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## Data sheet 6AG1138-6CG00-2BA0



SIPLUS ET 200SP TM timer DIDQ 10x24V based on 6ES7138-6CG00-0BA0 with conformal coating, -40…+60 °C, time-controlled digital inputs and outputs 4 DI, 6 DQ with time stamp count, PWM, oversampling

| | |
|---|---|
| **General information** | |
| Product type designation | TM Timer DIDQ 10x24V |
| based on | 6ES7138-6CG00-0BA0 |
| usable BaseUnits | BU type A0 |
| Product function | |
| ● I&M data | Yes; I&M 0 |
| ● Isochronous mode | Yes |
| Engineering with | |
| ● STEP 7 TIA Portal configurable/integrated from version | see entry ID: 109746275 |
| **Supply voltage** | |
| Rated value (DC) | 24 V |
| Load voltage L+ | |
| ● Rated value (DC) | 24 V |
| ● permissible range, lower limit (DC) | 19.2 V |
| ● permissible range, upper limit (DC) | 28.8 V |
| ● Reverse polarity protection | Yes; against destruction |
| **Input current** | |
| Current consumption, max. | 50 mA; without load |
| **Encoder supply** | |
| Number of outputs | 1 |
| 24 V encoder supply | |
| ● 24 V | Yes; L+ (-0.8 V) |
| ● Short-circuit protection | Yes |
| ● Output current, max. | 500 mA; Observe derating |
| **Power loss** | |
| Power loss, typ. | 1.5 W |
| **Address area** | |
| Address space per module | |
| ● Inputs | 26 byte |
| ● Outputs | 32 byte |
| **Hardware configuration** | |
| Automatic encoding | Yes |
| ● Mechanical coding element | Yes |
| ● Type of mechanical coding element | type B |
| **Digital inputs** | |
| Number of digital inputs | 4 |
| Digital inputs, parameterizable | Yes |
| Input characteristic curve in accordance with IEC 61131, type 3 | Yes |
| Digital input functions, parameterizable | |


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| ● Digital input with time stamp | Yes |
| — Number, max. | 4 |
| ● Counter | Yes |
| — Number, max. | 3 |
| ● Counter for incremental encoder | Yes |
| — Number, max. | 1 |
| ● Digital input with oversampling | Yes |
| — Number, max. | 4 |
| ● HW enable for digital input | Yes |
| — Number, max. | 1 |
| ● HW enable for digital output | Yes |
| — Number, max. | 3 |
| Input voltage | |
| ● Type of input voltage | DC |
| ● Rated value (DC) | 24 V |
| ● for signal "0" | -5 ... +5 V |
| ● for signal "1" | +11 to +30V |
| ● permissible voltage at input, min. | -30 V; -5 V continuous, -30 V brief reverse polarity protection |
| ● permissible voltage at input, max. | 30 V |
| Input current | |
| ● for signal "1", typ. | 2.5 mA |
| Input delay (for rated value of input voltage) | |
| ● Minimum pulse width for program reactions | 3 µs; for parameterization "none" |
| for standard inputs | |
| — parameterizable | Yes; none / 0.05 / 0.1 / 0.4 / 0.8 ms |
| Cable length | |
| ● shielded, max. | 1 000 m; Depending on sensor, cable quality and rate of change |
| ● unshielded, max. | 600 m; Depending on sensor, cable quality and rate of change |
| **Digital outputs** | |
| Type of digital output | Transistor |
| Number of digital outputs | 6 |
| Current-sinking | Yes; With High Speed output |
| Current-sourcing | Yes |
| Digital outputs, parameterizable | Yes |
| Short-circuit protection | Yes; electronic/thermal |
| ● Response threshold, typ. | 1.7 A with Standard output, 0.5 A with High Speed output |
| Limitation of inductive shutdown voltage to | -0.8 V |
| Digital output functions, parameterizable | |
| ● Digital output with time stamp | Yes |
| — Number, max. | 6 |
| ● PWM output | Yes |
| — Number, max. | 6 |
| ● Digital output with oversampling | Yes |
| — Number, max. | 6 |
| Switching capacity of the outputs | |
| ● with resistive load, max. | 0.5 A; 0.1 A with High Speed output |
| ● on lamp load, max. | 5 W; 1 W with High Speed output |
| Load resistance range | |
| ● lower limit | 48 Ω; 240 ohm with High Speed output |
| ● upper limit | 12 kΩ |
| Output voltage | |
| ● Type of output voltage | DC |
| ● for signal "0", max. | 1 V; With High Speed output |
| ● for signal "1", min. | 23.2 V; L+ (-0.8 V) |
| Output current | |
| ● for signal "1" rated value | 0.5 A; 0.1 A with High Speed output, observe derating |
| ● for signal "1" permissible range, max. | 0.6 A; 0.12 A with High Speed output, observe derating |
| ● for signal "1" minimum load current | 2 mA |
| ● for signal "0" residual current, max. | 0.5 mA |


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| Output delay with resistive load | |
| ● "0" to "1", max. | 1 µs; With High Speed output, 5 µs with Standard output |
| ● "1" to "0", max. | 1 µs; With High Speed output, 6 µs with Standard output |
| Switching frequency | |
| ● with resistive load, max. | 10 kHz |
| ● on lamp load, max. | 10 Hz |
| Total current of the outputs | |
| ● Current per module, max. | 3.5 A; Observe derating |
| Cable length | |
| ● shielded, max. | 1 000 m; depending on load and cable quality |
| ● unshielded, max. | 600 m; depending on load and cable quality |
| **Encoder** | |
| Connectable encoders | |
| ● Incremental encoder (asymmetrical) | Yes |
| ● 24 V initiator | Yes |
| ● 2-wire sensor | Yes |
| — permissible quiescent current (2-wire sensor), max. | 1.5 mA |
| Encoder signals, incremental encoder (asymmetrical) | |
| ● Input voltage | 24 V |
| ● Input frequency, max. | 50 kHz |
| ● Counting frequency, max. | 200 kHz; with quadruple evaluation |
| ● Cable length, shielded, max. | 600 m; Depending on input frequency, encoder and cable quality; max. 200 m at 50 kHz |
| ● Incremental encoder with A/B tracks, 90° phase offset | Yes |
| ● pulse encoder | Yes |
| Interface types | |
| ● Input characteristic curve in accordance with IEC 61131, type 3 | Yes |
| **Interfaces** | |
| Number of RS 485 interfaces | 0 |
| **Isochronous mode** | |
| Bus cycle time (TDP), min. | 375 µs |
| Jitter, max. | 1 µs |
| **Interrupts/diagnostics/status information** | |
| Diagnostics function | Yes |
| Substitute values connectable | Yes |
| Alarms | |
| ● Diagnostic alarm | Yes |
| Diagnoses | |
| ● Monitoring the supply voltage | Yes |
| ● Short-circuit | Yes |
| Diagnostics indication LED | |
| ● Monitoring of the supply voltage (PWR-LED) | Yes; green PWR LED |
| ● Channel status display | Yes |
| ● for module diagnostics | Yes; green/red DIAG LED |
| **Integrated Functions** | |
| Counter | Yes |
| ● Number of counters | 3 |
| ● Counting frequency, max. | 200 kHz; with quadruple evaluation |
| Counting functions | |
| ● Continuous counting | Yes |
| **Potential separation** | |
| Potential separation channels | |
| ● between the channels and backplane bus | Yes |
| **Isolation** | |
| Isolation tested with | 707 V DC (type test) |
| **Standards, approvals, certificates** | |
| Suitable for safety functions | No |
| **Ambient conditions** | |


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| Ambient temperature during operation | |
| ● horizontal installation, min. | -40 °C; = Tmin (incl. condensation/frost) |
| ● horizontal installation, max. | 60 °C; = Tmax; +70 °C with spacing modules (6AG1193-6BN00-7BA0) or configured slots to the left and right of the module |
| ● vertical installation, min. | -40 °C; = Tmin |
| ● vertical installation, max. | 50 °C; = Tmax; see Derating BasedOn (e.g. manual) |
| Altitude during operation relating to sea level | |
| ● Installation altitude above sea level, max. | 5 000 m |
| ● Ambient air temperature-barometric pressure-altitude | Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 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 ships/at sea | |
| — to biologically active substances according to EN 60721-3-6 | Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request |
| — to chemically active substances according to EN 60721-3-6 | Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * |
| — to mechanically active substances according to EN 60721-3-6 | Yes; Class 6S3 incl. sand, dust; * |
| — Against mechanical environmental conditions acc. to EN 60721-3-6 | Yes; Class 6M4 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 |
| ● 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 |
| **Decentralized operation** | |
| to SIMATIC S7-1500 | Yes |
| **Dimensions** | |
| Width | 15 mm |
| Height | 73 mm |
| Depth | 58 mm |
| **Weights** | |
| Weight, approx. | 45 g |
| **Classifications** | |

| | | Version | Classification |
|---|---|---|---|


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|---|---|---|
| eClass | 16 | 27-24-26-05 |
| eClass | 14 | 27-24-26-05 |
| eClass | 12 | 27-24-26-05 |
| eClass | 9.1 | 27-24-26-05 |
| eClass | 9 | 27-24-26-05 |
| eClass | 8 | 27-24-26-05 |
| eClass | 7.1 | 27-24-26-05 |
| eClass | 6 | 27-24-26-05 |
| ETIM | 10 | EC001601 |
| ETIM | 9 | EC001601 |
| ETIM | 8 | EC001601 |
| ETIM | 7 | EC001601 |
| IDEA | 4 | 3567 |
| UNSPSC | 15 | 32-15-17-05 |

## Approvals / Certificates

### General Product Approval

Manufacturer Declaration

### General Product Approval | EMV | For use in hazardous locations

China RoHS

### For use in hazardous locations | Maritime application

CCC-Ex | CCC-Ex

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