

**WAGO → I/O → SYSTEM 750**

**Fieldbus Independent  
I/O Modules**

**2 DO DC 24 V 2.0 A, High-Side  
Switching  
750-507**



**Manual**

Version 1.0.5

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Every conceivable measure has been taken to ensure the correctness and completeness of this documentation. However, as errors can never be fully excluded, we would appreciate any information or ideas at any time.

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We wish to point out that the software and hardware terms as well as the trademarks of companies used and/or mentioned in the present manual are generally trademark or patent protected.

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# 1 Important Comments

To ensure fast installation and start-up of the units described in this manual, we strongly recommend that the following information and explanations are carefully read and abided by.

## 1.1 Legal Principles

### 1.1.1 Copyright

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### 1.1.2 Personnel Qualification

The use of the product detailed in this manual is exclusively geared to specialists having qualifications in PLC programming, electrical specialists or persons instructed by electrical specialists who are also familiar with the valid standards. WAGO Kontakttechnik GmbH & Co. KG declines all liability resulting from improper action and damage to WAGO products and third party products due to non-observance of the information contained in this manual.

### 1.1.3 Intended Use

For each individual application, the components supplied are to work with a dedicated hardware and software configuration. Modifications are only permitted within the framework of the possibilities documented in the manuals. All other changes to the hardware and/or software and the non-conforming use of the components entail the exclusion of liability on part of WAGO Kontakttechnik GmbH & Co. KG.

Please direct any requirements pertaining to a modified and/or new hardware or software configuration directly to WAGO Kontakttechnik GmbH & Co. KG.

## 1.2 Symbols



### **Danger**

Always abide by this information to protect persons from injury.



### **Warning**

Always abide by this information to prevent damage to the device.



### **Attention**

Marginal conditions must always be observed to ensure smooth operation.



### **ESD (Electrostatic Discharge)**

Warning of damage to the components by electrostatic discharge. Observe the precautionary measure for handling components at risk.



### **Note**

Routines or advice for efficient use of the device and software optimization.



### **More information**

References on additional literature, manuals, data sheets and internet pages.

## 1.3 Number Notation

Number Code	Example	Note
Decimal	100	normal notation
Hexadecimal	0x64	C notation
Binary	'100' '0110.0100'	within inverted commas, nibble separated with dots

## 1.4 Safety Notes



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### Warning

Switch off the system prior to working on bus modules!

In the event of deformed contacts, the module in question is to be replaced, as its functionality can no longer be ensured on a long-term basis.

The components are not resistant against materials having seeping and insulating properties. Belonging to this group of materials is: e.g. aerosols, silicones, triglycerides (found in some hand creams).

If it cannot be ruled out that these materials appear in the component environment, then additional measures are to be taken:

- installation of the components into an appropriate enclosure
  - handling of the components only with clean tools and materials.
- 



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### Attention

Cleaning of soiled contacts may only be done with ethyl alcohol and leather cloths. Thereby, the ESD information is to be regarded.

Do not use any contact spray. The spray may impair the functioning of the contact area.

The WAGO-I/O-SYSTEM 750 and its components are an open system. It must only be assembled in housings, cabinets or in electrical operation rooms. Access must only be given via a key or tool to authorized qualified personnel.

The relevant valid and applicable standards and guidelines concerning the installation of switch boxes are to be observed.

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### ESD (Electrostatic Discharge)

The modules are equipped with electronic components that may be destroyed by electrostatic discharge. When handling the modules, ensure that the environment (persons, workplace and packing) is well grounded. Avoid touching conductive components, e.g. gold contacts.

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## 1.5 Scope

This manual describes the Digital Output Module 750-507  
2 DO DC 24 V 2.0 A, High-Side Switching of the modular WAGO-I/O-SYSTEM 750.

Handling, assembly and start-up are described in the manual of the Fieldbus Coupler. Therefore this documentation is valid only in the connection with the appropriate manual.

## 2 I/O Modules

### 2.1 Digital Output Module

#### 2.1.1 750-507 [2 DO DC 24 V 2.0 A, High-Side Switching]

2-Channel Digital Output Module DC 24 V 2.0 A,  
high-side switching, diagnostics

##### 2.1.1.1 View

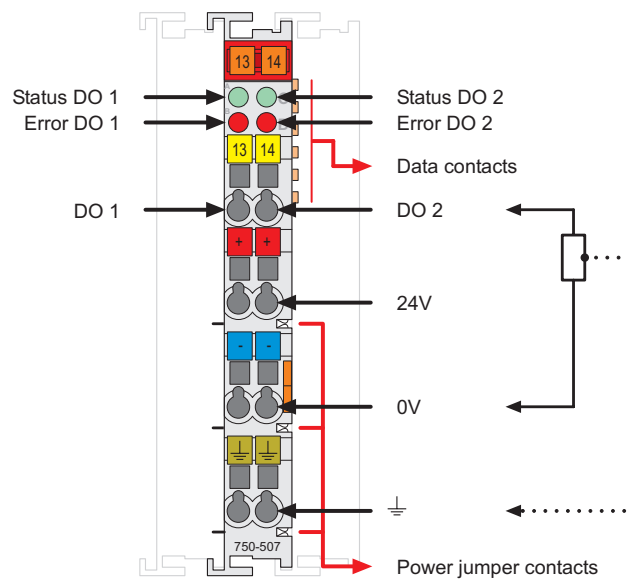


Fig. 2.1.1-1: 2-Channel Digital Output Module 750-507

g050700e

##### 2.1.1.2 Description

The connected load is switched via the digital output from the control system. These output modules can recognize a short circuit to ground, a line break and an overload in either channel.

The module has two output channels. Two actuators with ground (earth) wire may be directly connected to signal output DO 1, 0 V and PE (earth potential) or signal output DO 2, 0 V and PE.



##### Note

For the connection of inductive loads a protected circuit, e. g. a recovery diode, has to be switched parallel to this load.

The output channels are electrically short-circuit-protected and high-side switching. Which means that the status of the output channels is "high" if the output channels switch to the 24 V supply voltage for the field side.

The supply voltage for the field side is derived from an adjacent supply module by means of power jumper contacts.

The status of the two output channels is indicated via green status LEDs. In addition, a red error-LED will show if there are any overload, short circuit to ground or a line break in either channel.

In the event of an overload, short circuit or line break, an error bit per channel (bit 0 for channel DO 1 and bit 1 for channel DO 2) is set in the input process image. Using this bit, the master control can identify the error. After rectifying the error, the error bit is reset in the input image and the error LED goes off.

At short-circuit to ground or overload and when the output is set, the output will change to 0 and stays even after the fault has been cleared. The output will only return to 1, if it is reset by the controller, or if the supply voltage has been turned off and on.

An optocoupler is used for electrical isolation between the bus and the field side.

Any configuration of the output modules is possible when designing the fieldbus node. Grouping of module types is not necessary.

The field side supply voltage of 24 V for the output module is derived from adjacent I/O modules or from a supply module. The supply voltage for the field side is made automatically through the individual I/O modules by means of power jumper contacts.



**Warning**

The maximum current of the internal power jumper contacts is 10 A. When configuring the system it is important not to exceed the maximum/sum current. However, if such a case should occur, another supply module must be added.

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**Attention**

In case of overloads a supply module with fuse (750-601) must be connected on the line side to protect the output modules!

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The output module 750-507 can be used with all couplers/controllers of the WAGO-I/O-SYSTEM 750.



2.1.1.3 Display Elements

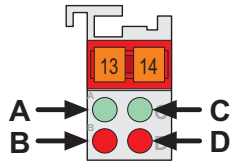


Fig. 2.1.1-2: Display Elements g050602x

LED	Channel	Designation	Normal operation, Output follows output bit		No load is connected		Short circuit with 3ND*		Short circuit with 14 V*		Overtemperature at overload*	
			on	off	on	off	on	off	on	off	on	off
A green	1	Status DO 1	on	off	on	off	off	off	on	on	off	off
B red		Error DO 1	off	off	off	on	on	off	off	on	on	on
		Status from PLC to the module	1	0	1	0	1	0	1	0	1	0
C green	2	Status DO 2	on	off	on	off	off	off	on	on	off	off
D red		Error DO 2	off	off	off	on	on	off	off	on	on	on
		Status from PLC to the module	1	0	1	0	1	0	1	0	1	0

\* The full diagnostic is only possible provided that the diagnostic evaluation is made in connection with the defined operating status.

2.1.1.4 Schematic Diagram

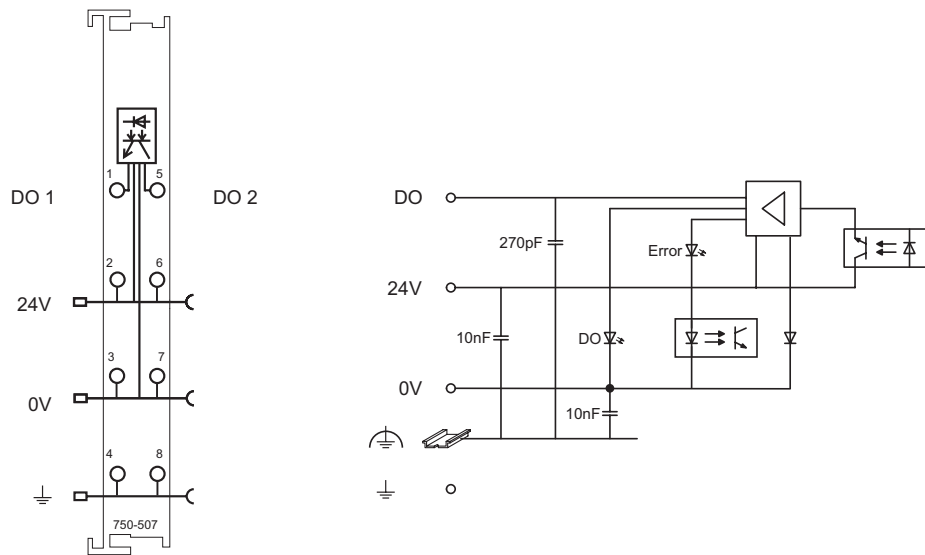












Fig. 2.1.1-3: 2-Channel Digital Output Module 750-507

g050701e

### 2.1.1.5 Technical Data

Module Specific Data		
Number of outputs	2	
Current consumption (internal) <sub>max.</sub>	15 mA	
Voltage via power jumper contacts	DC 24 V (-25 % ... +30%)	
Type of load	resistive, inductive, lamps	
Switching rate <sub>max.</sub>	2.5 kHz	
Reverse voltage protection	yes	
Output current	2.0 A	
Short-circuit limitation <sub>typ. Pwm</sub>	33 A (42 A peak)	
Open-circuit limitation	< 60 µA	
Diagnostics	open circuit, overload and short circuit	
Energie dissipation W <sub>max.</sub> (unique switching off)	1.7 J L <sub>max.</sub> = 2 W <sub>max.</sub> / I <sup>2</sup>	
Isolation	500 V (System/Field)	
Current consumption <sub>typ.</sub> (field side)	15 mA module + load	
Internal bit width	2 Bit In, 2 Bit Out	
Dimensions (mm) W x H x L	12 x 64* x 100 * from upper edge of 35 DIN rail	
Weight	ca. 50 g	
Standards and Regulations (cf. Chapter 2.2 of the Coupler/Controller Manual)		
EMC-Immunity to interference (CE)	acc. to EN 50082-2 (96)	
EMC-Emission of interference (CE)	acc. to EN 50081-1 (93)	
Approvals (cf. Chapter 2.2 of the Coupler/Controller Manual)		
	cUL <sub>US</sub> (UL508)	
	ABS (American Bureau of Shipping)	
	BV (Bureau Veritas)	
	DNV (Det Norske Veritas)	Cl. B
	GL (Germanischer Lloyd)	Cat. A, B, C, D
	KR (Korean Register of Shipping)	
	LR (Lloyd's Register) (applied for)	Env. 1, 2, 3, 4
	NKK (Nippon Kaiji Kyokai)	
	cUL <sub>US</sub> (UL1604)	Class I Div2 ABCD T4A
	KEMA	II 3 G EEx nA II T4
	Conformity Marking (applied for)	



**More Information**

Detailed references to the approvals are listed in the document "Overview Approvals WAGO-I/O-SYSTEM 750", which you can find on the CD ROM ELECTRONICC Tools and Docs (Item-No.: 0888-0412) or in the internet under:

[www.wago.com](http://www.wago.com) → Documentation → WAGO-I/O-SYSTEM 750 → System Description

**2.1.1.6 Process Image**

The output bits control the state of the outputs.

Output bit	B1	B0
Meaning	controls DO 2 Channel 2	controls DO 1 Channel 1

The input bits show the state of the outputs.

Input bit	B1	B0
Meaning	Diagnostics DO 2	Diagnostics DO 1
Normal operation, output DO 1 or DO 2 follows the output bit	0	0
Error at the output DO 1 bzw. DO 2: a) no load connected b) Short circuit with GND c) Short circuit with 24 V d) Overtemperature at overload	1	1



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