SIEMENS

Data sheet

6ES7221-1BH32-0XB0



SIMATIC S7-1200, Digital input SM 1221, 16 DI, 24 V DC, Sink/Source

Constal information	
General information	
Product type designation	SM 1221, DI 16x24 V DC
Supply voltage	2004
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
Ecological footprint	N/
environmental product declaration	Yes
Global warming potential — global warming potential, (total) [CO2 eq]	123 kg
— global warming potential, (total) [CO2 eq] — global warming potential, (during production) [CO2	123 kg
eq]	12.1 kg
— global warming potential, (during operation) [CO2 eq]	111 kg
— global warming potential, (after end of life cycle) [CO2 eq]	-0.434 kg
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— global warming potential, (after end of life cycle) [CO2 eq]	-0.434 kg
— global warming potential, (after end of life cycle) [CO2 eq] Ambient conditions	-0.434 kg 0.3 m; five times, in product package
- global warming potential, (after end of life cycle) [CO2 eq] Ambient conditions Free fall	
— global warming potential, (after end of life cycle) [CO2 eq] Ambient conditions Free fall • Fall height, max.	
	0.3 m; five times, in product package
	0.3 m; five times, in product package -20 °C
	0.3 m; five times, in product package -20 °C 60 °C
	0.3 m; five times, in product package -20 °C 60 °C 5°C to 55°C, 3°C / minute -40 °C
	0.3 m; five times, in product package -20 °C 60 °C 5°C to 55°C, 3°C / minute
	0.3 m; five times, in product package -20 °C 60 °C 5°C to 55°C, 3°C / minute -40 °C 70 °C
	0.3 m; five times, in product package -20 °C 60 °C 5°C to 55°C, 3°C / minute -40 °C 70 °C 660 hPa
global warming potential, (after end of life cycle) [CO2 eq] Ambient conditions Free fall Fall height, max. Ambient temperature during operation min. max. permissible temperature change Ambient temperature during storage/transportation min. max. Ambient temperature during storage/transportation min. storage/transport, min. Storage/transport, max. 	0.3 m; five times, in product package -20 °C 60 °C 5°C to 55°C, 3°C / minute -40 °C 70 °C
	0.3 m; five times, in product package -20 °C 60 °C 5°C to 55°C, 3°C / minute -40 °C 70 °C 660 hPa 1 080 hPa
	0.3 m; five times, in product package -20 °C 60 °C 5°C to 55°C, 3°C / minute -40 °C 70 °C 660 hPa
global warming potential, (after end of life cycle) [CO2 eq] Ambient conditions Free fall • Fall height, max. Ambient temperature during operation • min. • max. • permissible temperature change 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.	0.3 m; five times, in product package -20 °C 60 °C 5°C to 55°C, 3°C / minute -40 °C 70 °C 660 hPa 1 080 hPa 95 %
global warming potential, (after end of life cycle) [CO2 eq] Ambient conditions Free fall Fall height, max. Ambient temperature during operation min. max. permissible temperature change 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 	0.3 m; five times, in product package -20 °C 60 °C 5°C to 55°C, 3°C / minute -40 °C 70 °C 660 hPa 1 080 hPa
global warming potential, (after end of life cycle) [CO2 eq] Ambient conditions Free fall Fall height, max. Ambient temperature during operation min. max. permissible temperature change Ambient temperature during storage/transportation min. max. Atir 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 	0.3 m; five times, in product package -20 °C 60 °C 5°C to 55°C, 3°C / minute -40 °C 70 °C 660 hPa 1 080 hPa 95 %
	0.3 m; five times, in product package -20 °C 60 °C 5°C to 55°C, 3°C / minute -40 °C 70 °C 660 hPa 1 080 hPa 95 % Yes
global warming potential, (after end of life cycle) [CO2 eq] Ambient conditions Free fall • Fall height, max. Ambient temperature during operation • min. • max. • permissible temperature change 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	0.3 m; five times, in product package -20 °C 60 °C 5°C to 55°C, 3°C / minute -40 °C 70 °C 660 hPa 1 080 hPa 95 %
global warming potential, (after end of life cycle) [CO2 eq] Ambient conditions Free fall Fall height, max. Ambient temperature during operation min. max. permissible temperature change 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 	0.3 m; five times, in product package -20 °C 60 °C 5°C to 55°C, 3°C / minute -40 °C 70 °C 660 hPa 1 080 hPa 95 % Yes
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global warming potential, (after end of life cycle) [CO2 eq] Ambient conditions Free fall • Fall height, max. Ambient temperature during operation • min. • max. • permissible temperature change 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	0.3 m; five times, in product package -20 °C 60 °C 5°C to 55°C, 3°C / minute -40 °C 70 °C 660 hPa 1 080 hPa 95 % Yes Yes
global warming potential, (after end of life cycle) [CO2 eq] Ambient conditions Free fall Fall height, max. Ambient temperature during operation min. max. permissible temperature change Ambient temperature during storage/transportation min. max. Permissible temperature change 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 	0.3 m; five times, in product package -20 °C 60 °C 5°C to 55°C, 3°C / minute -40 °C 70 °C 660 hPa 1 080 hPa 95 % Yes 45 mm
global warming potential, (after end of life cycle) [CO2 eq] Ambient conditions Free fall • Fall height, max. Ambient temperature during operation • min. • max. • permissible temperature change Ambient temperature during storage/transportation • min. • max. Air pressure acc. to IEC 60068-2-13 • Storage/transport, min. • 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	0.3 m; five times, in product package -20 °C 60 °C 5°C to 55°C, 3°C / minute -40 °C 70 °C 660 hPa 1 080 hPa 95 % Yes 45 mm 100 mm 75 mm
global warming potential, (after end of life cycle) [CO2 eq] Ambient conditions Free fall Fall height, max. Ambient temperature during operation min. max. permissible temperature change Ambient temperature during storage/transportation min. max. Permissible temperature change 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 	0.3 m; five times, in product package -20 °C 60 °C 5°C to 55°C, 3°C / minute -40 °C 70 °C 660 hPa 1 080 hPa 95 % Yes Yes