

SIMATIC ET 200SP, Analog input module, AI 2xU Standard Pack  
 quantity: 1 unit, suitable for BU type A0, A1, Color code CC00,  
 Module diagnostics, 16 bit



General information	
Product type designation	AI 2xU ST
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	CC00
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 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	

- Oversampling 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
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### Encoder supply

24 V encoder supply	
• 24 V	No
Additional 24 V encoder supply	
• 24 V	No

### Power loss

Power loss, typ.	0.9 W
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### Address area

Address space per module	
• Address space per module, max.	4 byte; + 1 byte for QI information

### Hardware configuration

Selection of BaseUnit for connection variants	
• 1-wire connection	BU type A0, A1
• 2-wire connection	BU type A0, A1

### Analog inputs

Number of analog inputs	2
• For voltage measurement	2
permissible input voltage for voltage input (destruction limit), max.	30 V
Cycle time (all channels), min.	500 $\mu$ s

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

- 0 to +10 V
  - Input resistance (0 to 10 V) 180 k $\Omega$
- 1 V to 5 V
  - Input resistance (1 V to 5 V) 180 k $\Omega$
- -10 V to +10 V
  - Input resistance (-10 V to +10 V) 180 k $\Omega$

<ul style="list-style-type: none"> <li>• -5 V to +5 V</li> <li>— Input resistance (-5 V to +5 V)</li> </ul>	Yes; 16 bit incl. sign 180 kΩ
<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>	
Measurement principle	Sigma Delta
<b>Integration and conversion time/resolution per channel</b>	
<ul style="list-style-type: none"> <li>• Resolution with overrange (bit including sign), max.</li> <li>• Integration time, parameterizable</li> <li>• Interference voltage suppression for interference frequency f1 in Hz</li> <li>• Conversion time (per channel)</li> </ul>	16 bit Yes 16.6 / 50 / 60 Hz / off 50 ms @ 60 Hz, 60 ms @ 50 Hz, 180 ms @ 16.6 Hz, 250 μs without filter
<b>Smoothing of measured values</b>	
<ul style="list-style-type: none"> <li>• Number of smoothing levels</li> <li>• parameterizable</li> <li>• Step: None</li> <li>• Step: low</li> <li>• Step: Medium</li> <li>• Step: High</li> </ul>	4 Yes Yes; 1x cycle time Yes; 4x cycle time Yes; 8x cycle time Yes; 16x cycle time
<b>Encoder</b>	
<b>Connection of signal encoders</b>	
<ul style="list-style-type: none"> <li>• for voltage measurement</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>• Voltage, 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>• Voltage, 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> <li>• Common mode voltage, max.</li> <li>• Common mode interference, min.</li> </ul>	70 dB 10 V 90 dB
<b>Interrupts/diagnostics/status information</b>	
Diagnostics function	Yes

Alarms	
• Diagnostic alarm	Yes
• Limit value alarm	No
Diagnostic messages	
• Monitoring the supply voltage	Yes
• Wire-break	No
• Short-circuit	Yes; at 1 to 5 V
• Group error	Yes
• Overflow/underflow	Yes
Diagnostics indication LED	
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR 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	Yes
Permissible potential difference	
between the inputs (UCM)	10 Vpp
Isolation	
Isolation tested with	707 V DC (type test)
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	-30 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	-30 °C
• 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

last modified:

05/09/2020