

SIPLUS S7-1200 SM 1221 16DI, with conformal coating based on 6ES7221-1BH32-0XB0 . 16 DI, 24 V DC, Sink/Source



Figure similar

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	
• from load voltage L+ (without load), max.	4 mA; per channel
Output voltage	
Power supply to the transmitters	
• present	Yes
Power loss	
Power loss, typ.	2.5 W

<b>Digital inputs</b>	
Number of digital inputs	16
• in groups of	4
Input characteristic curve in accordance with IEC 61131, type 1	Yes
<b>Number of simultaneously controllable inputs</b>	
all mounting positions	
— up to 40 °C, max.	16
horizontal installation	
— up to 40 °C, max.	16
— up to 50 °C, max.	16
vertical installation	
— up to 40 °C, max.	16
<b>Input voltage</b>	
• Rated value (DC)	24 V
• for signal "0"	5 V DC at 1 mA
• for signal "1"	15 V DC at 2.5 mA
<b>Input current</b>	
• for signal "0", max. (permissible quiescent current)	1 mA
• for signal "1", min.	2.5 mA
• for signal "1", typ.	4 mA
<b>Input delay (for rated value of input voltage)</b>	
for standard inputs	
— parameterizable	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
<b>Cable length</b>	
• shielded, max.	500 m
• unshielded, max.	300 m
<b>Interrupts/diagnostics/status information</b>	
Diagnostics function	Yes
<b>Alarms</b>	
• Diagnostic alarm	Yes
<b>Diagnoses</b>	
• Monitoring the supply voltage	Yes
<b>Diagnostics indication LED</b>	
• for status of the inputs	Yes
• for maintenance	Yes
<b>Potential separation</b>	
Potential separation digital inputs	

- between the channels, in groups of

4

## Degree and class of protection

IP degree of protection

IP20

## Standards, approvals, certificates

Highest safety class achievable in safety mode

- Performance level according to ISO 13849-1
- SIL acc. to IEC 61508

No

No

## Ambient conditions

Free fall

- Fall height, max.

0.3 m; five times, in product package

Ambient temperature during operation

- min.
- max.
- At cold restart, min.

-20 °C; = Tmin (incl. condensation/frost); start-up @ 0 °C

60 °C; = Tmax

0 °C

Ambient temperature during storage/transportation

- min.
- max.

-40 °C

70 °C

Altitude during operation relating to sea level

- Installation altitude above sea level, max.
- Ambient air temperature-barometric pressure-altitude

5 000 m

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
- to chemically active substances according to EN 60721-3-3
- to mechanically 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

Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); \*

Yes; Class 3S4 incl. sand, dust, \*

Use on ships/at sea

- to biologically active substances according to EN 60721-3-6
- to chemically active substances according to EN 60721-3-6

Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request

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; *
<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
• 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
<b>Connection method</b>	
required front connector	Yes
<b>Mechanics/material</b>	
Enclosure material (front)	
• Plastic	Yes
<b>Dimensions</b>	
Width	45 mm
Height	100 mm
Depth	75 mm
<b>Weights</b>	
Weight, approx.	210 g
<b>last modified:</b>	10/29/2020