

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

### 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

### 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

- For current measurement 8

permissible input current for current input (destruction limit), max. 50 mA

Cycle time (all channels), min. 1 ms; per channel

#### 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

<ul style="list-style-type: none"> <li>• 4 mA to 20 mA</li> <li>— Input resistance (4 mA to 20 mA)</li> </ul>	Yes 100 Ω; 15 bit
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>• shielded, max.</li> </ul>	200 m
<b>Analog value generation for the inputs</b>	
<b>Integration and conversion time/resolution per channel</b>	
<ul style="list-style-type: none"> <li>• Resolution with overrange (bit including sign), max.</li> </ul>	16 bit
<ul style="list-style-type: none"> <li>• Integration time, parameterizable</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Interference voltage suppression for interference frequency f1 in Hz</li> </ul>	16.67 / 50 / 60 / 4 800 (16.67 / 50 / 60)
<ul style="list-style-type: none"> <li>• Conversion time (per channel)</li> </ul>	180 / 60 / 50 / 0.625 (67.5 / 22.5 / 18.75) ms
<b>Smoothing of measured values</b>	
<ul style="list-style-type: none"> <li>• Number of smoothing levels</li> </ul>	4; None; 4/8/16 times
<ul style="list-style-type: none"> <li>• parameterizable</li> </ul>	Yes
<b>Encoder</b>	
<b>Connection of signal encoders</b>	
<ul style="list-style-type: none"> <li>• for voltage measurement</li> </ul>	No
<ul style="list-style-type: none"> <li>• for current measurement as 2-wire transducer</li> <li>— Burden of 2-wire transmitter, max.</li> </ul>	Yes 650 Ω
<ul style="list-style-type: none"> <li>• for current measurement as 4-wire transducer</li> </ul>	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>	
<ul style="list-style-type: none"> <li>• Current, relative to input range, (+/-)</li> </ul>	0.5 %
<b>Basic error limit (operational limit at 25 °C)</b>	
<ul style="list-style-type: none"> <li>• Current, relative to input range, (+/-)</li> </ul>	0.3 %
<b>Interference voltage suppression for <math>f = n \times (f_1 \pm 1 \%)</math>, <math>f_1 =</math> interference frequency</b>	
<ul style="list-style-type: none"> <li>• Series mode interference (peak value of interference &lt; rated value of input range), min.</li> </ul>	70 dB; With conversion time 67.5 / 22.5 / 18.75 ms: 40 dB
<b>Interrupts/diagnostics/status information</b>	
Diagnostics function	Yes
<b>Alarms</b>	
<ul style="list-style-type: none"> <li>• Diagnostic alarm</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Limit value alarm</li> </ul>	No
<b>Diagnostic messages</b>	
<ul style="list-style-type: none"> <li>• Monitoring the supply voltage</li> </ul>	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

### Potential separation

<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

### Isolation

Isolation tested with	707 V DC (type test)
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### Ambient conditions

<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.	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
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**last modified:** 02/14/2020