SIEMENS

Data sheet

6ES7223-1PL32-0XB0



SIMATIC S7-1200, DIGITAL I/O SM 1223, 16DI / 16DO, 16DI DC 24 V, SINK/SOURCE, 16DO, RELAY 2A

| Supply voltage | |
|---------------------------------------------------------------|------------------------|
| Rated value (DC) | |
| • 24 V DC | Yes |
| 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. | 180 mA |
| Digital inputs | |
| from load voltage L+ (without load), max. | 4 mA/input 11 mA/relay |
| Output voltage | |
| Power supply to the transmitters | |
| • present | Yes |
| Power losses | |
| Power loss, typ. | 10 W |
| Digital inputs | |
| Number of digital inputs | 16 |
| • In groups of | 2 |
| Input characteristic curve in accordance with IEC | Yes |
| 61131, type 1 | |
| Number of simultaneously controllable inputs | |
| all mounting positions | |
| — up to 40 °C, max. | 16 |
| horizontal installation | |
| | |

| (10 °C | 40 |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| — up to 40 °C, max. | 16 |
| — up to 50 °C, max. | 16 |
| vertical installation | |
| — up to 40 °C, max. | 16 |
| Input voltage | |
| Type of input voltage | DC |
| Rated value (DC) | 24 V |
| ● for signal "0" | 5 V DC at 1 mA |
| ● for signal "1" | 15 VDC 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; Typical |
| 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 |
| Digital outputs | |
| Number of digital outputs | 16 |
| • In groups of | 4 |
| short-circuit protection | No; to be provided externally |
| Switching capacity of the outputs | |
| • with resistive load, max. | 2 A |
| • on lamp load, max. | 30 W with DC, 200 W with AC |
| Output voltage | |
| Rated value (DC) | 5 V DC to 30 V DC |
| • Rated value (AC) | 5 V AC to 250 V AC |
| Output current | |
| for signal "1" permissible range, max. | 2 A |
| Output delay with resistive load | |
| • "0" to "1", max. | 10 ms |
| ● "1" to "0", max. | 10 ms |
| Aggregate current of outputs (per group) | |
| horizontal installation | |
| — up to 50 °C, max. | 8 A; Current per mass |
| Relay outputs | |
| | |

| • Number of relay outputs 16 • Rated input voltage of relay coil L+ (DC) 24 V • Number of operating cycles, max. mechanically 10 million, at rated load voltage 100.000 Switching capacity of contacts - with inductive load, max. 2 A - with inductive load, max. 2 A - on lamp load, max. 20 W with DC, 200 W with AC - with resistive load, max. 2 A - with resistive load, max. 2 A - with resistive load, max. 150 m • Shielded, max. 150 m • Unshielded, max. 150 m • Unshielded, max. 150 m • Alarms Yes • Diagnostic functions Yes • Diagnostic functions Yes • Diagnostic functions Yes • Diagnostic functions Yes • For status of the inputs Yes • For status of the outputs Yes • For status of the inputs Yes • For status of the outputs Yes • Status indicator (gital output (green) Yes • Status indicator digital input (green) Yes • Status indicator digital input (green) Yes • between the channels, in groups of 2 • Detential separation digital inputs 1500 V AC for 1 minute | | 40 | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|--------------------------------------------------------|--|
| Number of operating cycles, max. mechanically 10 million, at rated load voltage 100,000 Switching capacity of contacts 2 A - with inductive load, max. 2 A - on lamp load, max. 2 A Cable length 500 m • Unshielded, max. 500 m • Unshielded, max. 150 m Interrupts/citagnostics/status information Yes Alarms Yes Diagnostic messages - • Diagnostic messages - • Diagnostic functions Yes Diagnostic messages - • For status of the inputs Yes • Status indicator digital outputs Yes • Status indicator digital input (green) Yes • Detential separation 2 Potential separation 2 • Detween the channels Relays • between the channels Relays • between the channels 750 V AC for 1 minute Portential separation 1000 V AC for 1 minute Permet difference - • between the channels Relays <tr< td=""><td></td><td></td></tr<> | | | |
| Switching capacity of contacts 2 A - with inductive load, max. 2 A - on lamp load, max. 30 W with DC, 200 W with AC - with resistive load, max. 2 A Cable length 500 m • Unshielded, max. 150 m Interrupts/diagnostics/status information Alarms Yes • Diagnostic functions Yes Diagnostic functions Yes Obignostic functions Yes Diagnostic functions Yes Obignostic functions Yes Obignostic functions Yes Obignostic functions Yes For status of the inputs Yes • for status of the outputs Yes • for status of the outputs Yes • for status of the outputs Yes • Status indicator digital inputs Yes • between the channels, in groups of 2 Potential separation Ze Potential separation digital inputs Yes • between the channels, in groups of 4 • between the channels, in groups of 4 • between the channels and the backplan | | | |
| - with inductive load, max. 2 Å - on lamp load, max. 30 W with DC, 200 W with AC - with resistive load, max. 2 Å Cable length 500 m • shelded, max. 150 m Interrupts/diagnostics/status information Alarms Alarms Ves • Diagnostic alarm Yes Diagnostic messages Yes • Monitoring the supply voltage Yes Diagnostic sindcation LED Yes • for status of the inputs Yes • Status of the outputs Yes • Status of the couptus Yes • Status of the couptus Yes • Status of the couptus Yes • Status indicator digital output (green) Yes • Detential separation digital inputs • es • between the channels, in groups of 2 Potential separation digital inputs 1500 V AC for 1 minute • between the channels and the backplane bus 1500 V AC for 1 minute Permissible potential difference 1500 V AC for 1 minute Permissible potential difference 1500 V AC for 1 minute Permissible potential difference Yes between the channels and the backplane bus 750 V AC for 1 minute Permissible potential difference Yes | | mechanically 10 million, at rated load voltage 100,000 | |
| Internet load, max.30 W with DC, 200 W with AC with resistive load, max.2 ACable length500 m- with resistive load, max.500 m- ushielded, max.150 mInterrupts/diagnostics/status information150 mNamesYesDiagnostic status informationYesDiagnostic functionsYesDiagnostic functionsYesDiagnostic functionsYesDiagnostic functionsYesStatus indicaton LEDYes- for status of the inputsYes- for status of the inputsYes- for status of the outputsYes- for status of the outputsYes- Status indicator digital nout (green)Yes- Status indicator digital inputYes- between the channels, in groups of2Potential separation digital output4- between the channels, in groups of4- between the channels, in groups of500 V AC for 1 minutePermissible potential differenceYes- between the channels, in groups of4- between the channels, in groups of100 V AC for 1 minutePermissible potential differenceYes- between the channels, and the backplane | Switching capacity of contacts | | |
| with resistive load, max. 2 A Cable length 500 m • shelded, max. 150 m • Unshielded, max. 150 m Interrupts/cliagnostics/status information 150 m Alarms Yes • Diagnostic status information Yes Diagnostic darm Yes Diagnostic functions Yes Diagnostic functions Yes Diagnostic indication LED Yes • for status of the outputs Yes • For status of the outputs Yes • Status indicator digital output (green) Yes Potential separation digital inputs Yes • between the channels, in groups of 2 Potential separation digital inputs Status indicator digital outputs • between the channels, in groups of 4 • between the channels, in groups of 1500 V AC for 1 minute Permissible potential difference Eelays • between different circuits 750 V AC for 1 minute Diagroest of protection to EN 60529 1520 • IP20 Yes Status Yes | — with inductive load, max. | | |
| Cable length • shielded, max. 500 m • Unshielded, max. 150 m Interrupts/diagnostics/status information Alarms • Alarms Yes • Diagnostic alarm Yes Diagnostic messages Yes • Diagnostic messages Yes • Monitoring the supply voltage Yes Diagnostic messages Yes • for status of the inputs Yes • for status of the outputs Yes • for maintenance Yes • Status indicator digital output (green) Yes Potential separation Yes Potential separation digital inputs Pes • between the channels, in groups of 2 Potential separation digital outputs 1500 V AC for 1 minute • between the channels, in groups of 4 • between the channels on the backplane bus 1500 V AC for 1 minute Porential separation digital outputs 750 V AC for 1 minute Permissible potential difference Yes between different circuits 750 V AC for 1 minute Degree of protection to EN 60529 Yes • IP20 | — on lamp load, max. | 30 W with DC, 200 W with AC | |
| • shielded, max. 500 m • Unshielded, max. 150 m Interrupts/diagnostics/status information Alarms • Alarms Yes • Diagnostic alarm Yes Diagnostic functions Yes • For status of the outputs Yes • For status of the outputs Yes • Status indicator digital input (green) Yes • Status indicator digital input (green) Yes • Detential separation digital inputs • • between the channels, in groups of 2 • between the channels, in groups of 4 • between the channels and the backplane bus 1500 V AC for 1 minute Permissible potential difference Eetween different circuits Degree and class of protection Yes Standards, approvals, certificates Yes CE ma | — with resistive load, max. | 2 A | |
| Unshielded, max. 150 m Interrupts/diagnostics/status information //////////////////////////////////// | Cable length | | |
| Interrupts/diagnostics/status information Alarms • Alarms • Alarms • Diagnostic alarm Yes Diagnostic nessages • Diagnostic incitons • Monitoring the supply voltage Yes Diagnostic indication LED • for status of the inputs Yes • For status of the outputs Yes • Status indicator digital output (green) Yes Status indicator digital input • between the channels, in groups of 2 Potential separation digital outputs • between the channels, in groups of 4 • between the channels, in groups of 4 • between the channels and the backplane bus 1500 V AC for 1 minute Permissible potential difference between different circuits 750 V AC for 1 minute Permissible potention to EN 60529 • • IP20 Yes Standards, approval Yes CE mark Yes | • shielded, max. | 500 m | |
| Alarms Yes • Alarms Yes Diagnostic alarm Yes Diagnostic messages • • Diagnostic functions Yes • Diagnostics indication LED • • for status of the inputs Yes • For status of the outputs Yes • for maintenance Yes • Status indicator digital output (green) Yes Potential separation Yes Potential separation digital inputs • • between the channels, in groups of 2 Potential separation digital outputs • • between the channels, in groups of 4 • between the channels and the backplane bus 1500 V AC for 1 minute Permissible potential difference • Degree of protection to EN 60529 • • IP20 Yes Standards, approvals, certificates Yes CE mark Yes UL approval Yes | • Unshielded, max. | 150 m | |
| • Alarms Yes • Diagnostic alarm Yes Diagnostic messages • • Diagnostic functions Yes • Monitoring the supply voltage Yes Diagnostics indication LED • • for status of the inputs Yes • for status of the outputs Yes • for maintenance Yes • Status indicator digital output (green) Yes • Status indicator digital input (green) Yes Potential separation • Potential separation digital outputs • • between the channels, in groups of 2 • between the channels, in groups of 4 • between the channels, in groups of 4 • between the channels, in groups of 4 • between difference • between difference • Degree and class of protection • Degree of protection to EN 60529 • • IP20 Yes Standards, approvals, certificates Yes CE mark Yes UL approval Yes | Interrupts/diagnostics/status information | | |
| Name Yes Diagnostic alarm Yes Diagnostic functions Yes Monitoring the supply voltage Yes Diagnostics indication LED Yes • for status of the inputs Yes • for status of the outputs Yes • for status of the outputs Yes • for maintenance Yes • Status indicator digital output (green) Yes • Status indicator digital input (green) Yes • Status indicator digital input (green) Yes • Dotential separation Potential separation digital input (green) • between the channels, in groups of 2 • between the channels, in groups of 4 • between the channels Relays • between the channels, in groups of 4 • between the channels Relays • between the channels Tool V AC for 1 minute Permissible potential difference Degree of protection to EN 60529 • IP20 Yes Standards, approvals, certificates CE mark Yes CE mark Yes UL aproval | Alarms | | |
| Diagnostic messages Poisgnostic functions Yes Monitoring the supply voltage Yes Diagnostic indication LED Yes • for status of the inputs Yes • for status of the outputs Yes • for status of the outputs Yes • for status of the outputs Yes • for maintenance Yes • Status indicator digital output (green) Yes • Status indicator digital input (green) Yes • Status indicator digital input (green) Yes Potential separation Potential separation Potential separation digital inputs • • between the channels, in groups of 2 Potential separation digital outputs • • between the channels, in groups of 4 • between the channels, in groups of 4 • between the channels and the backplane bus 1500 V AC for 1 minute Permissible potential difference • between different circuits 750 V AC for 1 minute Degree of protection to EN 60529 • • IP20 Yes Standards, approvals, certificates Yes CE ma | • Alarms | Yes | |
| • Diagnostic functions Yes • Monitoring the supply voltage Yes Diagnostics indication LED • • for status of the inputs Yes • For status of the outputs Yes • for maintenance Yes • Status indicator digital output (green) Yes • Status indicator digital inputs Yes • Status indicator digital inputs • • between the channels, in groups of 2 Potential separation digital outputs • • between the channels Relays • between the channels, in groups of 4 • between the channels, in groups of 4 • between the channels TSO V AC for 1 minute Permissible potential difference • between different circuits 750 V AC for 1 minute Pegree and class of protection • Degree of protection to EN 60529 • • IP20 Yes Standards, approvals, certificates CE mark CE mark Yes UL approval Yes | Diagnostic alarm | Yes | |
| • Monitoring the supply voltage Yes Diagnostics indication LED • • for status of the inputs Yes • For status of the outputs Yes • for maintenance Yes • Status indicator digital output (green) Yes • Status indicator digital input (green) Yes • Status indicator digital input (green) Yes Potential separation Potential separation digital inputs • between the channels, in groups of 2 Potential separation digital outputs • • between the channels, in groups of 4 • between the channels, in groups of 4 • between the channels and the backplane bus 1500 V AC for 1 minute Permissible potential difference E between different circuits 750 V AC for 1 minute Degree of protection to EN 60529 • • IP20 Yes Standards, approvals, certificates Yes CE mark Yes UL approval Yes | Diagnostic messages | | |
| Diagnostics indication LED • for status of the inputs Yes • For status of the outputs Yes • for maintenance Yes • Status indicator digital output (green) Yes • Status indicator digital input (green) Yes • Status indicator digital input (green) Yes Potential separation Yes Potential separation digital inputs • • between the channels, in groups of 2 Potential separation digital outputs • • between the channels, in groups of 4 • between the channels, in groups of 4 • between the channels and the backplane bus 1500 V AC for 1 minute Permissible potential difference • between different circuits 750 V AC for 1 minute Degree and class of protection • Degree of protection to EN 60529 • • IP20 Yes Standards, approvals, certificates CE mark CE mark Yes UL approval Yes | Diagnostic functions | Yes | |
| • for status of the inputs Yes • For status of the outputs Yes • for maintenance Yes • Status indicator digital output (green) Yes • Status indicator digital input (green) Yes Potential separation Yes Potential separation digital inputs • • between the channels, in groups of 2 Potential separation digital outputs • • between the channels Relays • between the channels 1500 V AC for 1 minute Permissible potential difference • between different circuits 750 V AC for 1 minute Pegree and class of protection • Degree of protection to EN 60529 Yes • IP20 Yes Standards, approvals, certificates CE mark CE mark Yes UL approval Yes | Monitoring the supply voltage | Yes | |
| • For status of the outputs Yes • For status of the outputs Yes • for maintenance Yes • Status indicator digital output (green) Yes • Status indicator digital inputs Yes • Detential separation Yes Potential separation digital inputs • • between the channels, in groups of 2 Potential separation digital outputs • • between the channels Relays • between the channels, in groups of 4 • between the channels in groups of 4 • between the channels and the backplane bus 1500 V AC for 1 minute Permissible potential difference • between different circuits 750 V AC for 1 minute Pegree and class of protection • Degree of protection to EN 60529 Yes • IP20 Yes Standards, approvals, certificates • CE mark Yes CSA approval Yes UL approval Yes | Diagnostics indication LED | | |
| • for maintenance Yes • for maintenance Yes • Status indicator digital output (green) Yes • Status indicator digital input (green) Yes Potential separation Yes Potential separation digital inputs • • between the channels, in groups of 2 Potential separation digital outputs • • between the channels, in groups of 4 • between the channels, in groups of 4 • between the channels and the backplane bus 1500 V AC for 1 minute Permissible potential difference • between different circuits 750 V AC for 1 minute Degree and class of protection • Degree of protection to EN 60529 • • IP20 Yes Standards, approvals, certificates Yes CE mark Yes UL approval Yes | for status of the inputs | Yes | |
| Status indicator digital output (green) Status indicator digital input (green) Yes Potential separation Potential separation digital inputs between the channels, in groups of Potential separation digital outputs between the channels Relays between the channels, in groups of between the channels, in groups of between the channels between the channels between the channels and the backplane bus 1500 V AC for 1 minute Permissible potential difference between different circuits 750 V AC for 1 minute Degree and class of protection Degree of protection to EN 60529 IP20 Yes Standards, approvals, certificates CSA approval Yes | For status of the outputs | Yes | |
| Status indicator digital input (green) Yes Potential separation Potential separation digital inputs between the channels, in groups of between the channels between the channels, in groups of between the channels and the backplane bus between difference between difference between different circuits 750 V AC for 1 minute Permissible potential difference between different circuits 750 V AC for 1 minute Degree and class of protection Degree of protection to EN 60529 | • for maintenance | Yes | |
| Potential separation Potential separation digital inputs • between the channels, in groups of 2 Potential separation digital outputs • between the channels • between the channels, in groups of 4 • between the channels and the backplane bus 1500 V AC for 1 minute Permissible potential difference between different circuits 750 V AC for 1 minute Degree and class of protection Degree of protection to EN 60529 • IP20 Yes Standards, approvals, certificates CE mark Yes UL approval | Status indicator digital output (green) | Yes | |
| Potential separation digital inputs • between the channels, in groups of 2 Potential separation digital outputs • between the channels Relays • between the channels, in groups of 4 • between the channels, and the backplane bus 1500 V AC for 1 minute Permissible potential difference between different circuits 750 V AC for 1 minute Degree and class of protection Degree of protection to EN 60529 • IP20 Yes Standards, approvals, certificates CE mark Yes UL approval Yes | Status indicator digital input (green) | Yes | |
| • between the channels, in groups of 2 Potential separation digital outputs • • between the channels Relays • between the channels, in groups of 4 • between the channels and the backplane bus 1500 V AC for 1 minute Permissible potential difference 1500 V AC for 1 minute between different circuits 750 V AC for 1 minute Degree and class of protection 1000 V AC for 1 minute Degree of protection to EN 60529 Yes • IP20 Yes Standards, approvals, certificates Yes CE mark Yes UL approval Yes | Potential separation | | |
| Potential separation digital outputs • between the channels Relays • between the channels, in groups of 4 • between the channels and the backplane bus 1500 V AC for 1 minute Permissible potential difference 1500 V AC for 1 minute Degree and class of protection 750 V AC for 1 minute Degree of protection to EN 60529 Yes • IP20 Yes Standards, approvals, certificates Yes UL approval Yes | | | |
| • between the channelsRelays• between the channels, in groups of4• between the channels and the backplane bus1500 V AC for 1 minutePermissible potential differencebetween different circuits750 V AC for 1 minuteDegree and class of protectionDegree of protection to EN 60529• IP20YesStandards, approvals, certificatesCE markYesCSA approvalYesUL approvalYes | between the channels, in groups of | 2 | |
| • between the channels, in groups of • between the channels and the backplane bus41500 V AC for 1 minutePermissible potential differencebetween different circuits750 V AC for 1 minuteDegree and class of protectionDegree of protection to EN 60529 • IP20YesStandards, approvals, certificatesCE markYesCSA approvalYesUL approvalYes | Potential separation digital outputs | | |
| between the channels and the backplane bus 1500 V AC for 1 minute Permissible potential difference between different circuits 750 V AC for 1 minute Degree and class of protection Degree of protection to EN 60529 • IP20 Yes Standards, approvals, certificates CE mark Yes CSA approval UL approval Yes Yes | • between the channels | Relays | |
| Permissible potential difference between different circuits 750 V AC for 1 minute Degree and class of protection Permissible potential difference Degree of protection to EN 60529 Yes • IP20 Yes Standards, approvals, certificates Yes CE mark Yes CSA approval Yes UL approval Yes | between the channels, in groups of | 4 | |
| between different circuits 750 V AC for 1 minute Degree and class of protection Degree of protection to EN 60529 • IP20 Yes Standards, approvals, certificates CE mark Yes CSA approval Yes UL approval Yes | between the channels and the backplane bus | 1500 V AC for 1 minute | |
| between different circuits 750 V AC for 1 minute Degree and class of protection Degree of protection to EN 60529 • IP20 Yes Standards, approvals, certificates CE mark Yes CSA approval Yes UL approval Yes | Permissible potential difference | | |
| Degree of protection to EN 60529 Yes • IP20 Yes Standards, approvals, certificates Yes CE mark Yes CSA approval Yes UL approval Yes | | 750 V AC for 1 minute | |
| IP20 Yes Standards, approvals, certificates CE mark CSA approval Yes UL approval Yes | Degree and class of protection | | |
| Standards, approvals, certificates CE mark Yes CSA approval Yes UL approval Yes | Degree of protection to EN 60529 | | |
| CE mark Yes CSA approval Yes UL approval Yes | • IP20 | Yes | |
| CE mark Yes CSA approval Yes UL approval Yes | Standards, approvals, certificates | | |
| UL approval Yes | | Yes | |
| | CSA approval | Yes | |
| cULus Yes | UL approval | Yes | |
| | cULus | Yes | |

| FM approval | Yes |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| RCM (formerly C-TICK) | Yes |
| Marine approval | |
| Marine approval | Yes |
| Ambient conditions | |
| Free fall | |
| Drop height, max. (in packaging) | 0.3 m; five times, in dispatch package |
| Ambient temperature in operation | |
| Permissible temperature range | -20 °C to +60 °C horizontal mounting, -20 °C to 50 °C vertical mounting, 95% humidity, non-condensing |
| • Min. | -20 °C |
| • max. | 60 °C; Number of simultaneously activated outputs: 8 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 16 at 55 °C horizontal or 45 °C vertical |
| Permissible temperature change | 5°C to 55°C, 3°C / minute |
| Ambient temperature during storage/transportation | |
| • Min. | -40 °C |
| ● max. | 70 °C |
| Air pressure acc. to IEC 60068-2-13 | |
| Storage/transport, min. | 660 hPa |
| Storage/transport, max. | 1 080 hPa |
| Relative humidity | |
| Permissible range (without condensation) at 25 °C | 95 % |
| Connection method | |
| required front connector | Yes |
| Mechanics/material | |
| Type of housing (front) | |
| • plastic | Yes |
| Dimensions | |
| Width | 70 mm |
| Height | 100 mm |
| Depth | 75 mm |
| Weights | |
| Weight, approx. | 350 g |
| last modified: | 20.04.2015 |