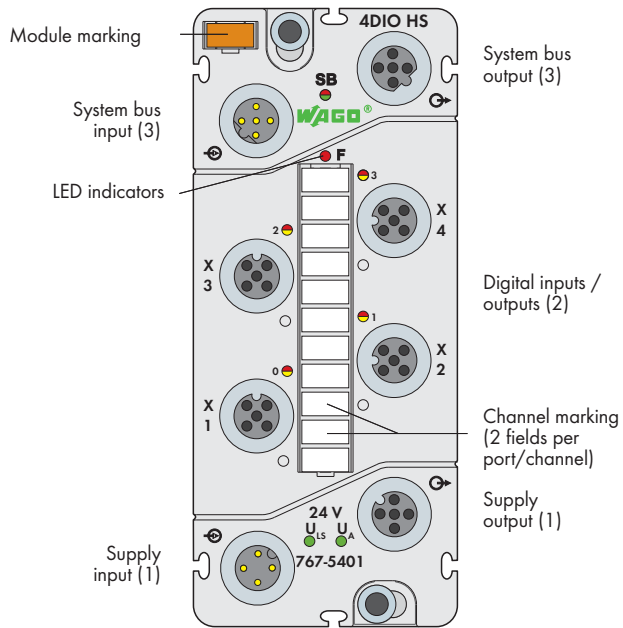


Digital Input/Output Module, 24 VDC / 0.2 A, High Speed

4 inputs/outputs (4 x M12)



Short description:

This digital input/output module records/outputs binary signals from sensors/actuators with short response times. The 767-5401 Module features high-speed inputs/outputs, making it ideal for use with fast ETHERNET-based fieldbus systems (e.g., sercos).

Features:

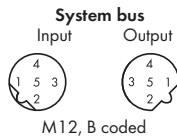
- 4 digital inputs/outputs, 24 VDC / 0.2 A, incl. counter function
- Front-end cycle time (hardware) max. 3 μ s
- Diagnostic-capable (channel by channel/module by module)
- Parametrizable (operating mode, filter, inversion, substitute value strategy, substitute value, manual mode, online simulation and diagnostics)

Included:

- 1 x WMB marker, orange
- 1 x marking strip
- 2 x M12 protective cap

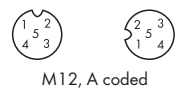
Description	Item No.	Pack. Unit
4DIO 24VDC 0.2A HS (4xM12)	767-5401	1
Product discontinuation	Last Call: 30.09.2018	
Accessories		
Marking strips, marking pen, spacer module and protective caps	see pages 520 ... 521	
IP67 cables and connectors	see pages 502 ... 517 + Section 11	
Technical Data		
Module supply:		
Connection type (1)	M12 connectors, A coded, 4 poles; Derating must be observed	
Current carrying capacity of supply connections	Max. 8 A (U_{IS} : 4 A, U_A : 4 A)	
Supply voltage		
Logic and sensor voltage U_{IS}	24 V DC (-25 % ... +30 %)	
Actuator voltage U_A	24 V DC (-25 % ... +30 %)	
Supply current		
Logic and sensor current I_S	typ. 40 mA (logic component only)	
Actuator current I_A	typ. 30 mA + sensors/actuators (max. 1000 mA) + load	
Protection	Reverse voltage protection for U_{IS} + U_A Short-circuit protection for sensor/actuator supply	

Technical Data	
Digital inputs:	
Number of inputs	4
Connection type (2)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Front-end cycle time (hardware)	max. 3 μ s
Front-end jitter/skew (input)	< 2 μ s
Input characteristic	Type 1, acc. to IEC 61131-2
Signal voltage (0)	-3 V ... +5 V DC
Signal voltage (1)	+15 V ... +30 V DC
Input wiring	high-side switching
Input voltage	24 VDC (-3 VDC < U_{IN} < +30 VDC); Power from U_A strongly recommended
Input current (typ.)	2.9 mA
Connection of 2-wire BEROs	max. 1.5 mA admissible closed current
Wrong connection of inputs	No effect
Cable length, shielded	\leq 30 m
Input characteristic:	
Input voltage	Typical input current
0 V	0 mA
5 V	2.0 mA
15 V	2.5 mA
24 V	2.9 mA
30 V	3.2 mA

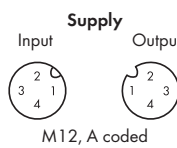
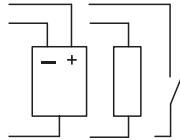


- 1: RD+/TD+
 - 2: RD-/TD-
 - 3: TD-/RD-
 - 4: TD+/RD+
 - 5: GND
- Housing: Shield

Digital Inputs/Outputs
X1 ... X4



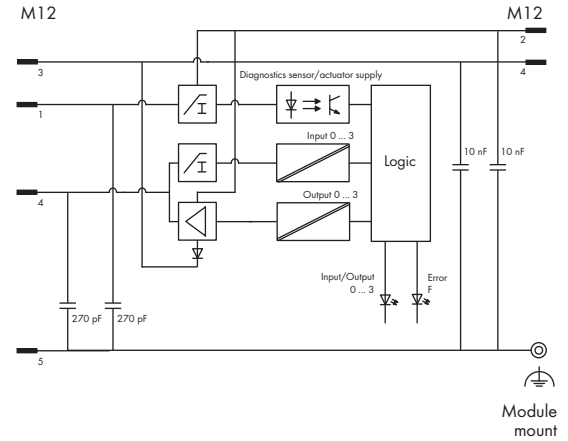
- 1: 24 V
 - 3: 0 V U_A
 - 5: Shield
 - 4: In-/Output
- Housing: Shield



- 1: 24 V U_{IS}
- 2: 24 V U_A
- 3: 0 V U_{IS}
- 4: 0 V U_A

Block diagram of an input/output

Digital Input/Output
X1 ... X4



Technical Data

Digital outputs:

No. of outputs	4
Connection type (2)	M12 connectors, A coded, 5 poles, shielded
Wire connection	2- or 3-wire
Output voltage	≤ U _A
Output current (per channel)	0.2 A, short-circuit/overload proof (thermal disconnection)
Voltage drop against U _A at 200 mA	Max. 2.0 V DC
Output current (module)	max. 0.8 A
Leakage current in OFF state	typ. 100 µA
Output circuit	Push/Push

Information on actuator selection:

Front-end cycle time 90% (hardware)	max. 0,5 µs
Edge steepness	T _{ON/OFF} : typ. < 0,2 µs
Front-end jitter/skew (output)	< 0,2 µs
Type of load	Inductive, resistive loads and lamps
Switching frequency	Inductive load upon request Resistive load upon request Lamp load upon request
Type of protective circuit	External protection (e.g., recovery diodes)

Operating state influence on output:

PLC CPU stop	Acc. to substitute value strategy
Fieldbus disruption	Acc. to substitute value strategy
S-bus (system bus) disruption	0 V status
Supply voltage under rated voltage tolerance	0 V status
Interruption of supply voltage	0 V status
Output operation	Non-latching
Overload behavior	Automatic restart

Counters:

No. of counters	1
Counter type	Event, gateway time, pulse duration
Counting/switching frequency	0 Hz ... 1 kHz

Technical Data

System bus:

Connection type (3)	M12 connectors, B coded, 5 poles, shielded
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Standards and approvals:

Conformity marking	CE
UL 508	
BVS 15 ATEX E 098 X	II 3G Ex nA IIC T5 Gc, II 3D Ex tc IIIB T90°C Dc
IECEX BVS 15.0083X	Ex nA IIC T5 Gc, Ex tc IIIB T90°C Dc

Isolation:

Channel - Channel	No
U _{IS} , U _A , system bus	500 VDC each

Configurable functions:

Operating mode (per module)	DO module/DI module/DIO module/ DIO + 1 counter
Input filter (per channel)	10/ 25/ 50/ 100/ 200 µs/ 1/ 3 ms/ filter off
Inversion (per channel)	On/off
Substitute value strategy (per channel)	Switch substitute value/hold last value
Substitute value (per channel)	0/1
Manual mode (per channel)	On/off
Manual mode value (per channel)	0/1
Online simulation (per channel)	Lock/unlock, simulation value: 0/1
Online simulation (per channel/module)	Diagnostics

I/O diagnostics:

I/O diagnostics (per channel)	Overtemperature
I/O diagnostics (per module)	Short-circuit of sensor/actuator supply Undervoltage (U _{IS} + U _A)

Process image:

Process data width	depends on operating mode
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LED indicators:

SB: System bus status	LED (green/red/orange)
F: Error status	LED (red)
0 - 3: Signal status, inputs/outputs	LED (yellow/red)
0 - 3: Diagnostics, outputs	LED (red)
U _{IS} + U _A : Supply status	LED (green)
Indicators	Non-latching

General Specifications

Dimensions (mm) W x H x L	50 x 35.7 x 117
Weight	255 g