



SIMATIC S7-1200 G2: SM 1221 digital input, 16 DI; inputs: 16x DI 24 V DC sink/source

General information	
Product type designation	SM 1221, DI 16x 24 V DC
Input current	
from backplane bus 5 V DC, max.	90 mA
Digital inputs	
<ul style="list-style-type: none"> <li>from load voltage L+ (without load), max.</li> </ul>	4.1 mA; per channel
Power loss	
Power loss, typ.	3.2 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	
horizontal installation	
— up to 40 °C, max.	16
— up to 50 °C, max.	16
vertical installation	
— up to 40 °C, max.	16
Input voltage	
<ul style="list-style-type: none"> <li>Rated value (DC)</li> </ul>	24 V
<ul style="list-style-type: none"> <li>for signal "0"</li> </ul>	5 V DC or 0.5 mA
<ul style="list-style-type: none"> <li>for signal "1"</li> </ul>	15 V DC at 2.5 mA
Input current	
<ul style="list-style-type: none"> <li>for signal "0", max. (permissible quiescent current)</li> </ul>	0.5 mA
<ul style="list-style-type: none"> <li>for signal "1", min.</li> </ul>	2.5 mA
<ul style="list-style-type: none"> <li>for signal "1", typ.</li> </ul>	4.1 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	No
Cable length	
<ul style="list-style-type: none"> <li>shielded, max.</li> </ul>	500 m
<ul style="list-style-type: none"> <li>unshielded, max.</li> </ul>	300 m
Interrupts/diagnostics/status information	
Diagnostics function	Yes

<b>Alarms</b>	
• Diagnostic alarm	No
<b>Diagnoses</b>	
• Monitoring the supply voltage	No
<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
• between the channels and backplane bus	Yes; 707 V DC (type test)
<b>Isolation</b>	
Isolation tested with	707 V DC (type test)
<b>Degree and class of protection</b>	
IP degree of protection	IP20
<b>Standards, approvals, certificates</b>	
Siemens Eco Profile (SEP)	Siemens EcoTech
CE mark	Yes
CSA approval	No
UL approval	Yes
cULus	Yes
FM approval	No
RCM (formerly C-TICK)	Yes
KC approval	Yes
Marine approval	No
<b>Ecological footprint</b>	
• environmental product declaration	Yes; type 2 acc. to ISO 14021
Global warming potential	
— global warming potential, (total) [CO2 eq]	40.3 kg
— global warming potential, (during production) [CO2 eq]	7.79 kg
— global warming potential, (during operation) [CO2 eq]	32.5 kg
— global warming potential, (after end of life cycle) [CO2 eq]	-0.089 kg
<b>Ambient conditions</b>	
Free fall	
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
• horizontal installation, min.	-20 °C
• horizontal installation, max.	60 °C; at max. voltages and max. specification
• vertical installation, min.	-20 °C
• vertical installation, max.	50 °C; at max. voltages and max. specification
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Air pressure acc. to IEC 60068-2-13	
• Operation, min.	540 hPa
• Operation, max.	1 140 hPa
• Storage/transport, min.	540 hPa
• Storage/transport, max.	1 140 hPa
Altitude during operation relating to sea level	
• Installation altitude, min.	-1 000 m
• Installation altitude, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	
• Operation at 25 °C without condensation, max.	95 %
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	3.5 mm from 5 - 8.4 Hz, 1g from 8.4 - 150 Hz
• Operation, tested according to IEC 60068-2-6	Yes
Shock testing	

- tested according to IEC 60068-2-27

Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms

<b>Pollutant concentrations</b>	
• SO2 at RH < 60% without condensation	SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free
<b>connection method</b>	
required front connector	No
<b>Mechanics/material</b>	
Enclosure material (front)	
• Plastic	Yes
<b>Dimensions</b>	
Width	30 mm
Height	125 mm
Depth	100 mm
<b>Weights</b>	
Weight, approx.	166 g

	Version	Classification
eClass	14	27-24-22-04
eClass	12	27-24-22-04
eClass	9.1	27-24-22-04
eClass	9	27-24-22-04
eClass	8	27-24-22-04
eClass	7.1	27-24-22-04
eClass	6	27-24-22-04
ETIM	10	EC001419
ETIM	9	EC001419
ETIM	8	EC001419
ETIM	7	EC001419

**Approvals / Certificates**

General Product Approval EMV



[KC](#)

[Miscellaneous](#)



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**For use in hazardous locations** Test Certificates Environment



[CCC-Ex](#)

[Type Test Certificates/Test Report](#)



**Environment**



last modified:

7/23/2025