




SIMATIC ET 200SP, Analog input module, AI 2xU Standard Pack quantity: 1 unit, suitable for BU type A0, A1, Color code CC00, Module diagnostics, 16 bit

| General information | |
|---|--|
| Product type designation | AI 2xU ST |
| 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 | CC00 |
| Product function | |
| • I&M data | Yes; I&M0 to I&M3 |
| • Isochronous mode | No |
| • Measuring range scalable | No |
| Engineering with | |
| • 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 | |
| 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. | 37 mA |
| Encoder supply | |
| 24 V encoder supply | |
| • 24 V | No |
| Additional 24 V encoder supply | |
| • 24 V | No |
| Power loss | |
| Power loss, typ. | 0.9 W |

| Address area | |
|---|--|
| Address space per module | |
| • Address space per module, max. | 4 byte; + 1 byte for QI information |
| 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 |
| Analog inputs | |
| Number of analog inputs | 2 |
| • For voltage measurement | 2 |
| permissible input voltage for voltage input (destruction limit), max. | 30 V |
| Cycle time (all channels), min. | 500 μ s |
| Input ranges (rated values), voltages | |
| • 0 to +10 V — Input resistance (0 to 10 V) | Yes; 15 bit 180 k Ω |
| • 1 V to 5 V — Input resistance (1 V to 5 V) | Yes; 15 bit 180 k Ω |
| • -10 V to +10 V — Input resistance (-10 V to +10 V) | Yes; 16 bit incl. sign 180 k Ω |
| • -5 V to +5 V — Input resistance (-5 V to +5 V) | Yes; 16 bit incl. sign 180 k Ω |
| Cable length | |
| • shielded, max. | 200 m |
| Analog value generation for the inputs | |
| Measurement principle | Sigma Delta |
| 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 | 16.6 / 50 / 60 Hz / off |
| • Conversion time (per channel) | 50 ms @ 60 Hz, 60 ms @ 50 Hz, 180 ms @ 16.6 Hz, 250 μ s without filter |
| Smoothing of measured values | |
| • Number of smoothing levels | 4 |
| • parameterizable | Yes |
| • Step: None | Yes; 1x cycle time |
| • Step: low | Yes; 4x cycle time |
| • Step: Medium | Yes; 8x cycle time |
| • Step: High | Yes; 16x cycle time |
| Encoder | |
| Connection of signal encoders | |
| • 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. | -50 dB |
| Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) | 0.05 % |
| Operational error limit in overall temperature range | |
| • Voltage, relative to input range, (+/-) | 0.5 % |
| Basic error limit (operational limit at 25 °C) | |
| • Voltage, 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 |

| | |
|--|---|
| • Common mode voltage, max. | 10 V |
| • Common mode interference, min. | 90 dB |
| Interrupts/diagnostics/status information | |
| Diagnostics function | Yes |
| Alarms | |
| • Diagnostic alarm | Yes |
| • Limit value alarm | No |
| Diagnoses | |
| • Monitoring the supply voltage | Yes |
| • Wire-break | No |
| • Short-circuit | Yes; at 1 to 5 V |
| • Group error | Yes |
| • Overflow/underflow | Yes |
| Diagnostics indication LED | |
| • Monitoring of the supply voltage (PWR-LED) | Yes; green PWR LED |
| • Channel status display | Yes; green LED |
| • for channel diagnostics | No |
| • 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 | Yes |
| Permissible potential difference | |
| between the inputs (UCM) | 10 V _{pp} |
| Isolation | |
| Isolation tested with | 707 V DC (type test) |
| Ambient conditions | |
| Ambient temperature during operation | |
| • horizontal installation, min. | -30 °C; < 0 °C as of FS04 |
| • horizontal installation, max. | 60 °C |
| • vertical installation, min. | -30 °C; < 0 °C as of FS04 |
| • vertical installation, max. | 50 °C |
| Altitude during operation relating to sea level | |
| • 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: | 1/16/2021  |