



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 FS21
Firmware version	V1.0.1
• FW update possible	Yes
usable BaseUnits	BU type A0, A1
Color code for module-specific color identification plate	CC01
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	No
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	Yes
<ul style="list-style-type: none"> <li>• Mechanical coding element</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Type of mechanical coding element</li> </ul>	Type A
<b>Selection of BaseUnit for connection variants</b>	
<ul style="list-style-type: none"> <li>• 1-wire connection</li> </ul>	BU type A0, A1
<ul style="list-style-type: none"> <li>• 2-wire connection</li> </ul>	BU type A0, A1
<ul style="list-style-type: none"> <li>• 4-wire connection</li> </ul>	BU type A0, A1 + potential distributor module
<b>Analog inputs</b>	
Number of analog inputs	8; Single-ended
<ul style="list-style-type: none"> <li>• For current measurement</li> </ul>	8
permissible input current for current input (destruction limit), max.	50 mA
Cycle time (all channels), min.	1 ms; per channel
<b>Input ranges (rated values), currents</b>	
<ul style="list-style-type: none"> <li>• 0 to 20 mA</li> </ul>	Yes
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— Input resistance (0 to 20 mA)</li> </ul> </li> </ul>	100 Ω; 15 bit
<ul style="list-style-type: none"> <li>• -20 mA to +20 mA</li> </ul>	Yes
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— Input resistance (-20 mA to +20 mA)</li> </ul> </li> </ul>	100 Ω; 16 bit incl. sign
<ul style="list-style-type: none"> <li>• 4 mA to 20 mA</li> </ul>	Yes
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— Input resistance (4 mA to 20 mA)</li> </ul> </li> </ul>	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 <math>f_1</math> 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
<ul style="list-style-type: none"> <li>• parameterizable</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Step: None</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Step: low</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Step: Medium</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Step: High</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> </ul>	Yes
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>— Burden of 2-wire transmitter, max.</li> </ul> </li> </ul>	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>Diagnoses</b>	
<ul style="list-style-type: none"> <li>• Monitoring the supply voltage</li> </ul>	Yes

<ul style="list-style-type: none"> <li>• Wire-break</li> <li>• Short-circuit</li> <li>• Group error</li> <li>• Overflow/underflow</li> </ul>	<p>Yes; at 4 to 20 mA</p> <p>Yes; Sensor supply to M; module by module</p> <p>Yes</p> <p>Yes; Module-wise</p>
<b>Diagnostics indication LED</b>	
<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>	<p>Yes; green LED</p> <p>Yes; green LED</p> <p>No</p> <p>Yes; green/red DIAG LED</p>
<b>Potential separation</b>	
<b>Potential separation channels</b>	
<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>	<p>No</p> <p>Yes</p> <p>No</p>
<b>Isolation</b>	
Isolation tested with	707 V DC (type test)
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
<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>	<p>-30 °C; &lt; 0 °C as of FS04</p> <p>60 °C</p> <p>-30 °C; &lt; 0 °C as of FS04</p> <p>50 °C</p>
<b>Altitude during operation relating to sea level</b>	
<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
<b>Dimensions</b>	
Width	15 mm
Height	73 mm
Depth	58 mm
<b>Weights</b>	
Weight, approx.	31 g
<b>last modified:</b>	5/22/2024 