Data sheet



SIPLUS S7-1500 F DI 16X24VDC HF T1 RAIL -30 ... +55°C T1 (70°C for 10 min) with conformal coating based on 6ES7526-1BH00-0AB0 . FAILSAFE DIGITAL INPUT MODULE, F-DI "16X24VDC PROFISAFE; 35 MM" "WIDTH; UP TO PL E (ISO" 13849-1)/ SIL3 (IEC 61508)

Figure similar

General information	
Product type designation	F-DI 16x24VDC
Product function	
● I&M data	Yes; I&M0 to I&M3
Operating mode	
• DI	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)	50 mA
Encoder supply	
Number of outputs	4
Short-circuit protection	Yes; Electronic (response threshold 0.7 A to 1.8 A)

6AG2526-1BH00-1AB0

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24 V encoder supply		
• 24 V	Yes; min. L+ (-1.5 V)	
Short-circuit protection	Yes	
Output current, max.	300 mA; Max. 100 mA when mounted vertically	
Power		
Power available from the backplane bus	0.9 W	
Power loss		
Power loss, typ.	4.6 W	
Address area		
Address space per module		
 Address space per module, max. 	9 byte	
Hardware configuration		
Automatic encoding	Yes	
Electronic coding element type F	Yes	
Digital inputs		
Number of digital inputs	16	
Source/sink input	Yes; P-reading	
Input characteristic curve in accordance with IEC	Yes	
61131, type 1		
Input voltage	24\/	
Rated value (DC)	24 V	
• for signal "0"	-30 to +5 V	
• for signal "1"	+15 to +30 V	
Input current		
• for signal "1", typ.	3.7 mA	
Input delay (for rated value of input voltage)		
for standard inputs	No.	
— parameterizable	Yes	
— at "0" to "1", min.	0.4 ms	
— at "0" to "1", max.	20 ms	
— at "1" to "0", min.	0.4 ms	
— at "1" to "0", max.	20 ms	
Cable length		
• shielded, max.	1 000 m	
• unshielded, max.	500 m	
Interrupts/diagnostics/status information		
Diagnostics function	Yes	
Alarms		
Diagnostic alarm	Yes	
Hardware interrupt	No	



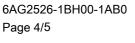
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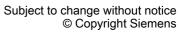
Diagnoses	
 Monitoring the supply voltage 	Yes
Wire-break	No
Short-circuit	Yes
Group error	Yes
Diagnostics indication LED	
• RUN LED	Yes; green LED
• ERROR LED	Yes; red LED
 Channel status display 	Yes; green LED
 for channel diagnostics 	Yes; red LED
• for module diagnostics	Yes; red LED
Potential separation	
Potential separation channels	
 between the channels and backplane bus 	Yes
Isolation	
Isolation tested with	707 V DC (type test) and according to EN 50155 (routine 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
 SIL in accordance with EN 50126, 50128, 	SIL 2; a higher safety integrity level is possible if tested and
50129	approved for the specific application under consideration of all local regulations.
Drobability of failure (for convice life of 20 years and	
Probability of failure (for service life of 20 years and	< 5.00E-05
 Low demand mode: PFDavg in accordance with SIL3 	< 5.00E-05
— High demand/continuous mode: PFH in	< 1.00E-09 1/h
accordance with SIL3	
Railway application	
● EN 50121-3-2	Yes; EMC for rail vehicles
● EN 50121-4	Yes; EMC for signal and telecommunications systems
● EN 50124-1	Yes; Railway applications - overvoltage category OV2; pollution
	degree PD2; rated surge voltage UNi = 0.5 kV; UNm = 24 V DC
• EN 50125-1	Yes; Rail vehicles - see ambient conditions
• EN 50125-2	Yes; Stationary electrical equipment - see ambient conditions
● EN 50125-3	Yes; Signal and telecommunications systems - see ambient conditions; vibrations and shocks: Application point outside of tracks (1 m to 3 m away from track)
• EN 50155	Yes; Rail vehicles - temperature class T1, horizontal mounting position, salt spray Class ST2
• EN 61373	Yes; Rail vehicles - vibrations and shocks: Category 1 Class A/B



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Ambient conditions	
Ambient conditions Ambient temperature during operation	
horizontal installation, min.	-30 °C; = Tmin (incl. condensation/frost)
horizontal installation, max.	60 °C; = Tmax; +70 °C for 10 min (T1 acc. to EN 50155)
	-30 °C; = Tmin
vertical installation, min.	40 °C; = Tmax
 vertical installation, max. Altitude during operation relating to sea level 	40 O, - Illiax
Installation altitude above sea level, max.	2 000 m
Ambient air temperature-barometric pressure- altitude	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m)
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 land craft, rail vehicles and special-purpose	vehicles
 to biologically active substances according to EN 60721-3-5 	Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request
 to chemically active substances according to EN 60721-3-5 	Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *
 to mechanically active substances according to EN 60721-3-5 	Yes; Class 5S3 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	





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• Coatings for printed circuit board assemblies acc. to EN 61086

• Protection against fouling acc. to EN 60664-3

 Electronic equipment on rolling stock acc. to EN 50155

 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 Yes; Class 2 for high reliability

Yes; Type 1 protection

Yes; Class PC2 protective coating acc. to EN 50155:2017

Yes; Discoloration of coating possible during service life

Yes; Conformal coating, Class A

Support article 109736776

Dimensions	
Width	35 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	280 g
Other	
Note:	for use in railway applications, also observe the product
	information "SIPLUS extreme RAIL" A5E37661960A, Online

last modified: 10/16/2020

