

Siemens  
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SIMATIC S7-1200 G2: SB 1221 digital input, 8 DI 100 kHz; inputs: 8x DI 24 V DC sink/source, 100 kHz



Figure similar

| General information                                             |                                                                                                                                              |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Product type designation                                        | SB 1221, DI 8x 24 V DC 100 kHz                                                                                                               |
| Engineering with                                                |                                                                                                                                              |
| • STEP 7 TIA Portal configurable/integrated from version        | V20 or higher                                                                                                                                |
| Input current                                                   |                                                                                                                                              |
| from backplane bus 5 V DC, typ.                                 | 108 mA                                                                                                                                       |
| Digital inputs                                                  |                                                                                                                                              |
| • from load voltage L+ (without load), max.                     | 6 mA; per channel                                                                                                                            |
| Power loss                                                      |                                                                                                                                              |
| Power loss, typ.                                                | 2.4 W                                                                                                                                        |
| Digital inputs                                                  |                                                                                                                                              |
| Number of digital inputs                                        | 8; sink / source                                                                                                                             |
| • in groups of                                                  | 8                                                                                                                                            |
| Input characteristic curve in accordance with IEC 61131, type 1 | Yes                                                                                                                                          |
| Number of simultaneously controllable inputs                    |                                                                                                                                              |
| all mounting positions                                          |                                                                                                                                              |
| — up to 40 °C, max.                                             | 8                                                                                                                                            |
| Input voltage                                                   |                                                                                                                                              |
| • Rated value (DC)                                              | 24 V                                                                                                                                         |
| • for signal "0"                                                | 5 V DC or 0.5 mA                                                                                                                             |
| • for signal "1"                                                | 15 V DC at 2.5 mA                                                                                                                            |
| Input current                                                   |                                                                                                                                              |
| • for signal "0", max. (permissible quiescent current)          | 0.5 mA                                                                                                                                       |
| • for signal "1", min.                                          | 3.3 mA                                                                                                                                       |
| • for signal "1", typ.                                          | 6 mA                                                                                                                                         |
| Input delay (for rated value of input voltage)                  |                                                                                                                                              |
| for standard inputs                                             |                                                                                                                                              |
| — parameterizable                                               | Yes; 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms |
| for interrupt inputs                                            |                                                                                                                                              |
| — parameterizable                                               | Yes                                                                                                                                          |
| for technological functions                                     |                                                                                                                                              |
| — parameterizable                                               | Yes                                                                                                                                          |
| Cable length                                                    |                                                                                                                                              |
| • shielded, max.                                                | 500 m; 500 m shielded, 50 m shielded for HSC inputs                                                                                          |

|                                                                |                                                                              |
|----------------------------------------------------------------|------------------------------------------------------------------------------|
| • unshielded, max.                                             | 300 m                                                                        |
| <b>Interrupts/diagnostics/status information</b>               |                                                                              |
| Diagnostics function                                           | Yes                                                                          |
| <b>Alarms</b>                                                  |                                                                              |
| • Diagnostic alarm                                             | No                                                                           |
| <b>Diagnoses</b>                                               |                                                                              |
| • Monitoring the supply voltage                                | No                                                                           |
| <b>Diagnostics indication LED</b>                              |                                                                              |
| • DIAG LED                                                     | Yes                                                                          |
| • for status of the inputs                                     | Yes                                                                          |
| <b>Potential separation</b>                                    |                                                                              |
| <b>Potential separation digital inputs</b>                     |                                                                              |
| • between the channels                                         | No                                                                           |
| • between the channels, in groups of                           | 8                                                                            |
| • Number of potential groups                                   | 1                                                                            |
| • between the channels and backplane bus                       | Yes; 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                                                |
| <b>Global warming potential</b>                                |                                                                              |
| — global warming potential, (total) [CO2 eq]                   | 9.53 kg                                                                      |
| — global warming potential, (during production) [CO2 eq]       | 3.86 kg                                                                      |
| — global warming potential, (during operation) [CO2 eq]        | 5.74 kg                                                                      |
| — global warming potential, (after end of life cycle) [CO2 eq] | -0.086 kg                                                                    |
| <b>Ambient conditions</b>                                      |                                                                              |
| <b>Free fall</b>                                               |                                                                              |
| • Fall height, max.                                            | 0.3 m; five times, in product package                                        |
| <b>Ambient temperature during operation</b>                    |                                                                              |
| • min.                                                         | -20 °C                                                                       |
| • max.                                                         | 40 °C; at max. voltages and max. specifications                              |
| • horizontal installation, min.                                | -20 °C                                                                       |
| • horizontal installation, max.                                | 60 °C; at rated voltages, 50 % of max. specification and alternate IO active |
| • vertical installation, min.                                  | -20 °C                                                                       |
| • vertical installation, max.                                  | 50 °C; at rated voltages, 50 % of max. specification and alternate IO active |
| <b>Ambient temperature during storage/transportation</b>       |                                                                              |
| • min.                                                         | -40 °C                                                                       |
| • max.                                                         | 70 °C                                                                        |
| <b>Air pressure acc. to IEC 60068-2-13</b>                     |                                                                              |
| • Operation, min.                                              | 540 hPa                                                                      |
| • Operation, max.                                              | 1 140 hPa                                                                    |
| • Storage/transport, min.                                      | 540 hPa                                                                      |
| • Storage/transport, max.                                      | 1 140 hPa                                                                    |
| <b>Altitude during operation relating to sea level</b>         |                                                                              |
| • Installation altitude, min.                                  | -1 000 m                                                                     |
| • Installation altitude, max.                                  | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual       |

|                                                                                                               |                                                                                           |
|---------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Relative humidity                                                                                             |                                                                                           |
| <ul style="list-style-type: none"><li>• Operation at 25 °C without condensation, max.</li></ul>               | 95 %                                                                                      |
| Vibrations                                                                                                    |                                                                                           |
| <ul style="list-style-type: none"><li>• Vibration resistance during operation acc. to IEC 60068-2-6</li></ul> | 3.5 mm from 5 - 8.4 Hz, 1g from 8.4 - 150 Hz                                              |
| <ul style="list-style-type: none"><li>• Operation, tested according to IEC 60068-2-6</li></ul>                | Yes                                                                                       |
| Shock testing                                                                                                 |                                                                                           |
| <ul style="list-style-type: none"><li>• tested according to IEC 60068-2-27</li></ul>                          | Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms |
| Pollutant concentrations                                                                                      |                                                                                           |
| <ul style="list-style-type: none"><li>• SO2 at RH &lt; 60% without condensation</li></ul>                     | S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free                               |
| Mechanics/material                                                                                            |                                                                                           |
| Enclosure material (front) <ul style="list-style-type: none"><li>• plastic</li></ul>                          | Yes                                                                                       |
| Dimensions                                                                                                    |                                                                                           |
| Width                                                                                                         | 15 mm                                                                                     |
| Height                                                                                                        | 62 mm                                                                                     |
| Depth                                                                                                         | 63 mm                                                                                     |
| Weights                                                                                                       |                                                                                           |
| Weight, approx.                                                                                               | 26 g                                                                                      |
| Classifications                                                                                               |                                                                                           |

|        | Version | Classification |
|--------|---------|----------------|
| eClass | 16      | 27-24-22-04    |
| 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



[Miscellaneous](#)

[Manufacturer Declaration](#)



##### General Product Approval



[China RoHS](#)

[Manufacturer Declaration](#)

##### EMV

For use in hazardous locations



[Miscellaneous](#)

[CCC-Ex](#)

[CCC-Ex](#)

##### Test Certificates

Maritime application

[Type Test Certificates/Test Report](#)



[NK / Nippon Kaiji Kyokai](#)

## Maritime application

## Environment



[KR \(Korean Register of Shipping\)](#)



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