

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>Isochronous mode</li> </ul>	No
<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 from version</li> </ul>	V13 SP1
<ul style="list-style-type: none"> <li>STEP 7 configurable/integrated from version</li> </ul>	V5.5 SP3 / -
<ul style="list-style-type: none"> <li>PROFIBUS from GSD version/GSD revision</li> </ul>	One GSD file each, Revision 3 and 5 and higher
<ul style="list-style-type: none"> <li>PROFINET from GSD version/GSD revision</li> </ul>	GSDML V2.3
Operating mode	

- Oversampling
- MSI

No

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
- Short-circuit protection
- Output current, max.

Yes

Yes

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

Yes

- Mechanical coding element
- Type of mechanical coding element

Yes

Type A

Selection of BaseUnit for connection variants

- 1-wire connection
- 2-wire connection
- 4-wire connection

BU type A0, A1

BU type A0, A1

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
- Input resistance (0 to 20 mA)

Yes

100 Ω; 15 bit

<ul style="list-style-type: none"> <li>• -20 mA to +20 mA <ul style="list-style-type: none"> <li>— Input resistance (-20 mA to +20 mA)</li> </ul> </li> <li>• 4 mA to 20 mA <ul style="list-style-type: none"> <li>— Input resistance (4 mA to 20 mA)</li> </ul> </li> </ul>	Yes 100 Ω; 16 bit incl. sign Yes 100 Ω; 15 bit
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>• shielded, max.</li> </ul>	200 m

### Analog value generation for the inputs

<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

### Encoder

<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 <ul style="list-style-type: none"> <li>— Burden of 2-wire transmitter, max.</li> </ul> </li> </ul>	Yes 650 Ω
<ul style="list-style-type: none"> <li>• for current measurement as 4-wire transducer</li> </ul>	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>	
<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

### Interrupts/diagnostics/status information

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

Diagnoses	
• 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
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 DIAG LED
Potential separation	
Potential separation channels	
• 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)
Ambient conditions	
Ambient temperature during operation	
• 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
Altitude during operation relating to sea level	
• 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
<b>last modified:</b>	11/04/2020