

SIMATIC S7-1500 DIGITAL IN-/OUTPUT MODULE, DI16x 24VDC BA, 16 CHANNELS IN GROUPS OF 16, INPUT DELAY TYP. 3.2MS; INPUT TYPE 3 (IEC 61131), DQ 16X24VDC/0.5A BA; 16 CHANNELS IN GROUPS OF 8; 4A PER GROUP 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
<ul style="list-style-type: none"> FW update possible 	Yes
Product function	
<ul style="list-style-type: none"> I&M data 	Yes; I&M0 to I&M3
Engineering with	
<ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated as of version 	V13 / V13
<ul style="list-style-type: none"> STEP 7 configurable/integrated as of version 	V5.5 SP3 / -
<ul style="list-style-type: none"> PROFIBUS as of GSD version/GSD revision 	V1.0 / V5.1
<ul style="list-style-type: none"> PROFINET as of GSD version/GSD revision 	V2.3 / -
Operating mode	
<ul style="list-style-type: none"> DI 	Yes
<ul style="list-style-type: none"> Counter 	No
<ul style="list-style-type: none"> DQ 	Yes
<ul style="list-style-type: none"> DQ with energy-saving function 	No
<ul style="list-style-type: none"> 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
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Output voltage

Rated value (DC)	24 V
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Power

Power available from the backplane bus	1.1 W
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Power loss

Power loss, typ.	3.45 W
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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
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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
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- unshielded, max. 600 m

Digital outputs

Number of digital outputs	16
Current-sourcing	Yes
Short-circuit protection	Yes
<ul style="list-style-type: none"> • Response threshold, typ. 	1 A
Limitation of inductive shutdown voltage to	L+ (-53 V)
Controlling a digital input	Yes
Switching capacity of the outputs	
<ul style="list-style-type: none"> • with resistive load, max. 	0.5 A
<ul style="list-style-type: none"> • on lamp load, max. 	5 W
Load resistance range	
<ul style="list-style-type: none"> • lower limit 	48 Ω
<ul style="list-style-type: none"> • upper limit 	12 kΩ
Output voltage	
<ul style="list-style-type: none"> • for signal "1", min. 	L+ (-0.8 V)
Output current	
<ul style="list-style-type: none"> • for signal "1" rated value 	0.5 A
<ul style="list-style-type: none"> • for signal "1" permissible range, max. 	0.5 A
<ul style="list-style-type: none"> • for signal "0" residual current, max. 	0.5 mA
Output delay with resistive load	
<ul style="list-style-type: none"> • "0" to "1", max. 	100 μs
<ul style="list-style-type: none"> • "1" to "0", max. 	500 μs
Parallel switching of two outputs	
<ul style="list-style-type: none"> • for logic links 	Yes
<ul style="list-style-type: none"> • for uprating 	No
<ul style="list-style-type: none"> • for redundant control of a load 	Yes
Switching frequency	
<ul style="list-style-type: none"> • with resistive load, max. 	100 Hz
<ul style="list-style-type: none"> • with inductive load, max. 	0.5 Hz
<ul style="list-style-type: none"> • on lamp load, max. 	10 Hz
Total current of the outputs	
<ul style="list-style-type: none"> • Current per channel, max. 	0.5 A; see additional description in the manual
<ul style="list-style-type: none"> • Current per group, max. 	4 A; see additional description in the manual
<ul style="list-style-type: none"> • Current per module, max. 	8 A; see additional description in the manual
Cable length	
<ul style="list-style-type: none"> • shielded, max. 	1 000 m
<ul style="list-style-type: none"> • unshielded, max. 	600 m

Encoder

Connectable encoders	
<ul style="list-style-type: none"> • 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
- Hardware interrupt

No

No

Diagnostic messages

- Monitoring the supply voltage
- Wire-break
- Short-circuit
- Group error

No

No

No

No

Diagnostics indication LED

- RUN LED
- ERROR LED
- Monitoring of the supply voltage (PWR-LED)
- Channel status display
- for channel diagnostics
- for module diagnostics

Yes; Green LED

Yes; Red LED

Yes; Green LED

Yes; Green LED

No

No

Potential separation

Potential separation channels

- between the channels
- between the channels, in groups of
- between the channels and backplane bus

No

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Yes

Isolation

Isolation tested with

707 V DC (type test)

Ambient conditions

Ambient temperature during operation

- horizontal installation, min.
- horizontal installation, max.
- vertical installation, min.
- vertical installation, max.

0 °C

60 °C

0 °C

40 °C

Decentralized operation

Prioritized startup

Yes

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

last modified: 12/06/2016