



SIMATIC ET 200SP, ANALOG INPUT MODULE, AI 4XU/I 2-WIRE STANDARD, FITS TO BU-TYPE A0, A1, COLOR CODE CC03, MODULE DIAGNOSIS, 16BIT, +/-0,3%

Product type designation

General information

Usable BaseUnits	BU type A0, A1
Color code for module-specific color identification plate	CC03
Product function	
<ul style="list-style-type: none"> I&M data 	Yes
Engineering with	
<ul style="list-style-type: none"> STEP 7 TIA Portal can be configured/integrated as of version 	V11 SP2 / V13
<ul style="list-style-type: none"> STEP 7 can be configured/integrated as of version 	V5.5 SP3 / -
<ul style="list-style-type: none"> PROFIBUS as of GSD version/GSD revision 	GSD Revision 5
<ul style="list-style-type: none"> PROFINET as of GSD version/GSD revision 	V2.3 / -

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; without sensor supply
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Encoder supply

24 V encoder supply	
<ul style="list-style-type: none"> 24 V 	Yes

- short-circuit protection
- Output current, max.

Yes
20 mA; max. 50 mA per channel for a duration < 10 s

Power losses

Power loss, typ. 0.85 W; without sensor supply

Address area

Address space per module

- Address space per module, max. 8 byte

Analog inputs

Number of analog inputs	4
permissible input voltage for voltage input (destruction limit), max.	30 V
permissible input current for current input (destruction limit), max.	50 mA
Cycle time (all channels), min.	Sum of the basic conversion times and additional processing times (depending on the parameterization of the active channels)

Input ranges (rated values), voltages

- 0 to +10 V Yes; 15 bit
- Input resistance (0 to 10 V) 120 k Ω
- 1 to 5 V Yes; 15 bit
- Input resistance (1 to 5 V) 120 k Ω
- -10 V to +10 V Yes; 16 bit incl. sign
- Input resistance (-10 V to +10 V) 120 k Ω
- -5 V to +5 V Yes; 16 bit incl. sign
- Input resistance (-5 V to +5 V) 120 k Ω

Input ranges (rated values), currents

- 0 to 20 mA Yes; 15 bit
- Input resistance (0 to 20 mA) 100 Ω ; + approx. 0.7 V diode forward voltage
- 4 to 20 mA Yes; 15 bit
- Input resistance (4 to 20 mA) 100 Ω ; + approx. 0.7 V diode forward voltage

Cable length

- Cable length, shielded, max. 1 000 m; 200 m for voltage measurement

Analog value generation for the inputs

Integration and conversion time/resolution per channel

- Resolution with overrange (bit including sign), max. 16 bit
- Integration time, parameterizable Yes

Smoothing of measured values

- Parameterizable Yes
- Step: None Yes
- Step: low Yes
- Step: Medium Yes

- Step: High

Yes

Encoder

Connection of signal encoders

- for voltage measurement Yes
- for current measurement as 2-wire transducer Yes
 - Burden of 2-wire transmitter, max. 650 Ω

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 area), (+/-) 0.05 %

Operational limit in overall temperature range

- Voltage, relative to input area, (+/-) 0.5 %
- Current, relative to input area, (+/-) 0.5 %

Basic error limit (operational limit at 25 °C)

- Voltage, relative to input area, (+/-) 0.3 %
- Current, relative to input area, (+/-) 0.3 %

Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, f_1 = interference frequency

- Series mode interference (peak value of interference < rated value of input range), min. 70 dB
- common mode voltage, max. 10 V
- Common mode interference, min. 90 dB

Interrupts/diagnostics/status information

Alarms

- Diagnostic alarm Yes

Diagnostic messages

- Diagnostics Yes
- Monitoring the supply voltage Yes
- Wire break Yes; at 4 to 20 mA
- Short circuit Yes; with 1 to 5 V or 2-wire mode: Short-circuit of the encoder supply to ground or of an input to the encoder supply
- Overflow/underflow Yes

Diagnostics indication LED

- Monitoring of the supply voltage (PWR-LED) Yes; Green LED
- Channel status display Yes; Green LED
- for module diagnostics Yes; Green/red LED

Galvanic isolation

Electrical isolation channels

- between the channels Yes; channel group-specific between 2-wire current input group and voltage input group

- between the channels and the backplane bus
- between the channels and the supply voltage of the electronics

Yes
Yes; only for voltage inputs

Permissible potential difference

between different circuits	75 V DC/60 V AC (base isolation)
between the inputs (UCM)	10 V DC

Isolation

Isolation checked with	707 V DC (type test)
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Ambient conditions

Ambient temperature in operation

- horizontal installation, min. 0 °C
- horizontal installation, max. 60 °C
- vertical installation, min. 0 °C
- vertical installation, max. 50 °C

Dimensions

Width	15 mm
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Weights

Weight, approx.	31 g
last modified:	17.01.2015