SIEMENS

Data sheet

6ES7221-1BH32-0XB0



SIMATIC S7-1200, Digital input SM 1221, 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	
 from load voltage L+ (without load), max. 	4 mA; per channel
output voltage / header	
supply voltage of the transmitters / header	
• present	Yes
Power loss	
Power loss, typ.	2.5 W
Digital inputs	
Number of digital inputs	16
• in groups of	4
Input characteristic curve in accordance with IEC 61131, type 1	Yes
Number of simultaneously controllable inputs	
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
Input voltage	
Rated value (DC)	24 V
• for signal "0"	5 V DC at 1 mA
● for signal "1"	15 V DC at 2.5 mA
Input current	
 for signal "0", max. (permissible quiescent current) 	1 mA
● for signal "1", min.	2.5 mA
 for signal "1", typ. 	4 mA
Input delay (for rated value of input voltage)	
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
Cable length	
 shielded, max. 	500 m
 unshielded, max. 	300 m
Interrupts/diagnostics/status information	
Alarms	
Diagnostic alarm	Yes
Diagnostics indication LED	
 for status of the inputs 	Yes
Potential separation	
Potential separation digital inputs	
 between the channels, in groups of 	4
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes
CSA approval	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
Marine approval	Yes
Ambient conditions	
Free fall	
 Fall height, max. 	0.3 m; five times, in product package
Ambient temperature during operation	
• min.	-20 °C
• max.	60 °C
 permissible temperature change 	
	5°C to 55°C, 3°C / minute
Ambient temperature during storage/transportation	5°C to 55°C, 3°C / minute
	5°C to 55°C, 3°C / minute -40 °C
Ambient temperature during storage/transportation	
Ambient temperature during storage/transportation min. 	-40 °C
Ambient temperature during storage/transportation min. max. 	-40 °C
Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Storage/transport, min. 	-40 °C 70 °C
Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13	-40 °C 70 °C 660 hPa
Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Storage/transport, min. Storage/transport, max. 	-40 °C 70 °C 660 hPa
Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Storage/transport, min. Storage/transport, max. Relative humidity Operation at 25 °C without condensation, max. 	-40 °C 70 °C 660 hPa 1 080 hPa
Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Storage/transport, min. Storage/transport, max. Relative humidity Operation at 25 °C without condensation, max. connection method	-40 °C 70 °C 660 hPa 1 080 hPa 95 %
Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Storage/transport, min. Storage/transport, max. Relative humidity Operation at 25 °C without condensation, max. connection method required front connector 	-40 °C 70 °C 660 hPa 1 080 hPa
Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Storage/transport, min. Storage/transport, max. Relative humidity Operation at 25 °C without condensation, max. connection method required front connector Mechanics/material 	-40 °C 70 °C 660 hPa 1 080 hPa 95 %
Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Storage/transport, min. Storage/transport, max. Relative humidity Operation at 25 °C without condensation, max. connection method required front connector Mechanics/material Enclosure material (front) 	-40 °C 70 °C 660 hPa 1 080 hPa 95 % Yes
Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Storage/transport, min. Storage/transport, max. Relative humidity Operation at 25 °C without condensation, max. connection method required front connector Mechanics/material Enclosure material (front) Plastic 	-40 °C 70 °C 660 hPa 1 080 hPa 95 %
Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Storage/transport, min. Storage/transport, max. Relative humidity Operation at 25 °C without condensation, max. connection method required front connector Mechanics/material Enclosure material (front) Plastic Dimensions	-40 °C 70 °C 660 hPa 1 080 hPa 95 % Yes
Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Storage/transport, min. Storage/transport, max. Relative humidity Operation at 25 °C without condensation, max. connection method required front connector Mechanics/material Enclosure material (front) Plastic Dimensions Width 	-40 °C 70 °C 660 hPa 1 080 hPa 95 % Yes Yes
Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Storage/transport, min. Storage/transport, max. Relative humidity Operation at 25 °C without condensation, max. connection method required front connector Mechanics/material Enclosure material (front) Plastic Dimensions Width Height 	-40 °C 70 °C 660 hPa 1 080 hPa 95 % Yes Yes Yes 45 mm 100 mm
Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Storage/transport, min. Storage/transport, max. Relative humidity Operation at 25 °C without condensation, max. connection method required front connector Mechanics/material Enclosure material (front) Plastic Dimensions Width Height Depth 	-40 °C 70 °C 660 hPa 1 080 hPa 95 % Yes Yes
Ambient temperature during storage/transportation • min. • max. Air pressure acc. to IEC 60068-2-13 • Storage/transport, min. • Storage/transport, max. Relative humidity • Operation at 25 °C without condensation, max. connection method required front connector Mechanics/material Enclosure material (front) • Plastic Dimensions Width Height Depth Weights	-40 °C 70 °C 660 hPa 1 080 hPa 95 % Yes Yes 45 mm 100 mm 75 mm
Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Storage/transport, min. Storage/transport, max. Relative humidity Operation at 25 °C without condensation, max. connection method required front connector Mechanics/material Enclosure material (front) Plastic Dimensions Width Height Depth 	-40 °C 70 °C 660 hPa 1 080 hPa 95 % Yes Yes Yes 45 mm 100 mm

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