostic frame of the electronic module:

| Byte | Assignment |
|------|--|
| x+10 | Number of channels per module: 00000001 _B |
| x+11 | Diagnostic event at channel 0 of the module: 00000001 _B |

For additional information on the diagnostic interrupts, refer to the manuals for the ET 200S interface modules.