



Figure similar

SIPLUS S7-1200 SM 1221 16DI based on 6ES7221-1BH32-0XB0 with conformal coating, -40...+70 °C, start up -25 °C, digital input 16 DI, 24 V DC, sink/source

General information	
Product type designation	SM 1221, DI 16x24 V DC
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Input current	
from backplane bus 5 V DC, max.	130 mA
Digital inputs	
<ul style="list-style-type: none"> <li>from load voltage L+ (without load), max.</li> </ul>	4 mA; per channel
output voltage / header	
supply voltage of the transmitters / header	<ul style="list-style-type: none"> <li>present</li> </ul> Yes
Power loss	
Power loss, typ.	2.5 W
Digital inputs	
Number of digital inputs	16
<ul style="list-style-type: none"> <li>in groups of</li> </ul>	4
Input characteristic curve in accordance with IEC 61131, type 1	Yes
Number of simultaneously controllable inputs	
all mounting positions	<ul style="list-style-type: none"> <li>— up to 40 °C, max.</li> </ul> 16
horizontal installation	<ul style="list-style-type: none"> <li>— up to 40 °C, max.</li> <li>— up to 50 °C, max.</li> </ul> 16 16
vertical installation	<ul style="list-style-type: none"> <li>— up to 40 °C, max.</li> </ul> 16
Input voltage	
<ul style="list-style-type: none"> <li>Rated value (DC)</li> <li>for signal "0"</li> <li>for signal "1"</li> </ul>	24 V 5 V DC at 1 mA 15 V DC at 2.5 mA
Input current	
<ul style="list-style-type: none"> <li>for signal "0", max. (permissible quiescent current)</li> <li>for signal "1", min.</li> <li>for signal "1", typ.</li> </ul>	1 mA 2.5 mA 4 mA
Input delay (for rated value of input voltage)	
for standard inputs	<ul style="list-style-type: none"> <li>— parameterizable</li> </ul> Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four

for interrupt inputs	
— parameterizable	Yes
Cable length	
• shielded, max.	500 m
• unshielded, max.	300 m
<b>Interrupts/diagnostics/status information</b>	
Diagnostics function	Yes
Alarms	
• Diagnostic alarm	Yes
Diagnoses	
• Monitoring the supply voltage	Yes
Diagnostics indication LED	
• for status of the inputs	Yes
• for maintenance	Yes
<b>Potential separation</b>	
Potential separation digital inputs	
• between the channels, in groups of	4
<b>Degree and class of protection</b>	
IP degree of protection	IP20
<b>Ambient conditions</b>	
Free fall	
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
• min.	-40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C
• max.	70 °C; = Tmax; Tmax > +60 °C number of simultaneously activated inputs 8 (no adjacent points) for horizontal mounting position
• At cold restart, min.	-25 °C
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 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
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	* The supplied plug covers must remain in place over the unused interfaces during operation!

ANSI/ISA-71.04

<b>Conformal coating</b>	
<ul style="list-style-type: none"><li>• Coatings for printed circuit board assemblies acc. to EN 61086</li><li>• Protection against fouling acc. to EN 60664-3</li><li>• Military testing according to MIL-I-46058C, Amendment 7</li><li>• Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A</li></ul>	Yes; Class 2 for high reliability Yes; Type 1 protection Yes; Discoloration of coating possible during service life Yes; Conformal coating, Class A
<b>connection method</b>	
required front connector	Yes
<b>Mechanics/material</b>	
Enclosure material (front) <ul style="list-style-type: none"><li>• Plastic</li></ul>	Yes
<b>Dimensions</b>	
Width	45 mm
Height	100 mm
Depth	75 mm
<b>Weights</b>	
Weight, approx.	210 g

**last modified:** 3/12/2024 