



Figure similar

SIPLUS S7-1500 DI 16x110VDC HF TX rail based on 6ES7521-7EH00-0AB0 with conformal coating, -40...+70 °C, OT4 with ST1/2 (+85 °C for 10 minutes), digital input module, 16 channels in groups of 1; input delay 0.05 ... 20 ms input type 3 (IEC 61131); diagnostics, hardware interrupts

General information	
Product type designation	DI 16x110VDC HF
Firmware version	
• FW update possible	Yes
based on	6ES7521-7EH00-0AB0
Product function	
• I&M data	Yes; I&M0 to I&M3
• Isochronous mode	No
• Prioritized startup	Yes
Engineering with	
• STEP 7 TIA Portal configurable/integrated from version	see entry ID: 109746275
Operating mode	
• DI	Yes
• Counter	Yes; from V1.1.0; only in DC operation
• Oversampling	No
• MSI	Yes
Power	
Power consumption from the backplane bus	1.2 W
Power loss	
Power loss, typ.	2.2 W; At 24 V DC; 6.0 W at 125 V AC
Digital inputs	
Number of digital inputs	16; > +60 °C number of simultaneously controllable inputs max. 4 (no adjacent points)
Digital inputs, parameterizable	Yes
Sourcing/sinking input	Yes
Input characteristic curve in accordance with IEC 61131, type 3	Yes; At 24 V DC
Digital input functions, parameterizable	
• Counter	Yes; from FS04
— Number, max.	2; Channel 0 and 1
— Counting frequency, max.	6 kHz
— Counting width	32 bit
— Counting direction up/down	Yes; Up
Input voltage	
• Rated value (DC)	24 V; 48 V, 72 V, 96 V, 110 V, 125 V
• Rated value (AC)	24 V; 48 V, 125 V (50 - 60 Hz)
• for signal "0"	-5 ... +5 V
• for signal "1"	+11 ... +146 V
Input current	

• for signal "1", typ.	3 mA; At 24 V DC
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	Yes; 0.05 / 0.1 / 0.4 / 1.6 / 3.2 / 12.8 / 20 ms parameterizable with DC, 20 ms fixed with AC
— at "0" to "1", min.	0.05 ms
— at "0" to "1", max.	20 ms
— at "1" to "0", min.	0.05 ms
— at "1" to "0", max.	20 ms
for interrupt inputs	
— Parameterizable	Yes
for technological functions	
— Parameterizable	No
Cable length	
• shielded, max.	1 000 m
• unshielded, max.	600 m
Encoder	
Connectable encoders	
• 2-wire sensor	Yes
— permissible quiescent current (2-wire sensor), max.	1.5 mA
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
• Diagnostic alarm	Yes
• Hardware interrupt	Yes
Diagnoses	
• Monitoring the supply voltage	No
• Wire break	Yes; To I < 550 µA
• short-circuit	No
Diagnostics indication LED	
• RUN LED	Yes; green LED
• ERROR LED	Yes; red LED
• Monitoring of the supply voltage (PWR-LED)	No
• 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	Yes
• between the channels, in groups of	1
• between the channels and backplane bus	Yes
Permissible potential difference	
between different circuits	146 V DC/132 V AC
Isolation	
Isolation tested with	2 000 V DC (type test) and according to EN 50155 (routine test)
Standards, approvals, certificates	
Suitable for safety functions	No
Ecological footprint	
• environmental product declaration	Yes
Global warming potential	
— global warming potential, (total) [CO2 eq]	18.9 kg
— global warming potential, (during production) [CO2 eq]	12.1 kg
— global warming potential, (during operation) [CO2 eq]	7.66 kg
— global warming potential, (after end of life cycle) [CO2 eq]	-1.02 kg
Railway application	
• EN 50121-3-2	Yes; EMC for rail vehicles
• EN 50121-4	Yes; EMC for signal and telecommunications systems

• EN 50121-5	Yes; EMC for fixed installations and railway power supply equipment (shielded cables required)
• EN 50124-1	Yes; Railway applications - overvoltage category OV3 (channels to backplane bus and ground); OV2 (between the channels); pollution degree PD2; rated impulse voltage UNi = 1.5 kV; UNm = 125 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 OT4, ST1/ST2, horizontal mounting position
• EN 61373	Yes; Rail vehicles - vibrations and shocks: Category 1 Class A/B
• Fire protection acc. to EN 45545-2	Yes; For proof of conformity, see Service & Support
Security	
signed firmware update	Yes
data integrity	No
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	-40 °C; = Tmin (incl. condensation/frost)
• horizontal installation, max.	70 °C; = Tmax; +85 °C for 10 min (OT4, ST1/ST2 acc. to EN 50155)
• vertical installation, min.	-40 °C; = Tmin
• vertical installation, max.	40 °C; = Tmax
Altitude during operation relating to sea level	
• 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 in bedewed state), horizontal installation
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 60068-2-52 (severity degree 3); *
— 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	
• Coatings for printed circuit board assemblies acc. to EN 61086	Yes; Class 2 for high reliability
• Protection against fouling acc. to EN 60664-3	Yes; Type 1 protection
• Electronic equipment on rolling stock acc. to EN 50155	Yes; Class PC2 protective coating acc. to EN 50155:2017
• Military testing according to MIL-I-46058C, Amendment 7	Yes; Discoloration of coating possible during service life
• Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-	Yes; Conformal coating, Class A

CC-830A

Dimensions

Width	35 mm
Height	147 mm
Depth	129 mm

Weights

Weight, approx.	240 g
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Other

Note:	for use in railway applications, also observe the product information "SIPLUS extreme RAIL" A5E37661960A, Online Support article 109736776
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Classifications

		Version	Classification
	eClass	16	27-24-22-04
	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**[China RoHS](#)[Manufacturer Declaration](#)**General Product Approval**

EMV

Railway

[China RoHS](#)[Confirmation](#)**Environment**

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