

SIMATIC S7-1500 Digital input/output module, DI16x 24 V DC BA, 16 channels in groups of 16, Input delay typ. 3.2 ms Input type 3 (IEC 61131), DQ16X24 V DC/0.5A BA; 16 channels in groups of 8; 4 A per group; Delivery incl. front connector Push-in



General information	
Product type designation	DI 16x24VDC / DQ16x24VDC/0.5A BA
HW functional status	FS01
Firmware version	V1.0.0
• FW update possible	Yes
Product function	
• I&M data	Yes; I&M0 to I&M3
• Prioritized startup	Yes
Engineering with	
• STEP 7 TIA Portal configurable/integrated as of version	V13 / V13
• STEP 7 configurable/integrated as of version	V5.5 SP3 / -
• PROFIBUS as of GSD version/GSD revision	V1.0 / V5.1
• PROFINET as of GSD version/GSD revision	V2.3 / -
Operating mode	
• DI	Yes
• Counter	No
• DQ	Yes
• DQ with energy-saving function	No

• PWM	No
• Oversampling	No
• MSI	Yes
• MSO	Yes
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes; through internal protection with 7 A per group
Input current	
Current consumption, max.	30 mA
Output voltage	
Rated value (DC)	24 V
Power	
Power available from the backplane bus	1.1 W
Power loss	
Power loss, typ.	3.45 W
Digital inputs	
Number of digital inputs	16
Digital inputs, parameterizable	No
Source/sink input	P-reading
Input characteristic curve in accordance with IEC 61131, type 3	Yes
Input voltage	
• Type of input voltage	DC
• Rated value (DC)	24 V
• for signal "0"	-30 to +5V
• for signal "1"	+11 to +30V
Input current	
• for signal "1", typ.	2.7 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	No
— at "0" to "1", min.	3 ms
— at "0" to "1", max.	4 ms
— at "1" to "0", min.	3 ms
— at "1" to "0", max.	4 ms
for interrupt inputs	
— parameterizable	No
Cable length	

• shielded, max.	1 000 m
• unshielded, max.	600 m

Digital outputs

Type of digital output	Transistor
Number of digital outputs	16
Current-sourcing	Yes
Short-circuit protection	Yes
• Response threshold, typ.	1 A
Limitation of inductive shutdown voltage to	L+ (-53 V)
Controlling a digital input	Yes
Switching capacity of the outputs	
• with resistive load, max.	0.5 A
• on lamp load, max.	5 W
Load resistance range	
• lower limit	48 Ω
• upper limit	12 k Ω
Output voltage	
• for signal "1", min.	L+ (-0.8 V)
Output current	
• for signal "1" rated value	0.5 A
• for signal "1" permissible range, max.	0.5 A
• for signal "0" residual current, max.	0.5 mA
Output delay with resistive load	
• "0" to "1", max.	100 μ s
• "1" to "0", max.	500 μ s
Parallel switching of two outputs	
• for logic links	Yes
• for uprating	No
• for redundant control of a load	Yes
Switching frequency	
• with resistive load, max.	100 Hz
• with inductive load, max.	0.5 Hz
• on lamp load, max.	10 Hz
Total current of the outputs	
• Current per channel, max.	0.5 A; see additional description in the manual
• Current per group, max.	4 A; see additional description in the manual
• Current per module, max.	8 A; see additional description in the manual
Cable length	
• shielded, max.	1 000 m
• unshielded, max.	600 m

Encoder

Connectable encoders	
• 2-wire sensor	Yes
— permissible quiescent current (2-wire sensor), max.	1.5 mA
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	No
Interrupts/diagnostics/status information	
Diagnostics function	No
Substitute values connectable	No
Alarms	
• Diagnostic alarm	No
• Maintenance interrupt	No
• Hardware interrupt	No
Diagnostic messages	
• Monitoring the supply voltage	No
• Wire-break	No
• Short-circuit	No
• Group error	No
Diagnostics indication LED	
• RUN LED	Yes; Green LED
• ERROR LED	Yes; Red LED
• Monitoring of the supply voltage (PWR-LED)	Yes; Green LED
• Channel status display	Yes; Green LED
• for channel diagnostics	No
• for module diagnostics	No
Potential separation	
Potential separation channels	
• between the channels	No
• between the channels, in groups of	8
• between the channels and backplane bus	Yes
Isolation	
Isolation tested with	707 V DC (type test)
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	0 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	0 °C
• vertical installation, max.	40 °C
Altitude during operation relating to sea level	

- Installation altitude above sea level, max.

5 000 m; Restrictions for installation altitudes > 2 000 m, see manual

Dimensions

Width	25 mm
Height	147 mm
Depth	129 mm

Weights

Weight, approx.	280 g
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Other

Note:	Supplied incl. 40-pole push-in front connectors
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last modified: 10/22/2019 