



SIMATIC ET 200SP, Analog input module, AI 8xI 2-/4-wire Basic, suitable for BU type A0, A1, Color code CC01, Module diagnostics, 16 bit

General information

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|---|---------------------|
| Product type designation | AI 8xI 2-/4-wire BA |
| HW functional status | from FS04 |
| Firmware version | |
| • FW update possible | Yes |
| usable BaseUnits | BU type A0, A1 |
| Color code for module-specific color identification plate | CC01 |

Product function

| | |
|----------------------------|-------------------|
| • I&M data | Yes; I&M0 to I&M3 |
| • Isochronous mode | No |
| • Measuring range scalable | No |

Engineering with

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| • STEP 7 TIA Portal configurable/integrated from version | V13 SP1 |
| • STEP 7 configurable/integrated from version | V5.5 SP3 / - |
| • PROFIBUS from GSD version/GSD revision | One GSD file each, Revision 3 and 5 and higher |
| • PROFINET from GSD version/GSD revision | GSDML V2.3 |

Operating mode

| | |
|----------------|----|
| • Oversampling | No |
| • MSI | No |

CiR - Configuration in RUN

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|------------------------------------|-----|
| Reparameterization possible in RUN | Yes |
| Calibration possible in RUN | No |

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, max. | 25 mA; without sensor supply |
|---------------------------|------------------------------|

Encoder supply

| | |
|----------------------------|---|
| 24 V encoder supply | |
| • 24 V | Yes |
| • Short-circuit protection | Yes |
| • Output current, max. | 0.7 A; total current of all encoders/channels |


Power loss

| | |
|------------------|---------------------------------------|
| Power loss, typ. | 0.7 W; Without encoder supply voltage |
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Address area

| | |
|----------------------------------|---------|
| Address space per module | |
| • Address space per module, max. | 16 byte |

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| Hardware configuration | |
| Automatic encoding | Yes |
| • Mechanical coding element | Yes |
| • Type of mechanical coding element | Type A |
| Selection of BaseUnit for connection variants | |
| • 1-wire connection | BU type A0, A1 |
| • 2-wire connection | BU type A0, A1 |
| • 4-wire connection | BU type A0, A1 + potential distributor module |
| Analog inputs | |
| Number of analog inputs | 8; Single-ended |
| • For current measurement | 8 |
| permissible input current for current input (destruction limit), max. | 50 mA |
| Cycle time (all channels), min. | 1 ms; per channel |
| Input ranges (rated values), currents | |
| • 0 to 20 mA | Yes |
| — Input resistance (0 to 20 mA) | 100 Ω; 15 bit |
| • -20 mA to +20 mA | Yes |
| — Input resistance (-20 mA to +20 mA) | 100 Ω; 16 bit incl. sign |
| • 4 mA to 20 mA | Yes |
| — Input resistance (4 mA to 20 mA) | 100 Ω; 15 bit |
| Cable length | |
| • shielded, max. | 200 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 |
| • Interference voltage suppression for interference frequency f1 in Hz | 16.67 / 50 / 60 / 4 800 (16.67 / 50 / 60) |
| • Conversion time (per channel) | 180 / 60 / 50 / 0.625 (67.5 / 22.5 / 18.75) ms |
| Smoothing of measured values | |
| • Number of smoothing levels | 4; None; 4/8/16 times |
| • parameterizable | Yes |
| Encoder | |
| Connection of signal encoders | |
| • for voltage measurement | No |
| • for current measurement as 2-wire transducer | Yes |
| — Burden of 2-wire transmitter, max. | 650 Ω |
| • for current measurement as 4-wire transducer | 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. | 50 dB |
| Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) | 0.05 % |
| Operational error limit in overall temperature range | |
| • Current, relative to input range, (+/-) | 0.5 % |
| Basic error limit (operational limit at 25 °C) | |
| • Current, relative to input range, (+/-) | 0.3 % |
| Interference voltage suppression for $f = n \times (f1 \pm 1 \%)$, f1 = interference frequency | |
| • Series mode interference (peak value of interference < rated value of input range), min. | 70 dB; With conversion time 67.5 / 22.5 / 18.75 ms: 40 dB |
| Interrupts/diagnostics/status information | |
| Diagnostics function | Yes |
| Alarms | |
| • Diagnostic alarm | Yes |
| • Limit value alarm | No |
| Diagnoses | |
| • Monitoring the supply voltage | Yes |
| • Wire-break | Yes; at 4 to 20 mA |
| • Short-circuit | Yes; Sensor supply to M; module by module |
| • Group error | Yes |
| • Overflow/underflow | Yes |

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| 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 LED Yes; green LED No Yes; green/red DIAG 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 No |
| Isolation | |
| Isolation tested with | 707 V DC (type test) |
| 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 FS04 60 °C -30 °C; < 0 °C as of FS04 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 | |
| Width | 15 mm |
| Height | 73 mm |
| Depth | 58 mm |
| Weights | |
| Weight, approx. | 31 g |
| last modified: | 12/21/2020  |