

SIMATIC S7-1500, digital output module DQ16x24 V DC/0.5 A HF; 16 channels in groups of 8; 4 A per group; Single-channel diagnostics; Substitute value: Front connector (screw terminals or push-in) to be ordered separately



General information	
Product type designation	DQ 16x24VDC/0.5A HF
HW functional status	FS02
Firmware version	V1.1.0
<ul style="list-style-type: none"> <li>FW update possible</li> </ul>	Yes
Product function	
<ul style="list-style-type: none"> <li>I&amp;M data</li> </ul>	Yes; I&M0 to I&M3
<ul style="list-style-type: none"> <li>Isochronous mode</li> </ul>	Yes
<ul style="list-style-type: none"> <li>Prioritized startup</li> </ul>	Yes
Engineering with	
<ul style="list-style-type: none"> <li>STEP 7 TIA Portal configurable/integrated as of version</li> </ul>	V13 SP1 / -
<ul style="list-style-type: none"> <li>PROFIBUS as of GSD version/GSD revision</li> </ul>	V1.0 / V5.1
<ul style="list-style-type: none"> <li>PROFINET as of GSD version/GSD revision</li> </ul>	V2.3 / -
Operating mode	
<ul style="list-style-type: none"> <li>DQ</li> </ul>	Yes
<ul style="list-style-type: none"> <li>DQ with energy-saving function</li> </ul>	No
<ul style="list-style-type: none"> <li>PWM</li> </ul>	No
<ul style="list-style-type: none"> <li>Cam control (switching at comparison values)</li> </ul>	No

• Oversampling	No
• MSO	Yes
• Integrated operating cycle counter	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.	2 W
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#### Digital outputs

Type of digital output	Transistor
Number of digital outputs	16
Current-sourcing	Yes
Digital outputs, parameterizable	Yes
Short-circuit protection	Yes; Clocked electronically
• 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 $\Omega$
• upper limit	12 k $\Omega$

#### Output voltage

• for signal "1", min.	L+ (-0.8 V)
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#### 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 $\mu$ s
• "1" to "0", max.	500 $\mu$ 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; According to IEC 60947-5-1, DC-13
• 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
Isochronous mode	
Execution and activation time (TCO), min.	70 µs
Bus cycle time (TDP), min.	250 µs
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Substitute values connectable	Yes
Alarms	
• Diagnostic alarm	Yes
• Maintenance interrupt	Yes
Diagnostic messages	
• Monitoring the supply voltage	Yes
• Wire-break	Yes
• Short-circuit	Yes
• Group error	Yes
Diagnostics indication LED	
• RUN LED	Yes; green LED
• ERROR LED	Yes; red LED
• MAINT LED	Yes; Yellow LED
• Monitoring of the supply voltage (PWR-LED)	Yes; green LED
• Channel status display	Yes; green LED
• for channel diagnostics	Yes; red LED
• for module diagnostics	Yes; red LED
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)

## Standards, approvals, certificates

Suitable for safety functions No

Suitable for safety-related tripping of standard modules Yes; From FS02

### Highest safety class achievable for safety-related tripping of standard modules

- Performance level according to ISO 13849-1 PL d
- Category according to ISO 13849-1 Cat. 3
- SILCL according to IEC 62061 SILCL 2

## Ambient conditions

### Ambient temperature during operation

- horizontal installation, min. 0 °C
- horizontal installation, max. 60 °C
- vertical installation, min. 0 °C
- vertical installation, max. 60 °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 35 mm

Height 147 mm

Depth 129 mm

## Weights

Weight, approx. 230 g

**last modified:** 03/16/2020