



Figure similar

spare part SIPLUS S7-300 SM 331 AI 8x0/4...20 mA based on 6ES7331-7TF01-0AB0 with conformal coating, -25...+70 °C,

| General information | |
|---|--|
| based on | 6ES7331-7TF01-0AB0 |
| Supply voltage | |
| Load voltage L+ | |
| • Rated value (DC) | 24 V |
| • Reverse polarity protection | Yes |
| Input current | |
| from load voltage L+ (without load), max. | 20 mA |
| from backplane bus 5 V DC, max. | 120 mA |
| Output voltage | |
| Power supply to the transmitters | |
| • Rated value (DC) | 24 V |
| Power loss | |
| Power loss, typ. | 1.5 W |
| Analog inputs | |
| Number of analog inputs | 8 |
| permissible input current for current input (destruction limit), max. | 40 mA |
| Input ranges | |
| • Voltage | No |
| • Current | Yes |
| • Thermocouple | No |
| • Resistance thermometer | No |
| • Resistance | No |
| Input ranges (rated values), currents | |
| • 0 to 20 mA | Yes |
| — Input resistance (0 to 20 mA) | 240 Ω |
| • -20 mA to +20 mA | |
| — Input resistance (-20 mA to +20 mA) | 240 Ω |
| • 4 mA to 20 mA | |
| — Input resistance (4 mA to 20 mA) | 240 Ω |
| Cable length | |
| • shielded, max. | 800 m |
| Analog value generation for the inputs | |
| Integration and conversion time/resolution per channel | |
| • Resolution with overrange (bit including sign), max. | 16 bit |
| • Integration time, parameterizable | Yes |
| • Integration time (ms) | 20 ms at 50 Hz; 16.6 ms at 60 Hz; 100 ms at 100 Hz |

| | |
|--|---|
| • Interference voltage suppression for interference frequency f1 in Hz | 10 / 50 / 60 Hz |
| Encoder | |
| Connection of signal encoders | |
| • for current measurement as 2-wire transducer | Yes |
| • for current measurement as 4-wire transducer | Yes |
| Errors/accuracies | |
| Operational error limit in overall temperature range | |
| • Current, relative to input range, (+/-) | 0.15 %; ±0.25 % @ < 0 °C or > 60 °C |
| Basic error limit (operational limit at 25 °C) | |
| • Current, relative to input range, (+/-) | 0.1 % |
| Interrupts/diagnostics/status information | |
| Diagnostics function | Yes |
| Alarms | |
| • Diagnostic alarm | Yes |
| • Limit value alarm | Yes |
| Diagnoses | |
| • Diagnostic information readable | Yes |
| Diagnostics indication LED | |
| • Group error SF (red) | Yes |
| Potential separation | |
| Potential separation analog inputs | |
| • between the channels | No |
| • between the channels, in groups of | 8 |
| • between the channels and backplane bus | Yes |
| • between the channels and the power supply of the electronics | Yes |
| Isolation | |
| Isolation tested with | 500 |
| Standards, approvals, certificates | |
| CE mark | Yes |
| UL approval | Yes; File E239877 |
| RCM (formerly C-TICK) | Yes |
| KC approval | Yes |
| EAC (formerly Gost-R) | Yes |
| Railway application | |
| • EN 50121-4 | No |
| • EN 50155 | No |
| Ambient conditions | |
| Ambient temperature during operation | |
| • min. | -25 °C; = Tmin |
| • max. | 70 °C; = Tmax; 60 °C @ UL/cUL use |
| Ambient temperature during storage/transportation | |
| • min. | -40 °C |
| • max. | 70 °C |
| 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 under condensation conditions) |
| Resistance | |
| 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, * |

| | |
|---|---|
| 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; * |
| 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! |

Connection method

| | |
|--------------------------|--------|
| required front connector | 20-pin |
|--------------------------|--------|

Dimensions

| | |
|--------|--------|
| Width | 40 mm |
| Height | 125 mm |
| Depth | 117 mm |

Weights

| | |
|-----------------|-------|
| Weight, approx. | 205 g |
|-----------------|-------|

Classifications

| | Version | Classification |
|--------|---------|----------------|
| eClass | 14 | 27-24-22-01 |
| eClass | 12 | 27-24-22-01 |
| eClass | 9.1 | 27-24-22-01 |
| eClass | 9 | 27-24-22-01 |
| eClass | 8 | 27-24-22-01 |
| eClass | 7.1 | 27-24-22-01 |
| eClass | 6 | 27-24-22-01 |
| ETIM | 10 | EC001420 |
| ETIM | 9 | EC001420 |
| ETIM | 8 | EC001420 |
| ETIM | 7 | EC001420 |
| IDEA | 4 | 3562 |
| UNSPSC | 15 | 32-15-17-05 |

Approvals / Certificates

| | |
|--------------------------|-----|
| General Product Approval | EMV |
|--------------------------|-----|



[Manufacturer Declaration](#)



[China RoHS](#)



[KC](#)

| | |
|-----|--------------------------------|
| EMV | For use in hazardous locations |
|-----|--------------------------------|



[CCC-Ex](#)

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