## Data sheet



SIMATIC S7-1500, digital output module, DQ 64xDC 24V/0.3A BA, 64 channels in groups of 16, 2 A per group at 60 °C, sinking output, 35 mm wide, cables and terminal blocks to be ordered separately as accessories

General information	
Product type designation	DQ 64x24VDC/0.3A BA
HW functional status	From FS01
Firmware version	V1.0.0
<ul> <li>FW update possible</li> </ul>	Yes
Product function	
● I&M data	Yes; I&M0 to I&M3
• Isochronous mode	No
Prioritized startup	No
Engineering with	
STEP 7 TIA Portal configurable/integrated from	V16 with HSP 0319 / V17
version	
<ul> <li>STEP 7 configurable/integrated from version</li> </ul>	V5.5 SP3 / -
<ul> <li>PROFIBUS from GSD version/GSD revision</li> </ul>	V1.0 / V5.1
<ul> <li>PROFINET from GSD version/GSD revision</li> </ul>	V2.35 / -
Operating mode	
• DQ	Yes
<ul> <li>DQ with energy-saving function</li> </ul>	No
• PWM	No

Cam control (switching at comparison values)	No
Oversampling	No
• MSO	Yes
Integrated operating cycle counter	No

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• MSO	Yes
<ul> <li>Integrated operating cycle counter</li> </ul>	No
Supply voltage	
Supply voltage Rated value (DC)	24 V
· ·	
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes; through internal protection with 7 A per group
external protection for power supply lines	24 V DC/6 A miniature circuit breaker with type B tripping
(recommendation)	characteristic
Input current	
Current consumption, max.	90 mA; without load
Output voltage	
Rated value (DC)	24 V
Power	
Power available from the backplane bus	0.6 W
Power loss	
Power loss, typ.	3.5 W
Digital outputs	
Type of digital output	Transistor
Number of digital outputs	64
Current-sinking	No
Current-sourcing	Yes
Digital outputs, parameterizable	No
Short-circuit protection	Yes
Limitation of inductive shutdown voltage to	L+ (-53 V)
Controlling a digital input	Yes
Switching capacity of the outputs	
with resistive load, max.	0.3 A
• on lamp load, max.	5 W
Load resistance range	
• lower limit	80 Ω
• upper limit	10 kΩ
Output voltage	
• for signal "1", min.	L+ (-0.8 V)
•	

Output voltage
1 + ( 0 9 \/)
• for signal "1", min. L+ (-0.8 V)
Output current
• for signal "1" rated value 0.3 A
• for signal "1" permissible range, max. 0.3 A
• for signal "0" residual current, max. 0.5 mA



• "0" to "1", max. • "1" to "0", max.  Parallel switching of two outputs  • for logic links • for uprating • for redundant control of a load  Yes  Switching frequency • with resistive load, max. • with inductive load, max. • on lamp load, max. • on lamp load, max. • Current per channel, max. • Current per group, max. • Current per module, max.  • Current of the outputs (per module)  horizontal installation — up to 60 °C, max.  vertical installation — up to 40 °C, max.  • Shielded, max.  100 µs  500 µs  Yes  No  No  100 Hz  0.5 Hz; According to IEC 60947-5-1, DC-13  10 Hz  10 H	Output delay with resistive load	
e "1" to "0", max.  Farallel switching of two outputs  • for logic links Yes • for uprating No • for redundant control of a load Yes  Switching frequency  • with resistive load, max. • with inductive load, max. • on lamp load, max. • on lamp load, max. • Ourrent per channel, max. • Current per group, max. • Current per group, max. • Current per module, max. • Current per module, max. • Current per béon'c, max. • Sa A  Cable length • shielded, max. • I 000 m  • Substitute values connectable  No  No  Substitute values connectable  No  No  No  No  No  Diagnostics fantin • Maintenance interrupt  Diagnostics indication LED • Win'c-break • Short-circuit • Group error • Maint LED • Montoring of the supply voltage (PWR-LED) • Channel status display  Yes; via SilMATIC TOP connect connection module  Yes; via SilMATIC TOP connect connection module  Yes; via SilMATIC TOP connect connection module		100 µs
Parallel switching of two outputs  • for logic links • for outprating • for repraing • with resistive load, max. • with inductive load, max. • on lamp load, max. • on lamp load, max. • on lamp load, max. • Outputs • Current per channel, max. • Current per group, max. • Current per group, max. • Current per module, max. • Current for the outputs  • Current for the outputs (per module) • horizontal installation — up to 60 °C, max. • As A  Cable length • shielded, max. • unshielded, max. • Unaphostics function  Substitute values connectable No  Alarms • Diagnostics status information  Diagnostics function • Maintenance interrupt  • Monitoring the supply voltage • Wire-break • Mo • Short-circuit • Group error No  Diagnostics indication LED • RUN LED • RUN LED • RUN LED • RUN LED • REROR LED • MAINT LED • Monitoring of the supply voltage (PWR-LED) • Channel status display  • Ves; via SIMATIC TOP connect connection module		
• for logic links • for uprating • for redundant control of a load  Yes  Switching frequency  • with resistive load, max. • with inductive load, max. • on lamp load, max. • on lamp load, max. • Current per channel, max. • Current per channel, max. • Current per group, max. • Current per module, max. • Current per module, max. • Current per module, max. • Current per soup, max. • Current per module, max. • Current per soup, max. • Current per module, max. • Current per soup, max. • Current per module, max. • Current per group, max. • A A  **A  **Current per group, max. • A A  **Current per group, max. • A A  **Current per group, max. • A A  **A  **Current per group, max. • A A  **Current per group, max. • A A  **A  **Current per group, max. • B A  **Current per group, max. • A A  **A  **Current per group, max. • B A  **Current per group		
• for upraiting • for redundant control of a load • for redundant control of a load • Yes  Switching frequency • with resistive load, max. • with inductive load, max. • on lamp load, max. • Ourrent per channel, max. • Current per channel, max. • Current per module, max. • Current per module, max. • Current per module, max. • Current per dou're, max. • Current per dou're, max. • Carrent per dou're, max. • Carrent per dou're, max. • Cable length • shielded, max. • shielded, max. • shielded, max. • shielded, max. • Unon max. • U		Yes
• for redundant control of a load  Switching frequency  • with resistive load, max. • with inductive load, max. • on lamp load, max. • ourrent of the outputs  • Current per channel, max. • Current per group, max. • Current per module, max. • Current for the outputs (per module)  Indicate installation  — up to 60 °C, max. • SA  Vertical installation  — up to 40 °C, max. • Short-circuit evalues connectable  No  No  Substitute values connectable  No  No  No  No  No  No  No  No  No  Diagnostics function  • Maintenance interrupt  No  Diagnoses  • Monitoring the supply voltage • Wire-break • Short-circuit • Group error  No  Diagnostics indication LED • RENGR LED • Maint LED • Amnit LED • Monitoring of the supply voltage (PWR-LED) • Monitoring of the supply voltage (PWR-LED) • Channel status display  Ves; via SIMATIC TOP connect connection module  Ves; via SIMATIC TOP connect connection module		No
Switching frequency  • with resistive load, max. • with inductive load, max. • on lamp load, max. • on lamp load, max.  • Courrent per channel, max. • Current per group, max. • Current per module, max. • Current per module, max.  • Current per module, max. • Current per module, max. • Current per module, max.  • Current per module, max.  • Current per module, max.  • Current per module, max.  • Current per module, max.  • Current per module, max.  • Current per module, max.  • Cable current of the outputs (per module)  horizontal installation  — up to 60 °C, max.  • 8 A  Cable length  • shielded, max. • unshielded, max. • unshielded, max. • one shielded, max. • one shielde		
with resistive load, max.     with inductive load, max.     on lamp load, max.     on lamp load, max.     load lamp		
with inductive load, max.     on lamp load, max.     on lamp load, max.     10 Hz  Total current of the outputs      Current per channel, max.     O.3 A     Current per group, max.     Current per module, max.     O.3 A     Current per module, max.     O.3 A     Current per module, max.      Total current of the outputs (per module)      horizontal installation     — up to 60 °C, max.      A  Vertical installation     — up to 40 °C, max.      S A  Cable length      • shielded, max.     1000 m  • shielded, max.      1000 m  • unshielded, max.      1000 m  On one  Substitute values connectable  Alarms  • Diagnostics function  No  Maintenance interrupt  No  Diagnoses  • Monitoring the supply voltage  • Wire-break  • Short-circuit  • Group error  RUN LED  • ERROR LED  • MAINT LED  • MAINT LED  • Monitoring of the supply voltage (PWR-LED)  • Channel status display  Yes; via SIMATIC TOP connect connection module  • Channel status display  Yes; via SIMATIC TOP connect connection module		100 Hz
• on lamp load, max.  Total current of the outputs      • Current per channel, max.     • Current per group, max.     • Current per group, max.     • Current per module, max.     • Current of the outputs (per module)      horizontal installation      — up to 60 °C, max.      • She defend of common of		0.5 Hz: According to IEC 60947-5-1, DC-13
Total current of the outputs  Current per channel, max. Current per group, max. Current per module, max. Current per module, max.  A A  Total current of the outputs (per module)  A A  Total current of the outputs (per module)  A A  Total current of the outputs (per module)  A A  Total current of the outputs (per module)  A A  Total current of the outputs (per module)  A A  Total current of the outputs (per module)  A A  A A  Total current of the outputs (per module)  A A  A A  A A  Cable length  A A  Cable length  A S S S S S S S S S S S S S S S S S S		
Current per channel, max. Current per group, max. Current per module, max.  Current per module, max.  8 A  Courrent of the outputs (per module)  horizontal installation  — up to 60 °C, max.  8 A  vertical installation  — up to 40 °C, max.  8 A  Cable length  • shielded, max.  • unshielded, max.  1 000 m  • unshielded, max.  600 m   Interrupts/diagnostics/status information  Diagnostics function  Substitute values connectable  Alarms  • Diagnostic alarm  • Maintenance interrupt  No  Diagnoses  • Monitoring the supply voltage  • Wire-break  • Short-circuit  • Group error  No  Diagnostics indication LED  • RUN LED  • RUN LED  • RUN LED  • RUN LED  • MAINT LED  • MAINT LED  • Monitoring of the supply voltage (PWR-LED)  • Channel status display  • Ves; via SIMATIC TOP connect connection module  • Cannel status display  • Ves; via SIMATIC TOP connect connection module	·	
Current per group, max. Current per module, max.  Current of the outputs (per module)  Current of the outputs (per module	· · · · · · · · · · · · · · · · · · ·	0.3 A
Current per module, max.  Total current of the outputs (per module)  horizontal installation  — up to 60 °C, max.  vertical installation  — up to 40 °C, max.  8 A  Cable length  • shielded, max.  • unshielded, max.  • unshielded, max.  1 000 m  600 m  hterrupts/diagnostics/status information  Diagnostics function  No Substitute values connectable  Alarms  • Diagnostic alarm  • Maintenance interrupt  No  Diagnoses  • Monitoring the supply voltage  • Wire-break  • Short-circuit  • Group error  Diagnostics indication LED  • RUN LED  • RUN LED  • RUN LED  • RROR LED  • Mainten status display  • Channel status display  Yes; via SIMATIC TOP connect connection module  • Channel status display  Yes; via SIMATIC TOP connect connection module	·	
Total current of the outputs (per module)  horizontal installation  — up to 60 °C, max. 8 A  vertical installation  — up to 40 °C, max. 8 A  Cable length  • shielded, max. 1000 m  • unshielded, max. 600 m  hterrupts/diagnostics/status information  Diagnostics function No Substitute values connectable No  Alarms  • Diagnostic alarm No  • Maintenance interrupt No  Diagnosses  • Monitoring the supply voltage No  • Wire-break No  • Short-circuit No  • Group error No  Diagnostics indication LED  • RUN LED  • RUN LED  • ERROR LED  • Mainten supply voltage (PWR-LED)  • Monitoring of the supply voltage (PWR-LED)  • Channel status display  • Channel status display  • Vers; via SIMATIC TOP connect connection module		
horizontal installation — up to 60 °C, max.  vertical installation — up to 40 °C, max.  8 A  Cable length  • shielded, max. • unshielded, max.  1 000 m  600 m  **No  Substitute values connectable Alarms  • Diagnostics alarm • Maintenance interrupt No  Diagnoses  • Monitoring the supply voltage • Wire-break • Short-circuit • Group error  Diagnostics indication LED  • RUN LED • ERROR LED • MAINT LED • Monitoring of the supply voltage (PWR-LED) • Monitoring of the supply voltage (PWR-LED) • Channel status display  8 A  A  A  A  A  A  B  A  A  B  A  A  B  A  A		
up to 60 °C, max.  vertical installation up to 40 °C, max.  8 A  Cable length  • shielded, max. • unshielded, max.  1 000 m  600 m  Interrupts/diagnostics/status information  Diagnostics function Substitute values connectable No  Alarms  • Diagnostic alarm • Maintenance interrupt No  Diagnoses  • Monitoring the supply voltage • Wire-break • Short-circuit • Group error  No  Diagnostics indication LED  • RUN LED • ERROR LED • MAINT LED • Monitoring of the supply voltage (PWR-LED) • Monitoring of the supply voltage (PWR-LED) • Channel status display  **Ne  **I word **Ne  *		
vertical installation — up to 40 °C, max.  8 A  Cable length  • shielded, max. • unshielded, max.  • unshielded, max.  1 000 m  600 m  Interrupts/diagnostics/status information  Diagnostics function Substitute values connectable No  Alarms  • Diagnostic alarm • Mointenance interrupt No  Diagnoses  • Monitoring the supply voltage • Wire-break • Short-circuit • Group error  No  Diagnostics indication LED  • RUN LED • ERROR LED • MAINT LED • Monitoring of the supply voltage (PWR-LED) • Monitoring of the supply voltage (PWR-LED) • Channel status display  Yes; via SIMATIC TOP connect connection module • Channel status display		8 A
— up to 40 °C, max.  Cable length  • shielded, max. • unshielded, max.  • unshielded, max.  • unshielded, max.  1 000 m  600 m  Interrupts/diagnostics/status information  Diagnostics function  No Substitute values connectable  No Alarms  • Diagnostic alarm  • Maintenance interrupt  No  Diagnoses  • Monitoring the supply voltage  • Wire-break  • Short-circuit  • Group error  Diagnostics indication LED  • RUN LED  • ERROR LED  • MAINT LED  • Monitoring of the supply voltage (PWR-LED)  • Monitoring of the supply voltage (PWR-LED)  • Channel status display  Yes; via SIMATIC TOP connect connection module		
Cable length  • shielded, max. • unshielded, max.  • unshielded, max.  • unshielded, max.  600 m  Interrupts/diagnostics/status information  Diagnostics function  No Substitute values connectable  No Alarms  • Diagnostic alarm  • Maintenance interrupt  No Diagnoses  • Monitoring the supply voltage  • Wire-break  • Short-circuit  • Group error  Diagnostics indication LED  • RUN LED  • ERROR LED  • MAINT LED  • Monitoring of the supply voltage (PWR-LED)  • Monitoring of the supply voltage (PWR-LED)  • Channel status display  1 000 m  No  No  1 000 m  No  Yes; red LED  No  • Monitoring of the supply voltage (PWR-LED)  • Channel status display  Yes; via SIMATIC TOP connect connection module		8 A
shielded, max.     unshielded, max.     600 m  Interrupts/diagnostics/status information  Diagnostics function  Substitute values connectable  No  Alarms  Diagnostic alarm  Mo Maintenance interrupt  No  Diagnoses  Monitoring the supply voltage  Wire-break  Short-circuit  Group error  No  Diagnostics indication LED  RUN LED  RUN LED  ERROR LED  MAINT LED  Monitoring of the supply voltage (PWR-LED)  Monitoring of the supply voltage (PWR-LED)  Monitoring of the supply voltage (PWR-LED)  Channel status display  Yes; via SIMATIC TOP connect connection module	·	
unshielded, max.    600 m		1 000 m
Diagnostics function  Diagnostics function  No  Substitute values connectable  No  Alarms  Diagnostic alarm  Mo  Maintenance interrupt  No  Diagnoses  Monitoring the supply voltage  Wire-break  Short-circuit  Group error  Diagnostics indication LED  RUN LED  RUN LED  ERROR LED  MAINT LED  Monitoring of the supply voltage (PWR-LED)  Monitoring of the supply voltage (PWR-LED)  Channel status display  No  No  No  No  No  Yes; via SIMATIC TOP connect connection module		
Diagnostics function Substitute values connectable No Alarms  • Diagnostic alarm • Mo • Maintenance interrupt No Diagnoses  • Monitoring the supply voltage • Wire-break • Short-circuit • Group error No Diagnostics indication LED  • RUN LED • ERROR LED • MAINT LED • Monitoring of the supply voltage (PWR-LED) • Monitoring of the supply voltage (PWR-LED) • Channel status display		
Substitute values connectable  Alarms  Diagnostic alarm Mo Maintenance interrupt No  Diagnoses  Monitoring the supply voltage Wire-break Short-circuit Group error No  Diagnostics indication LED  RUN LED REROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Monitoring of the supply voltage (PWR-LED) Channel status display  No  No  No  No  No  Yes; yia SIMATIC TOP connect connection module Yes; via SIMATIC TOP connect connection module	nterrupts/diagnostics/status information	
Diagnostic alarm     No     Maintenance interrupt     No  Diagnoses      Monitoring the supply voltage     No     Short-circuit     Group error     No  Diagnostics indication LED      RUN LED     PERROR LED     MAINT LED     MAINT LED     Monitoring of the supply voltage (PWR-LED)     Channel status display  No  No  No  No  No  Yes; via SIMATIC TOP connect connection module  Yes; via SIMATIC TOP connect connection module		
<ul> <li>Diagnostic alarm</li> <li>Maintenance interrupt</li> <li>No</li> <li>Diagnoses</li> <li>Monitoring the supply voltage</li> <li>Wire-break</li> <li>Short-circuit</li> <li>Group error</li> <li>No</li> <li>Diagnostics indication LED</li> <li>RUN LED</li> <li>ERROR LED</li> <li>MAINT LED</li> <li>Mo</li> <li>Mo</li> <li>Mo</li> <li>Yes; green LED</li> <li>Yes; red LED</li> <li>Maint LED</li> <li>Mo</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Yes; via SIMATIC TOP connect connection module</li> <li>Channel status display</li> <li>Yes; via SIMATIC TOP connect connection module</li> </ul>		No
Maintenance interrupt  No  Diagnoses  Monitoring the supply voltage  Wire-break Short-circuit Group error No  Diagnostics indication LED  RUN LED FRROR LED FRROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Channel status display  No  No  No  No  No  Yes; green LED Yes; red LED Yes; red LED Yes; via SIMATIC TOP connect connection module Yes; via SIMATIC TOP connect connection module		Ni-
Diagnoses  Monitoring the supply voltage Wire-break Short-circuit Group error No  Diagnostics indication LED  RUN LED FRROR LED FRROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Channel status display  No  No  No  No  No  No  No  No  No  Yes; green LED  Yes; green LED  Yes; red LED  No  Yes; via SIMATIC TOP connect connection module  Yes; via SIMATIC TOP connect connection module	•	
<ul> <li>Monitoring the supply voltage</li> <li>Wire-break</li> <li>Short-circuit</li> <li>Group error</li> <li>No</li> <li>Diagnostics indication LED</li> <li>RUN LED</li> <li>ERROR LED</li> <li>MAINT LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Channel status display</li> <li>No</li> <li>No</li> <li>Yes; via SIMATIC TOP connect connection module</li> <li>Yes; via SIMATIC TOP connect connection module</li> </ul>	·	No
<ul> <li>Wire-break</li> <li>Short-circuit</li> <li>Group error</li> <li>No</li> </ul> Diagnostics indication LED <ul> <li>RUN LED</li> <li>ERROR LED</li> <li>MAINT LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Channel status display</li> </ul> No Yes; green LED Yes; red LED No Yes; via SIMATIC TOP connect connection module Yes; via SIMATIC TOP connect connection module Yes; via SIMATIC TOP connect connection module		N
<ul> <li>Short-circuit</li> <li>Group error</li> <li>No</li> <li>Diagnostics indication LED</li> <li>RUN LED</li> <li>ERROR LED</li> <li>MAINT LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Channel status display</li> <li>No</li> <li>No</li> <li>Yes; via SIMATIC TOP connect connection module</li> <li>Yes; via SIMATIC TOP connect connection module</li> </ul>		
<ul> <li>Group error</li> <li>Diagnostics indication LED</li> <li>RUN LED</li> <li>ERROR LED</li> <li>MAINT LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Channel status display</li> <li>No</li> <li>No</li> <li>Yes; via SIMATIC TOP connect connection module</li> <li>Yes; via SIMATIC TOP connect connection module</li> </ul>		
Piagnostics indication LED  RUN LED  ERROR LED  MAINT LED  Monitoring of the supply voltage (PWR-LED)  Channel status display  Yes; green LED  Yes; red LED  No  Yes; via SIMATIC TOP connect connection module  Yes; via SIMATIC TOP connect connection module		
<ul> <li>RUN LED</li> <li>ERROR LED</li> <li>MAINT LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Channel status display</li> <li>Yes; green LED</li> <li>Yes; red LED</li> <li>No</li> <li>Yes; via SIMATIC TOP connect connection module</li> <li>Yes; via SIMATIC TOP connect connection module</li> </ul>	·	No
<ul> <li>ERROR LED</li> <li>MAINT LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Channel status display</li> <li>Yes; via SIMATIC TOP connect connection module</li> <li>Yes; via SIMATIC TOP connect connection module</li> </ul>		
<ul> <li>MAINT LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Channel status display</li> <li>No</li> <li>Yes; via SIMATIC TOP connect connection module</li> <li>Yes; via SIMATIC TOP connect connection module</li> </ul>		
<ul> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Channel status display</li> <li>Yes; via SIMATIC TOP connect connection module</li> <li>Yes; via SIMATIC TOP connect connection module</li> </ul>		
Channel status display  Yes; via SIMATIC TOP connect connection module		
' '	<ul><li>Monitoring of the supply voltage (PWR-LED)</li></ul>	
• for channel diagnostics	Channel status display	Yes; via SIMATIC TOP connect connection module
	<ul> <li>for channel diagnostics</li> </ul>	No



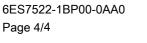
• for module diagnostics	No
Potential separation	
Potential separation channels	
<ul> <li>between the channels</li> </ul>	No
<ul> <li>between the channels, in groups of</li> </ul>	16; 32 when using SIMATIC TOP connect connection module
<ul> <li>between the channels and backplane bus</li> </ul>	Yes
Isolation	
Isolation tested with	707 V DC (type test)
Standards, approvals, certificates	
Suitable for safety functions	No
Suitable for safety-related tripping of standard	No
modules	
Ambient conditions	
Ambient temperature during operation	
horizontal installation, min.	-30 °C
<ul> <li>horizontal installation, max.</li> </ul>	60 °C
<ul> <li>vertical installation, min.</li> </ul>	-30 °C
<ul> <li>vertical installation, max.</li> </ul>	40 °C
Altitude during operation relating to sea level	

Dimensions	
Width	35 mm
Height	147 mm
Depth	129 mm

5 000 m

Weights	
Weight, approx.	270 g

Other	
Note:	Please order cable and connection modules separately
last modified:	10/13/2020



last modified:

• Installation altitude above sea level, max.

**☼ PNAP**