

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	
Product type designation	AI 8xI 2-/4-wire BA
HW functional status	from FS04
Firmware version	
<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	CC01
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>	V13 SP1
<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>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.	25 mA; without sensor supply
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### 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 |
|----------------------------------|---------|

### Hardware configuration

#### Automatic encoding

- |                             |     |
|-----------------------------|-----|
| • Mechanical coding element | Yes |
|-----------------------------|-----|

#### 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
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- |                           |   |
|---------------------------|---|
| • For current measurement | 8 |
|---------------------------|---|

permissible input current for current input (destruction limit), max.	50 mA
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Cycle time (all channels), min.	1 ms; per channel
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#### 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
<b>Cable length</b>	
• shielded, max.	200 m

### Analog value generation for the inputs

<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	16.67 / 50 / 60 / 4 800 (16.67 / 50 / 60)
• Conversion time (per channel)	180 / 60 / 50 / 0.625 (67.5 / 22.5 / 18.75) ms
<b>Smoothing of measured values</b>	
• Number of smoothing levels	4; None; 4/8/16 times
• parameterizable	Yes

### Encoder

<b>Connection of signal encoders</b>	
• for voltage measurement	No
• for current measurement as 2-wire transducer — Burden of 2-wire transmitter, max.	Yes 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 %
<b>Operational error limit in overall temperature range</b>	
• Current, relative to input range, (+/-)	0.5 %
<b>Basic error limit (operational limit at 25 °C)</b>	
• Current, 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; With conversion time 67.5 / 22.5 / 18.75 ms: 40 dB

### Isochronous mode

Isochronous operation (application synchronized up to terminal)	No
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### Interrupts/diagnostics/status information

Diagnostics function	Yes
<b>Alarms</b>	
• Diagnostic alarm	Yes

• Limit value alarm	No
<b>Diagnostic messages</b>	
• 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
<b>Diagnostics indication LED</b>	
• 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 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	No
<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
• horizontal installation, max.	60 °C
• vertical installation, min.	-30 °C
• vertical installation, max.	50 °C
<b>Altitude during operation relating to sea level</b>	
• Installation altitude above sea level, max.	2 000 m; On request: Installation altitudes greater than 2 000 m
<b>Dimensions</b>	
Width	15 mm
Height	73 mm
Depth	58 mm
<b>Weights</b>	
Weight, approx.	31 g
<b>last modified:</b>	06/11/2019