



SIPLUS S7-1500 F-DQ 8x24VDC/2A based on 6ES7526-2BF00-0AB0 with conformal coating, -30...+60 °C, F digital output module, 35 mm overall 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
based on	6ES7526-2BF00-0AB0
Product function	
• I&M data	Yes; I&M0 to I&M3
Engineering with	
• STEP 7 TIA Portal configurable/integrated from version	see entry ID: 109746275
Operating mode	
• DQ	Yes
• MSO	No
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
power supply according to NEC Class 2 required	No
Input current	
Current consumption (rated value)	110 mA; without load
Current consumption, max.	130 mA; without load
Output voltage	
Rated value (DC)	24 V
Power	
Power consumption 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
Overload protection	Yes
• Response threshold, typ.	2.9 A
Limitation of inductive shutdown voltage to	PM-switching: -24 V + (-47 V), PP-switching: -24 V
Controlling a digital input	Yes; digital output, according to IEC 61131-2, type 2
Switching capacity of the outputs	
• 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	
• for signal "1", min.	24 V; L+ (-0.5 V)
Output current	
• for signal "1" rated value	2 A
• 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	
• 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
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	

<ul style="list-style-type: none"> • Performance level according to ISO 13849-1 • SIL acc. to IEC 61508 	<p>PLe SIL 3</p>	
Probability of failure (for service life of 20 years and repair time of 100 hours)		
— Low demand mode: PFDavg in accordance with SIL3	< 6.00E-05	
— High demand/continuous mode: PFH in accordance with SIL3	< 2.00E-09 1/h	
Ambient conditions		
Ambient temperature during operation		
<ul style="list-style-type: none"> • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. 	<p>-30 °C; = Tmin (incl. condensation/frost) 60 °C; = Tmax -30 °C; = Tmin 40 °C; = Tmax</p>	
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	
Relative humidity		
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	
Resistance		
Coolants and lubricants		
— Resistant to commercially available coolants and lubricants	Yes; Incl. diesel and oil droplets in the air	
Use in stationary industrial systems		
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	
— to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	
Use on ships/at sea		
— to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	
— to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	
— to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	
Usage in industrial process technology		
— Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	
— Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	
Remark		
— Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	
Conformal coating		
<ul style="list-style-type: none"> • Coatings for printed circuit board assemblies acc. to EN 61086 • Protection against fouling acc. to EN 60664-3 • Military testing according to MIL-I-46058C, Amendment 7 • Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A 	<p>Yes; Class 2 for high reliability Yes; Type 1 protection Yes; Discoloration of coating possible during service life Yes; Conformal coating, Class A</p>	
Dimensions		
Width	35 mm	
Height	147 mm	
Depth	129 mm	
Weights		
Weight, approx.	300 g	
Classifications		
	Version	Classification
eClass	14	27-24-22-04

eClass	12	27-24-22-04
eClass	9.1	27-24-22-04
eClass	9	27-24-22-04
eClass	8	27-24-22-04
eClass	7.1	27-24-22-04
eClass	6	27-24-22-04
ETIM	10	EC001419
ETIM	9	EC001419
ETIM	8	EC001419
ETIM	7	EC001419
IDEA	4	3566
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval



[Manufacturer Declaration](#)



[China RoHS](#)



General Product Approval

EMV

For use in hazardous locations

[China RoHS](#)



For use in hazardous locations

Functional Safety

Maritime application



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