

Siemens  
EcoTech



SIMATIC S7-1200 G2: SB 1223 digital I/O, 4 DI/4 DO 100 kHz; inputs: 4 x DI 24 V DC sink/source, 100 kHz; outputs: 4 x DQ 24 V DC 0.1 A sinking/sourcing transistor, 100 kHz



| General information                                             |                                                                                                                                              |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Product type designation                                        | SB 1223, DI 4x 24 V DC/DQ 4x 24 V DC 100 kHz                                                                                                 |
| Engineering with                                                |                                                                                                                                              |
| • STEP 7 TIA Portal configurable/integrated from version        | V20 or higher                                                                                                                                |
| 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, typ.                                 | 48 mA                                                                                                                                        |
| Digital inputs                                                  |                                                                                                                                              |
| • from load voltage L+ (without load), max.                     | 6 mA; per channel                                                                                                                            |
| Digital outputs                                                 |                                                                                                                                              |
| • from load voltage L+, max.                                    | 15 mA                                                                                                                                        |
| Power loss                                                      |                                                                                                                                              |
| Power loss, typ.                                                | 1.7 W                                                                                                                                        |
| Digital inputs                                                  |                                                                                                                                              |
| Number of digital inputs                                        | 4; sink / source                                                                                                                             |
| • 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.                                             | 4                                                                                                                                            |
| 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>Digital outputs</b>                           |                                                      |
| Number of digital outputs                        | 4                                                    |
| • in groups of                                   | 4                                                    |
| Short-circuit protection                         | Yes                                                  |
| Switching capacity of the outputs                |                                                      |
| • with resistive load, max.                      | 0.1 A                                                |
| Output voltage                                   |                                                      |
| • Rated value (DC)                               | 24 V                                                 |
| • for signal "0", max.                           | 1 V                                                  |
| • for signal "1", min.                           | L+ (-1.5 V)                                          |
| Output current                                   |                                                      |
| • for signal "1" rated value                     | 0.1 A                                                |
| Output delay with resistive load                 |                                                      |
| • "0" to "1", max.                               | 1.8 µs                                               |
| • "1" to "0", max.                               | 1.8 µs                                               |
| Total current of the outputs (per group)         |                                                      |
| horizontal installation                          |                                                      |
| — up to 50 °C, max.                              | 0.2 A                                                |
| Cable length                                     |                                                      |
| • shielded, max.                                 | 500 m; 500 m shielded, 50 m shielded for PTO outputs |
| • unshielded, max.                               | 150 m                                                |
| <b>Interrupts/diagnostics/status information</b> |                                                      |
| Diagnostics function                             | Yes                                                  |
| Alarms                                           |                                                      |
| • Diagnostic alarm                               | Yes                                                  |
| Diagnoses                                        |                                                      |
| • Monitoring the supply voltage                  | Yes                                                  |
| Diagnostics indication LED                       |                                                      |
| • DIAG LED                                       | Yes                                                  |
| • for status of the inputs                       | Yes                                                  |
| • for status of the outputs                      | Yes                                                  |
| <b>Potential separation</b>                      |                                                      |
| Potential separation digital inputs              |                                                      |
| • between the channels                           | No                                                   |
| • between the channels, in groups of             | 4                                                    |
| • Number of potential groups                     | 1                                                    |
| • between the channels and backplane bus         | Yes; 707 V DC (type test)                            |
| Potential separation digital outputs             |                                                      |
| • between the channels                           | No                                                   |
| • between the channels, in groups of             | 4                                                    |
| • 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                                                                                        |         |                |
| Ecological footprint                                           |                                                                                           |         |                |
| • environmental product declaration                            | Yes; type 2 acc. to ISO 14021                                                             |         |                |
| Global warming potential                                       |                                                                                           |         |                |
| — 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                                                                                 |         |                |
| Ambient conditions                                             |                                                                                           |         |                |
| Free fall                                                      |                                                                                           |         |                |
| • Fall height, max.                                            | 0.3 m; five times, in product package                                                     |         |                |
| Ambient temperature during operation                           |                                                                                           |         |                |
| • 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              |         |                |
| 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 |         |                |
| Pollutant concentrations                                       |                                                                                           |         |                |
| • SO2 at RH < 60% without condensation                         | SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free                               |         |                |
| Mechanics/material                                             |                                                                                           |         |                |
| Enclosure material (front)                                     |                                                                                           |         |                |
| • Plastic                                                      | Yes                                                                                       |         |                |
| Dimensions                                                     |                                                                                           |         |                |
| Width                                                          | 15 mm                                                                                     |         |                |
| Height                                                         | 62 mm                                                                                     |         |                |
| Depth                                                          | 63 mm                                                                                     |         |                |
| Weights                                                        |                                                                                           |         |                |
| Weight, approx.                                                | 28 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

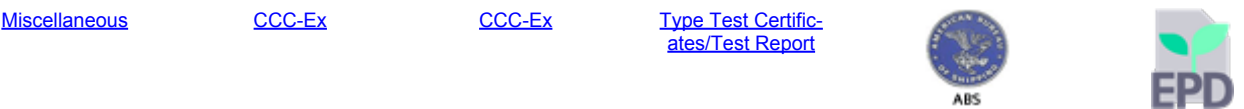
General Product Approval



General Product Approval      EMV      For use in hazardous locations



For use in hazardous locations      Test Certificates      Maritime application      Environment



Environment



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