

SIPLUS S7-1500 DQ 16x110VDC ST TX RAIL -40 ... +70°C TX with 85°C for 10 min with conformal coating based on 6ES7522-5EH00-0AB0 . DQ 16x24 "... 48VUC/125VDC/ 0.5A; 16" channels in groups of 1, 0.5 A "per group; substitute value;" Observe derating



### General information

Product type designation	DQ 16x110VDC ST
<b>Product function</b>	
• I&M data	Yes; I&M0 to I&M3
• Isochronous mode	No
• Prioritized startup	Yes
<b>Operating mode</b>	
• DQ	Yes
• DQ with energy-saving function	No
• PWM	No
• Oversampling	No
• MSO	Yes

### Output voltage

Rated value (DC)	24 V; 48 V, 72 V, 96 V, 110 V, 125 V
Rated value (AC)	24 V; 48 V (50 - 60 Hz)

### Power

Power available from the backplane bus	2 W
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Power loss	
Power loss, typ.	3.8 W
Digital outputs	
Type of digital output	Transistor
Number of digital outputs	16; > +60 °C max. 0.25 A per output
Current-sinking	Yes
Current-sourcing	Yes
Digital outputs, parameterizable	Yes
Limitation of inductive shutdown voltage to	200 V (suppressor diode)
Controlling a digital input	Yes
Switching capacity of the outputs	
<ul style="list-style-type: none"> <li>with resistive load, max.</li> </ul>	0.5 A
<ul style="list-style-type: none"> <li>on lamp load, max.</li> </ul>	40 W; At 125 V DC, 10 W at 48 V UC, 5 W at 24 V UC
Output voltage	
<ul style="list-style-type: none"> <li>for signal "1", min.</li> </ul>	L+ (-1.0 V)
Output current	
<ul style="list-style-type: none"> <li>for signal "1" rated value</li> </ul>	0.5 A
<ul style="list-style-type: none"> <li>for signal "1" permissible range, max.</li> </ul>	0.6 A
Output delay with resistive load	
<ul style="list-style-type: none"> <li>"0" to "1", max.</li> </ul>	5 ms
<ul style="list-style-type: none"> <li>"1" to "0", max.</li> </ul>	5 ms
Parallel switching of two outputs	
<ul style="list-style-type: none"> <li>for logic links</li> </ul>	Yes
<ul style="list-style-type: none"> <li>for uprating</li> </ul>	No
<ul style="list-style-type: none"> <li>for redundant control of a load</li> </ul>	Yes
Switching frequency	
<ul style="list-style-type: none"> <li>with resistive load, max.</li> </ul>	25 Hz
<ul style="list-style-type: none"> <li>with inductive load, max.</li> </ul>	0.5 Hz
<ul style="list-style-type: none"> <li>on lamp load, max.</li> </ul>	10 Hz
Total current of the outputs	
<ul style="list-style-type: none"> <li>Current per channel, max.</li> </ul>	0.5 A
<ul style="list-style-type: none"> <li>Current per group, max.</li> </ul>	0.5 A
<ul style="list-style-type: none"> <li>Current per module, max.</li> </ul>	8 A
Cable length	
<ul style="list-style-type: none"> <li>shielded, max.</li> </ul>	1 000 m
<ul style="list-style-type: none"> <li>unshielded, max.</li> </ul>	600 m
Interrupts/diagnostics/status information	
Diagnostics function	No
Substitute values connectable	Yes
Alarms	
<ul style="list-style-type: none"> <li>Diagnostic alarm</li> </ul>	No

Diagnostic messages	
• Monitoring the supply voltage	No
• Wire-break	No
• 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	No
• 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	125 V DC/48 V AC
Isolation	
Isolation tested with	2 000 V DC
Standards, approvals, certificates	
Suitable for safety functions	No
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 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 Tx, horizontal mounting position, salt spray Class ST2
• EN 61373	Yes; Rail vehicles - vibrations and shocks: Category 1 Class A/B
• Fire protection acc. to EN 45545-2	Yes; Rail vehicles - verification on request
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 (Tx acc. to EN 50155)
<b>Altitude during operation relating to sea level</b>	
• 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)
<b>Relative humidity</b>	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
<b>Resistance</b>	
<b>Coolants and lubricants</b>	
— Resistant to commercially available coolants and lubricants	Yes; Incl. diesel and oil droplets in the air
<b>Use in stationary industrial systems</b>	
— 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, *
<b>Use on land craft, rail vehicles and special-purpose vehicles</b>	
— 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; *
<b>Usage in industrial process technology</b>	
— 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)
<b>Remark</b>	
— 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!
<b>Conformal coating</b>	
• 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-CC-830A

Yes; Conformal coating, Class A

#### Dimensions

Width	35 mm
Height	147 mm
Depth	129 mm

#### Weights

Weight, approx.	230 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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