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## Data sheet 6AG2137-6BD00-1BA0



Figure similar

SIPLUS ET 200SP CM 4xIO-Link ST T1 rail based on 6ES7137-6BD00-0BA0 with conformal coating, -40…+60 °C, OT2 with ST1/2 (+70 °C für 10 minutes), communication module IO-Link master V1.1

| | |
|---|---|
| **General information** | |
| Product type designation | CM 4 x IO-Link ST |
| based on | 6ES7137-6BD00-0BA0 |
| usable BaseUnits | BU type A0 |
| Color code for module-specific color identification plate | CC04 |
| Product function | |
| ● I&M data | Yes; I&M0 to I&M3 |
| ● Isochronous mode | No; Only for PROFINET and configuration as version with FW V2.0 or V2.1 |
| Engineering with | |
| ● STEP 7 TIA Portal configurable/integrated from version | see entry ID: 109746275 |
| Operating mode | |
| ● IO-Link | Yes |
| ● DI | Yes |
| ● DQ | Yes; max. 100 mA per channel |
| **Supply voltage** | |
| Rated value (DC) | 24 V |
| permissible range, lower limit (DC) | 19.2 V; 20.5 V if IO-Link is used, as the supply voltage for IO-Link devices has to be at least 20 V at the master. |
| permissible range, upper limit (DC) | 28.8 V |
| Reverse polarity protection | Yes |
| power supply according to NEC Class 2 required | No |
| **Input current** | |
| Current consumption, max. | 45 mA; without load |
| **Encoder supply** | |
| Number of outputs | 4 |
| Output current | |
| ● Rated value | 700 mA; Per channel |
| 24 V encoder supply | |
| ● Short-circuit protection | Yes |
| ● Output current, max. | 2.1 A |
| **Power loss** | |
| Power loss, typ. | 1 W |
| **Hardware configuration** | |
| Automatic encoding | Yes |
| ● Electronic coding element type H | Yes |
| **Digital outputs** | |
| Cable length | |
| ● unshielded, max. | 20 m; Also applies for shielded cables |
| **IO-Link** | |


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| | |
|---|---|
| Number of ports | 4 |
| ● of which simultaneously controllable | 4 |
| IO-Link protocol 1.0 | Yes |
| IO-Link protocol 1.1 | Yes |
| Transmission rate | 4.8 kBaud (COM1); 38.4 kBaud (COM2), 230.4 kBaud (COM3) |
| Cycle time, min. | 2 ms; dynamic, depending on user data length |
| Size of process data, input per port | 32 byte; max. |
| Size of process data, input per module | 144 byte; max. |
| Size of process data, output per port | 32 byte; max. |
| Size of process data, output per module | 128 byte; max. |
| Memory size for device parameter | 2 kbyte; for each port |
| Master backup | Yes |
| Configuration without S7-PCT | Yes |
| Cable length unshielded, max. | 20 m |
| Time Based IO | |
| ● TIO IO-Link IN | No; Only for PROFINET and configuration as version with FW V2.0 or V2.1 |
| ● TIO IO-Link OUT | No; Only for PROFINET and configuration as version with FW V2.0 or V2.1 |
| ● TIO IO-Link IN/OUT | No; Only for PROFINET and configuration as version with FW V2.0 or V2.1 |
| Connection of IO-Link devices | |
| ● Port type A | Yes |
| ● Port type B | Yes; 24 V DC via external terminal |
| ● via three-wire connection | Yes |
| **Interrupts/diagnostics/status information** | |
| Alarms | |
| ● Diagnostic alarm | Yes; The port diagnosis is available in the IO-Link mode only. |
| Diagnoses | |
| ● Monitoring the supply voltage | Yes |
| ● Wire-break | Yes |
| ● Short-circuit | Yes |
| ● Group error | Yes |
| Diagnostics indication LED | |
| ● Monitoring of the supply voltage (PWR-LED) | Yes; green PWR LED |
| ● Channel status display | Yes; one green LED for channel status Qn (SIO mode) and port status Cn (IO-Link mode) per channel |
| ● for channel diagnostics | Yes; red Fn LED |
| ● for module diagnostics | Yes; green/red DIAG LED |
| **Potential separation** | |
| Potential separation channels | |
| ● between the channels | No |
| ● between the channels and backplane bus | Yes |
| ● between the channels and the power supply of the electronics | No |
| **Isolation** | |
| Isolation tested with | 750 V DC (type test) and according to EN 50155 (routine test) |
| **Standards, approvals, certificates** | |
| Ecological footprint | |
| ● environmental product declaration | Yes |
| Global warming potential | |
| — global warming potential, (total) [CO2 eq] | 25.2 kg |
| — global warming potential, (during production) [CO2 eq] | 6.15 kg |
| — global warming potential, (during operation) [CO2 eq] | 19.4 kg |
| — global warming potential, (after end of life cycle) [CO2 eq] | -0.289 kg |
| Railway application | |
| ● EN 50121-3-2 | Yes; EMC for rail vehicles |
| ● EN 50121-4 | Yes; EMC for signal and telecommunications systems |
| ● EN 50121-5 | Yes; EMC for fixed installations and railway power supply equipment (shielded cables required) |
| ● EN 50124-1 | Yes; Railway applications - overvoltage category OV2; pollution degree PD2; rated surge voltage UNi = 0.5 kV; UNm = 24 V DC |
| ● EN 50125-1 | Yes; Rail vehicles - see ambient conditions |


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| ● EN 50125-2 | Yes; Stationary electrical equipment - see ambient conditions |
| ● EN 50125-3 | Yes; Signal and telecommunications systems - see ambient conditions; vibrations and shocks: Application point outside of tracks (1 m to 3 m away from track) |
| ● EN 50155 | Yes; Rail vehicles - temperature class OT2, ST1/ST2, horizontal mounting position |
| ● EN 61373 | Yes; Rail vehicles - vibrations and shocks: Category 1 Class A/B |
| ● Fire protection acc. to EN 45545-2 | Yes; For proof of conformity, see Service & Support |
| **Ambient conditions** | |
| Ambient temperature during operation | |
| ● horizontal installation, min. | -40 °C; = Tmin (incl. condensation/frost) |
| ● horizontal installation, max. | 60 °C; = Tmax; +70 °C for 10 min (OT2, ST1/ST2 acc. to EN 50155); +70 °C continuously with spacing modules (6AG2193-6BN00-4BA0) or configured slots to the left and right of the module (OT4, ST0 acc. to EN 50155) |
| ● vertical installation, min. | -40 °C; = Tmin |
| ● vertical installation, max. | 50 °C; = Tmax |
| Altitude during operation relating to sea level | |
| ● Installation altitude above sea level, max. | 2 000 m |
| ● Ambient air temperature-barometric pressure-altitude | Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) |
| Relative humidity | |
| ● With condensation, tested in accordance with IEC 60068-2-38, max. | 100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation |
| Resistance | |
| Coolants and lubricants | |
| — Resistant to commercially available coolants and lubricants | Yes; Incl. diesel and oil droplets in the air |
| Use in stationary industrial systems | |
| — to biologically active substances according to EN 60721-3-3 | Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request |
| — to chemically active substances according to EN 60721-3-3 | Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * |
| — to mechanically active substances according to EN 60721-3-3 | Yes; Class 3S4 incl. sand, dust, * |
| — Against mechanical environmental conditions acc. to EN 60721-3-3 | Yes; Class 3M8 using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0) |
| Use on land craft, rail vehicles and special-purpose vehicles | |
| — to biologically active substances according to EN 60721-3-5 | Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request |
| — to chemically active substances according to EN 60721-3-5 | Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * |
| — to mechanically active substances according to EN 60721-3-5 | Yes; Class 5S3 incl. sand, dust; * |
| — Against mechanical environmental conditions acc. to EN 60721-3-5 | Yes; Class 5M2 using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0) |
| — against mechanical environmental conditions in agriculture acc. to ISO 15003 | Yes; level 1 (Location LE) using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0) |
| Usage in industrial process technology | |
| — Against chemically active substances acc. to EN 60654-4 | Yes; Class 3 (excluding trichlorethylene) |
| — Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04 | Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil) |
| Remark | |
| — Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04 | * The supplied plug covers must remain in place over the unused interfaces during operation! |
| Conformal coating | |
| ● Coatings for printed circuit board assemblies acc. to EN 61086 | Yes; Class 2 for high reliability |
| ● Protection against fouling acc. to EN 60664-3 | Yes; Type 1 protection |
| ● Electronic equipment on rolling stock acc. to EN 50155 | Yes; Class PC2 protective coating acc. to EN 50155:2017 |
| ● Military testing according to MIL-I-46058C, Amendment 7 | Yes; Discoloration of coating possible during service life |
| ● Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A | Yes; Conformal coating, Class A |
| **Dimensions** | |
| Width | 15 mm |
| Height | 73 mm |


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|---|---|
| Depth | 58 mm |
| **Weights** | |
| Weight, approx. | 30 g |
| **Other** | |
| Note: | for use in railway applications, also observe the product information "SIPLUS extreme RAIL" A5E37661960A, Online Support article 109736776 |

**Classifications**

| | Version | Classification |
|---|---|---|
| eClass | 14 | 27-24-26-08 |
| eClass | 12 | 27-24-26-08 |
| eClass | 9.1 | 27-24-26-08 |
| eClass | 9 | 27-24-26-08 |
| eClass | 8 | 27-24-26-08 |
| eClass | 7.1 | 27-24-26-08 |
| eClass | 6 | 27-24-26-08 |
| ETIM | 10 | EC001604 |
| ETIM | 9 | EC001604 |
| ETIM | 8 | EC001604 |
| ETIM | 7 | EC001604 |
| IDEA | 4 | 3564 |
| UNSPSC | 15 | 32-15-17-05 |

**Approvals / Certificates**

| General Product Approval | | | | | EMV |
|---|---|---|---|---|---|
| Manufacturer Declaration | CE EG-Konf. | UKCA | China RoHS | UL | RCM |

| Railway | Environment |
|---|---|
| Confirmation | EPD |

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