SIEMENS

Data sheet

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SIMATIC S7-1500, F digital output module, F-DQ 8x 24 V DC 2A PPM PROFIsafe; 35 mm width; up to PL E (ISO 13849-1)/ SIL3 (IEC 61508)

General information	
Product type designation	F-DQ 8x24VDC/2A PPM
Firmware version	
FW update possible	Yes
Product function	
I&M data	Yes; I&M0 to I&M3
Engineering with	
 STEP 7 TIA Portal configurable/integrated from version 	V13 SP1 with HSP 0086
Operating mode	
• DQ	Yes
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
Input current	
Current consumption (rated value)	110 mA; without load
Current consumption, max.	130 mA; without load
output voltage / header	
Rated value (DC)	24 V
Power	_
Power available from the backplane bus	0.8 W
Power loss	
Power loss, typ.	11 W
Address area	
Address space per module	
Inputs	6 byte; S7-300/400F CPU, 5 byte
Outputs	6 byte; S7-300/400F CPU, 5 byte
Hardware configuration	
Automatic encoding	Yes
 Electronic coding element type F 	Yes
Digital outputs	
Number of digital outputs	8
Current-sinking	Yes
Current-sourcing	Yes
Short-circuit protection	Yes
Open-circuit detection	Yes
 Response threshold, typ. 	8 mA

Overland protection	Yes	
Overload protection	2.9 A	
Response threshold, typ.		
Limitation of inductive shutdown voltage to Switching capacity of the outputs	PM-switching: -24 V + (-47 V), PP-switching: -24 V	
with resistive load, max.	2 A	
• on lamp load, max.	10 W	
Load resistance range		
lower limit	12 Ω	
upper limit	2 000 Ω	
Output voltage	2 000 12	
• for signal "1", min.	24 V; L+ (-0.5 V)	
Output current	24 V, LT (-0.3 V)	
· · ·	2 A	
 for signal "1" rated value for signal "0" residual current, max. 	0.5 mA; Current-sourcing, or current sourcing and sinking switches	
	individually, current sinking: max. 1 mA	
Switching frequency		
 with resistive load, max. 	30 Hz	
 with inductive load, max. 	0.1 Hz	
• on lamp load, max.	10 Hz	
Total current of the outputs		
Current per channel, max.	2 A	
Total current of the outputs (per module)		
horizontal installation		
— up to 40 °C, max.	16 A	
— up to 60 °C, max.	8 A	
vertical installation		
— up to 40 °C, max.	8 A	
Cable length		
• shielded, max.	1 000 m	
• unshielded, max.	500 m	
Interrupts/diagnostics/status information		
Diagnostics function	Yes	
Substitute values connectable	No	
Alarms		
Diagnostic alarm	Yes	
Diagnoses		
Monitoring the supply voltage	Yes	
Wire-break	Yes	
Short-circuit	Yes	
Group error	Yes	
Diagnostics indication LED	100	
RUN LED	Yes; green LED	
ERROR LED	Yes; red LED	
 Monitoring of the supply voltage (PWR-LED) 	Yes	
Channel status display	Yes; green LED	
for channel diagnostics	Yes; red LED	
for module diagnostics	Yes; red LED Yes; red LED	
Potential separation		
Potential separation channels		
between the channels	No	
between the channels and backplane bus	Yes	
Isolation		
Isolation tested with	707 V DC (type test)	
Standards, approvals, certificates		
Suitable for safety functions	Yes	
Highest safety class achievable in safety mode		
 Performance level according to ISO 13849-1 	PLe	
SIL acc. to IEC 61508	SIL 3	
Probability of failure (for service life of 20 years and repair time of 100 hours)		
 Low demand mode: PFDavg in accordance 	< 6.00E-05	

with SIL3		
 High demand/continuous mode: PFH in accordance with SIL3 	< 2.00E-09 1/h	
Ambient conditions		
Ambient temperature during operation		
 horizontal installation, min. 	0°0	
 horizontal installation, max. 	60 °C	
 vertical installation, min. 	0°0	
 vertical installation, max. 	40 °C	
Dimensions		
Width	35 mm	
Height	147 mm	
Depth	129 mm	
Weights		
Weight, approx.	300 g	
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