



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  |
| <b>Selection of BaseUnit for connection variants</b>   |   |
| • 1-wire connection  | BU type A0, A1  |
| • 2-wire connection  | BU type A0, A1  |
| <b>Analog inputs</b>   |   |
| 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 µs  |
| <b>Input ranges (rated values), voltages</b>   |   |
| • 0 to +10 V   | Yes; 15 bit   |
| — Input resistance (0 to 10 V)   | 180 kΩ  |
| • 1 V to 5 V   | Yes; 15 bit   |
| — Input resistance (1 V to 5 V)  | 180 kΩ  |
| • -10 V to +10 V   | Yes; 16 bit incl. sign  |
| — Input resistance (-10 V to +10 V)  | 180 kΩ  |
| • -5 V to +5 V   | Yes; 16 bit incl. sign  |
| — Input resistance (-5 V to +5 V)  | 180 kΩ  |
| <b>Cable length</b>  |   |
| • shielded, max.   | 200 m   |
| <b>Analog value generation for the inputs</b>  |   |
| Measurement principle  | Sigma Delta   |
| <b>Integration and conversion time/resolution per channel</b>  |   |
| • 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 µs without filter |
| <b>Smoothing of measured values</b>  |   |
| • 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   |
| <b>Encoder</b>   |   |
| <b>Connection of signal encoders</b>   |   |
| • for voltage measurement  | Yes   |
| <b>Errors/accuracies</b>   |   |
| 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 %  |
| <b>Operational error limit in overall temperature range</b>  |   |
| • Voltage, relative to input range, (+/-)  | 0.5 %   |
| <b>Basic error limit (operational limit at 25 °C)</b>  |   |
| • Voltage, relative to input range, (+/-)  | 0.3 %   |
| <b>Interference voltage suppression for <math>f = n \times (f1 \pm 1 \%)</math>, f1 = interference frequency</b> |   |
| • 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   |
| <b>Interrupts/diagnostics/status information</b>   |   |
| Diagnostics function   | Yes   |
| <b>Alarms</b>  |   |
| • Diagnostic alarm   | Yes   |
| • Limit value alarm  | No  |
| <b>Diagnoses</b>   |   |

|  |  |
|--|--|
| • Monitoring the supply voltage                                | Yes  |
| • Wire-break   | No   |
| • Short-circuit  | Yes; at 1 to 5 V   |
| • Group error  | Yes  |
| • Overflow/underflow   | Yes  |
| <b>Diagnostics indication LED</b>                              |  |
| • 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  |
| <b>Potential separation</b>                                    |  |
| <b>Potential separation channels</b>                           |  |
| • between the channels   | No   |
| • between the channels and backplane bus                       | Yes  |
| • between the channels and the power supply of the electronics | Yes  |
| <b>Permissible potential difference</b>                        |  |
| between the inputs (UCM)                                       | 10 Vpp   |
| <b>Isolation</b>   |  |
| Isolation tested with  | 707 V DC (type test)   |
| <b>Ambient conditions</b>                                      |  |
| <b>Ambient temperature during operation</b>                    |  |
| • 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  |
| <b>Altitude during operation relating to sea level</b>         |  |
| • Installation altitude above sea level, max.                  | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual |
| <b>Dimensions</b>  |  |
| Width  | 15 mm  |
| Height   | 73 mm  |
| Depth  | 58 mm  |
| <b>Weights</b>   |  |
| Weight, approx.  | 31 g   |

**last modified:** 9/7/2023 