

SIMATIC ET 200SP, ANALOG INPUT MODULE, AI 4X1 2-/4-WIRE STANDARD, FITS TO BU-TYPE A0, A1, COLOR CODE CC03, MODULE DIAGNOSIS, 16BIT, +/-0,3%



General information	
Product type designation	ET 200SP, AI 4x1 2-/4-wire ST, PU 1
Firmware version	V1.1
<ul style="list-style-type: none"> <li>FW update possible</li> </ul>	Yes
usable BaseUnits	BU type A0, A1
Color code for module-specific color identification plate	CC03
Product function	
<ul style="list-style-type: none"> <li>I&amp;M data</li> </ul>	Yes; I&M0 to I&M3
<ul style="list-style-type: none"> <li>Measuring range scalable</li> </ul>	No
Engineering with	
<ul style="list-style-type: none"> <li>STEP 7 TIA Portal configurable/integrated as of version</li> </ul>	V11 SP2 / V13
<ul style="list-style-type: none"> <li>STEP 7 configurable/integrated as of version</li> </ul>	V5.5 SP3 / -
<ul style="list-style-type: none"> <li>PCS 7 configurable/integrated as of version</li> </ul>	V8.1 SP1
<ul style="list-style-type: none"> <li>PROFIBUS as of GSD version/GSD revision</li> </ul>	GSD Revision 5
<ul style="list-style-type: none"> <li>PROFINET as of GSD version/GSD revision</li> </ul>	GSDML V2.3
Operating mode	
<ul style="list-style-type: none"> <li>Oversampling</li> </ul>	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; without sensor supply
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### Encoder supply

#### 24 V encoder supply

- |                            |   |
|----------------------------|---|
| • 24 V                     | Yes   |
| • Short-circuit protection | Yes   |
| • Output current, max.     | 20 mA; max. 50 mA per channel for a duration < 10 s |

### Power loss

Power loss, typ.	0.85 W; Without encoder supply voltage
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### Address area

#### Address space per module

- |                                  |                                     |
|----------------------------------|-------------------------------------|
| • Address space per module, max. | 8 byte; + 1 byte for QI information |
|----------------------------------|-------------------------------------|

### Analog inputs

Number of analog inputs	4; Differential inputs
• For current measurement	4
permissible input current for current input (destruction limit), max.	50 mA
Cycle time (all channels), min.	Sum of the basic conversion times and additional processing times (depending on the parameterization of the active channels)

#### Input ranges (rated values), currents

- |                                       |  |
|---------------------------------------|--|
| • 0 to 20 mA                          | Yes  |
| • Input resistance (0 to 20 mA)       | 100 Ω; + approx. 0.7 V diode forward voltage in 2-wire operation |
| • -20 mA to +20 mA                    | Yes  |
| • Input resistance (-20 mA to +20 mA) | 100 Ω  |
| • 4 mA to 20 mA                       | Yes  |
| • Input resistance (4 mA to 20 mA)    | 100 Ω; + approx. 0.7 V diode forward voltage in 2-wire operation |

#### Cable length

- |                  |         |
|------------------|---------|
| • shielded, max. | 1 000 m |
|------------------|---------|

### Analog value generation for the inputs

Measurement principle	integrating (Sigma-Delta)
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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
• Conversion time (per channel)	180 / 60 / 50 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; Applies to up to + /-5 V overvoltage in other channels
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 $f = n \times (f_1 \pm 1 \%)$ , $f_1 =$ 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
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	No
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
• Diagnostic alarm	Yes
• Limit value alarm	No
Diagnostic messages	
• Monitoring the supply voltage	Yes

• Wire-break	Yes; at 4 to 20 mA
• Short-circuit	Yes; 2-wire mode: Short-circuit of the encoder supply to ground or of an input to the encoder supply
• Group error	Yes
• Overflow/underflow	Yes

#### Diagnostics indication LED

• Monitoring of the supply voltage (PWR-LED)	Yes; Green LED
• Channel status display	Yes; Green LED
• for channel diagnostics	No
• for module diagnostics	Yes; Green/red LED

#### Potential separation

##### Potential separation channels

• between the channels	Yes; channel group-specific between 2-wire current input group and 4-wire voltage input group
• between the channels and backplane bus	Yes
• between the channels and the power supply of the electronics	Yes; only for 4-wire transducer

#### Permissible potential difference

between the inputs (UCM)	10 V DC
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#### Isolation

Isolation tested with	707 V DC (type test)
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#### Dimensions

Width	15 mm
Height	73 mm
Depth	58 mm

#### Weights

Weight, approx.	31 g
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**last modified:** 08/12/2017