



SIMATIC ET 200SP, Analog input module, AI 4xTC High Speed, suitable for BU type A0, A1, Color code CC00, channel diagnostics, 16 bit, +/-0.1%

| General information | |
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| Product type designation | AI 4xTC HS |
| HW functional status | From FS02 |
| Firmware version | Yes |
| <ul style="list-style-type: none"> FW update possible | Yes |
| usable BaseUnits | BU type A0, A1 |
| Color code for module-specific color identification plate | CC00 |
| Product function | |
| <ul style="list-style-type: none"> I&M data | Yes; I&M0 to I&M3 |
| <ul style="list-style-type: none"> Isochronous mode | No |
| <ul style="list-style-type: none"> Measuring range scalable | Yes |
| Engineering with | |
| <ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated from version | V15 with HSP 265/integrated as of V15.1 |
| <ul style="list-style-type: none"> STEP 7 configurable/integrated from version | V5.5 SP3 or higher |
| <ul style="list-style-type: none"> PROFIBUS from GSD version/GSD revision | One GSD file each, Revision 3 and 5 and higher |
| <ul style="list-style-type: none"> PROFINET from GSD version/GSD revision | GSDML V2.3 |
| Operating mode | |
| <ul style="list-style-type: none"> Oversampling | No |
| <ul style="list-style-type: none"> MSI | Yes |
| CiR - Configuration in RUN | |
| Reparameterization possible in RUN | Yes |
| Calibration possible in RUN | Yes |
| Supply voltage | |
| 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 |
| Input current | |
| Current consumption (rated value) | 37 mA |
| Current consumption, max. | 50 mA |
| Power loss | |
| Power loss, typ. | 0.9 W |
| Address area | |
| Address space per module | |
| <ul style="list-style-type: none"> Address space per module, max. | 16 byte; + 1 byte for QI information |
| Hardware configuration | |
| Automatic encoding | Yes |
| <ul style="list-style-type: none"> Mechanical coding element | Yes |
| <ul style="list-style-type: none"> Type of mechanical coding element | Type A |

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| Selection of BaseUnit for connection variants | |
| <ul style="list-style-type: none"> • 2-wire connection | BU type A0, A1 |
| Analog inputs | |
| Number of analog inputs | 4 |
| permissible input voltage for voltage input (destruction limit), max. | 30 V |
| Cycle time (all channels), min. | 5 ms; Sum of the basic conversion times and additional processing times (depending on the parameterization of the active channels) |
| Technical unit for temperature measurement adjustable | Yes; °C/°F/K |
| Input ranges (rated values), voltages | |
| <ul style="list-style-type: none"> • -1 V to +1 V <ul style="list-style-type: none"> — Input resistance (-1 V to +1 V) • -250 mV to +250 mV <ul style="list-style-type: none"> — Input resistance (-250 mV to +250 mV) • -50 mV to +50 mV <ul style="list-style-type: none"> — Input resistance (-50 mV to +50 mV) • -80 mV to +80 mV <ul style="list-style-type: none"> — Input resistance (-80 mV to +80 mV) | Yes; 16 bit incl. sign 1 MΩ Yes; 16 bit incl. sign 1 MΩ Yes; 16 bit incl. sign 1 MΩ Yes; 16 bit incl. sign 1 MΩ |
| Input ranges (rated values), thermocouples | |
| <ul style="list-style-type: none"> • Type B <ul style="list-style-type: none"> — Input resistance (Type B) • Type C <ul style="list-style-type: none"> — Input resistance (Type C) • Type E <ul style="list-style-type: none"> — Input resistance (Type E) • Type J <ul style="list-style-type: none"> — Input resistance (type J) • Type K <ul style="list-style-type: none"> — Input resistance (Type K) • Type L <ul style="list-style-type: none"> — Input resistance (Type L) • Type N <ul style="list-style-type: none"> — Input resistance (Type N) • Type R <ul style="list-style-type: none"> — Input resistance (Type R) • Type S <ul style="list-style-type: none"> — Input resistance (Type S) • Type T <ul style="list-style-type: none"> — Input resistance (Type T) • Type U <ul style="list-style-type: none"> — Input resistance (Type U) • Type TXK/TXK(L) to GOST <ul style="list-style-type: none"> — Input resistance (Type TXK/TXK(L) to GOST) | Yes; 16 bit incl. sign 1 MΩ Yes; 16 bit incl. sign 1 MΩ Yes; 16 bit incl. sign 1 MΩ Yes; 16 bit incl. sign 1 MΩ Yes; 16 bit incl. sign 1 MΩ Yes; 16 bit incl. sign 1 MΩ Yes; 16 bit incl. sign 1 MΩ Yes; 16 bit incl. sign 1 MΩ Yes; 16 bit incl. sign 1 MΩ Yes; 16 bit incl. sign 1 MΩ Yes; 16 bit incl. sign 1 MΩ Yes; 16 bit incl. sign 1 MΩ Yes; 16 bit incl. sign 1 MΩ Yes; 16 bit incl. sign 1 MΩ |
| Thermocouple (TC) | |
| Temperature compensation | |
| <ul style="list-style-type: none"> — parameterizable — Reference channel of the module — internal comparison point — Reference channel of the group — Number of reference channel groups — fixed reference temperature | Yes No Yes; with BaseUnit type A1 Yes 4; Group 0 to 3 Yes |
| Cable length | |
| <ul style="list-style-type: none"> • shielded, max. | 200 m; 100 m for thermocouples |
| Analog value generation for the inputs | |
| Measurement principle | integrating (Sigma-Delta) |
| Integration and conversion time/resolution per channel | |
| <ul style="list-style-type: none"> • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time, including integration time (ms) <ul style="list-style-type: none"> — additional processing time for wire-break check • Interference voltage suppression for interference frequency f1 in Hz • Conversion time (per channel) | 16 bit Yes 1 ms 16.6 / 50 / 60 Hz / off 180/60/50/1.25 ms |

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| Smoothing of measured values | |
| <ul style="list-style-type: none"> • Number of smoothing levels • parameterizable • Step: None • Step: low • Step: Medium • Step: High | 4; None; 4/8/16 times Yes Yes Yes Yes Yes |
| Encoder | |
| Connection of signal encoders | |
| <ul style="list-style-type: none"> • for voltage measurement | Yes |
| Errors/accuracies | |
| Linearity error (relative to input range), (+/-) | 0.01 % |
| Temperature error (relative to input range), (+/-) | 0.005 %/K |
| Crosstalk between the inputs, min. | -70 dB |
| Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) | 0.03 % |
| Operational error limit in overall temperature range | |
| <ul style="list-style-type: none"> • Voltage, relative to input range, (+/-) | 0.1 %; 0.3 % when SFU OFF |
| Basic error limit (operational limit at 25 °C) | |
| <ul style="list-style-type: none"> • Voltage, relative to input range, (+/-) | 0.05 %; 0.2 % when SFU OFF |
| Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, $f_1 =$ interference frequency | |
| <ul style="list-style-type: none"> • Series mode interference (peak value of interference < rated value of input range), min. • Common mode voltage, max. • Common mode interference, min. | 70 dB 60 V; DC 90 dB |
| Interrupts/diagnostics/status information | |
| Diagnostics function | Yes |
| Alarms | |
| <ul style="list-style-type: none"> • Diagnostic alarm • Limit value alarm | Yes Yes; two upper and two lower limit values in each case |
| Diagnoses | |
| <ul style="list-style-type: none"> • Monitoring the supply voltage • Wire-break • Group error • Overflow/underflow | Yes Yes; channel by channel Yes Yes; channel by channel |
| Diagnostics indication LED | |
| <ul style="list-style-type: none"> • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics • for module diagnostics | Yes; green PWR LED Yes; green LED Yes; red LED Yes; green/red LED |
| Potential separation | |
| Potential separation channels | |
| <ul style="list-style-type: none"> • between the channels • between the channels and backplane bus • between the channels and the power supply of the electronics | No Yes Yes |
| Permissible potential difference | |
| between the inputs (UCM) | 60 V DC |
| Isolation | |
| Isolation tested with | 707 V DC (type test) |
| Standards, approvals, certificates | |
| Suitable for applications according to AMS 2750 | Yes; Declaration of Conformity, see online support entry 109757262 |
| Suitable for applications according to CQI-9 | Yes; Based on AMS 2750 E |
| Ambient conditions | |
| Ambient temperature during operation | |
| <ul style="list-style-type: none"> • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. | -30 °C; < 0 °C as of FS02 60 °C -30 °C; < 0 °C as of FS02 50 °C |
| Altitude during operation relating to sea level | |
| <ul style="list-style-type: none"> • Installation altitude above sea level, max. | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual |
| Dimensions | |

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| Width | 15 mm |
| Height | 73 mm |
| Depth | 58 mm |

Weights

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| Weight, approx. | 33 g |
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last modified: 12/19/2020 