



SIMATIC ET 200SP, ANALOG INPUT MODULE, AI 4X1 2-/4-WIRE STANDARD, FITS TO BU-TYPE A0, A1, COLOR CODE CC03, MODULE DIAGNOSIS, 16BIT, +/-0,3%

Product type designation	
General information	
Firmware version	V1.1
• FW update possible	Yes
usable BaseUnits	BU type A0, A1
Color code for module-specific color identification plate	CC03
Product function	
• I&M data	Yes; I&M0 to I&M3
• Scalable measuring range	No
Engineering with	
• STEP 7 TIA Portal configurable/integrated as of version	V11 SP2 / V13
• STEP 7 configurable/integrated as of version	V5.5 SP3 / -
• PCS 7 configurable/integrated as of version	V8.1 SP1
• PROFIBUS as of GSD version/GSD revision	GSD Revision 5
• PROFINET as of GSD version/GSD revision	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; without sensor supply
---------------------------	------------------------------

Power loss

Power loss, typ.	0.85 W; Without encoder supply voltage
------------------	--

Address area

Address space per module	
• Address space per module, max.	8 byte; + 1 byte for QI information

Analog inputs

Number of analog inputs	4; Differential inputs
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), currents

• 0 to 20 mA	Yes
• Input resistance (0 to 20 mA)	100 Ω; + approx. 0.7 V diode forward voltage in 2-wire operation
• -20 mA to +20 mA	Yes
• Input resistance (-20 mA to +20 mA)	100 Ω
• 4 mA to 20 mA	Yes
• Input resistance (4 mA to 20 mA)	100 Ω; + approx. 0.7 V diode forward voltage in 2-wire operation

Cable length

• shielded, max.	1 000 m
------------------	---------

Analog value generation for the inputs

Measurement principle	integrating (Sigma-Delta)
-----------------------	---------------------------

Integration and conversion time/resolution per channel

• Resolution with overrange (bit including sign), max.	16 bit
• Integration time, parameterizable	Yes
• Interference voltage suppression for interference frequency f1 in Hz	16.6 / 50 / 60 Hz
• Conversion time (per channel)	180 / 60 / 50 ms

Smoothing of measured values

• Number of levels	4; None; 4/8/16 times
• Parameterizable	Yes

Encoder

Connection of signal encoders	
• for voltage measurement	No

- for current measurement as 2-wire transducer
— 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; Applies to up to + /-5 V overvoltage in other channels
Repeat accuracy in steady state at 25 °C (relative to input area), (+/-)	0.05 %
Operational error limit in overall temperature range	
• Current, relative to input area, (+/-)	0.5 %
Basic error limit (operational limit at 25 °C)	
• 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

Isochronous mode

Isochronous operation (application synchronized up to terminal)	No
---	----

Interrupts/diagnostics/status information

Alarms	
• Diagnostic alarm	Yes
• Limit value alarm	No
Diagnostic messages	
• Diagnostics	Yes
• Monitoring the supply voltage	Yes
• Wire-break	Yes; at 4 to 20 mA
• Short-circuit	Yes; 2-wire mode: Short-circuit of the encoder supply to ground or of an input to the encoder supply
• 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 LED

Potential separation

Potential separation channels	
• between the channels	Yes; channel group-specific between 2-wire current input group and 4-wire voltage input group

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

Yes
Yes; only for 4-wire transducer

Permissible potential difference

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

Isolation

Isolation tested with	707 V DC (type test)
-----------------------	----------------------

Dimensions

Width	15 mm
-------	-------

Weights

Weight, approx.	31 g
-----------------	------

last modified: 27.06.2015