



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 FS21                                      |
| Firmware version                                         | V1.0.1                                         |
| • FW update possible                                     | Yes                                            |
| usable BaseUnits                                         | BU type A0, A1                                 |
| Color code for module-specific color-coded label         | 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            |

|                                                                                                                                 |                                                                       |
|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| <b>Hardware configuration</b>                                                                                                   |                                                                       |
| 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                                                                   |
| • Step: low                                                                                                                     | Yes; 4x smoothing                                                     |
| • Step: Medium                                                                                                                  | Yes; 8x smoothing                                                     |
| • Step: High                                                                                                                    | Yes; 16x smoothing                                                    |
| <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 (f_1 \pm 1 \%)</math>, <math>f_1</math> = 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>                                                                                                                   |                                                                       |

|                                                                                                                                                                                                     |                                                                                        |         |                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|---------|----------------|
| <ul style="list-style-type: none"><li>• Diagnostic alarm</li><li>• Limit value alarm</li></ul>                                                                                                      | Yes<br>No                                                                              |         |                |
| Diagnoses                                                                                                                                                                                           |                                                                                        |         |                |
| <ul style="list-style-type: none"><li>• Monitoring the supply voltage</li><li>• Wire break</li><li>• Short-circuit</li><li>• Group error</li><li>• Overflow/Underflow</li></ul>                     | Yes<br>No<br>Yes; at 1 to 5 V<br>Yes<br>Yes; module-wise                               |         |                |
| Diagnostics indication LED                                                                                                                                                                          |                                                                                        |         |                |
| <ul style="list-style-type: none"><li>• Monitoring of the supply voltage (PWR-LED)</li><li>• Channel status display</li><li>• for channel diagnostics</li><li>• for module diagnostics</li></ul>    | Yes; green PWR LED<br>Yes; green LED<br>No<br>Yes; green/red DIAG LED                  |         |                |
| Potential separation                                                                                                                                                                                |                                                                                        |         |                |
| Potential separation channels                                                                                                                                                                       |                                                                                        |         |                |
| <ul style="list-style-type: none"><li>• between the channels</li><li>• between the channels and backplane bus</li><li>• between the channels and the power supply of the electronics</li></ul>      | No<br>Yes<br>Yes                                                                       |         |                |
| Permissible potential difference                                                                                                                                                                    |                                                                                        |         |                |
| between the inputs (UCM)                                                                                                                                                                            | 10 Vpp                                                                                 |         |                |
| Isolation                                                                                                                                                                                           |                                                                                        |         |                |
| Isolation tested with                                                                                                                                                                               | 707 V DC (type test)                                                                   |         |                |
| Standards, approvals, certificates                                                                                                                                                                  |                                                                                        |         |                |
| Ecological footprint                                                                                                                                                                                |                                                                                        |         |                |
| <ul style="list-style-type: none"><li>• environmental product declaration</li></ul>                                                                                                                 | Yes                                                                                    |         |                |
| Global warming potential                                                                                                                                                                            |                                                                                        |         |                |
| — global warming potential, (total) [CO2 eq]                                                                                                                                                        | 9.32 kg                                                                                |         |                |
| — global warming potential, (during production) [CO2 eq]                                                                                                                                            | 4.97 kg                                                                                |         |                |
| — global warming potential, (during operation) [CO2 eq]                                                                                                                                             | 4.79 kg                                                                                |         |                |
| — global warming potential, (after end of life cycle) [CO2 eq]                                                                                                                                      | -0.449 kg                                                                              |         |                |
| Ambient conditions                                                                                                                                                                                  |                                                                                        |         |                |
| Ambient temperature during operation                                                                                                                                                                |                                                                                        |         |                |
| <ul style="list-style-type: none"><li>• horizontal installation, min.</li><li>• horizontal installation, max.</li><li>• vertical installation, min.</li><li>• vertical installation, max.</li></ul> | -30 °C; < 0 °C as of FS04<br>60 °C<br>-30 °C; < 0 °C as of FS04<br>50 °C               |         |                |
| Altitude during operation relating to sea level                                                                                                                                                     |                                                                                        |         |                |
| <ul style="list-style-type: none"><li>• Installation altitude above sea level, max.</li></ul>                                                                                                       | 5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200SP system manual |         |                |
| Absolute humidity                                                                                                                                                                                   |                                                                                        |         |                |
| <ul style="list-style-type: none"><li>• dew point, min.</li></ul>                                                                                                                                   | -60 °C; suitable for dry room applications                                             |         |                |
| Dimensions                                                                                                                                                                                          |                                                                                        |         |                |
| Width                                                                                                                                                                                               | 15 mm                                                                                  |         |                |
| Height                                                                                                                                                                                              | 73 mm                                                                                  |         |                |
| Depth                                                                                                                                                                                               | 58 mm                                                                                  |         |                |
| Weights                                                                                                                                                                                             |                                                                                        |         |                |
| Weight, approx.                                                                                                                                                                                     | 31 g                                                                                   |         |                |
| Classifications                                                                                                                                                                                     |                                                                                        |         |                |
|                                                                                                                                                                                                     |                                                                                        | Version | Classification |
|                                                                                                                                                                                                     | eClass                                                                                 | 16      | 27-24-26-01    |
|                                                                                                                                                                                                     | eClass                                                                                 | 14      | 27-24-26-01    |
|                                                                                                                                                                                                     | eClass                                                                                 | 12      | 27-24-26-01    |
|                                                                                                                                                                                                     | eClass                                                                                 | 9.1     | 27-24-26-01    |
|                                                                                                                                                                                                     | eClass                                                                                 | 9       | 27-24-26-01    |
|                                                                                                                                                                                                     | eClass                                                                                 | 8       | 27-24-26-01    |

|        |     |             |
|--------|-----|-------------|
| eClass | 7.1 | 27-24-26-01 |
| eClass | 6   | 27-24-26-01 |
| ETIM   | 10  | EC001596    |
| ETIM   | 9   | EC001596    |
| ETIM   | 8   | EC001596    |
| ETIM   | 7   | EC001596    |
| IDEA   | 4   | 3562        |
| UNSPSC | 15  | 32-15-17-05 |

## Approvals / Certificates

### General Product Approval

[Miscellaneous](#)

[Manufacturer Declaration](#)



[Metrological Approval](#)

### General Product Approval



[China RoHS](#)



### For use in hazardous locations



[FM](#)

[CCC-Ex](#)



[Type Examination Certificate](#)



### For use in hazardous locations

### Maritime application

[Miscellaneous](#)

[CCC-Ex](#)



### Maritime application

### Environment

[NK / Nippon Kaiji Kyokai](#)



[CCS \(China Classification Society\)](#)

[KR \(Korean Register of Shipping\)](#)



### Environment



last modified:

3/10/2026