



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

General information

usable BaseUnits	BU type A0, A1
Color code for module-specific color identification plate	CC03

Product function

I&M data	Yes
----------	-----

Engineering with

STEP 7 TIA Portal configurable/integrated as of version	V11 SP2 / V13
STEP 7 configurable/integrated as of version	V5.5 SP3 / -
PROFIBUS as of GSD version/GSD revision	GSD Revision 5
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
---------------------------	-------------------------------

Encoder supply

24 V encoder supply	
24 V	Yes
Short-circuit protection	Yes
Output current, max.	20 mA ; max. 50 mA per channel for a duration < 10 s
Power loss	
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 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 ; 15 bit
Input resistance (0 to 20 mA)	100 Ω ; + approx. 0.7 V diode forward voltage in 2-wire operation
-20 to +20 mA	Yes ; 16 bit incl. sign
Input resistance (-20 to +20 mA)	100 Ω
4 to 20 mA	Yes ; 15 bit
Input resistance (4 to 20 mA)	100 Ω ; + approx. 0.7 V diode forward voltage in 2-wire operation
Cable length	
Cable length, shielded, max.	1000 m
Analog value generation	
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	
parameterizable	Yes
Step: None	Yes
Step: Low	Yes
Step: Medium	Yes
Step: High	Yes
Encoder	
Connection of signal encoders	

for current measurement as 2-wire transducer	Yes
Burden of 2-wire transmitter, max.	650 Ω
for current measurement as 4-wire transducer	Yes
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.01 %
Temperature error (relative to input range), (+/-)	0.0050 %/K
Crosstalk between the inputs, min.	-50 dB ; for 4-wire transducer-connection up to +/- 5 V permissible input voltage in other channels for 4-wire transducer
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
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 ; 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 the supply voltage (PWR-LED)	Yes ; Green LED
Channel status display	Yes ; Green LED
for module diagnostics	Yes ; Green/red LED
Galvanic isolation	
Galvanic isolation 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	Yes
between the channels and the supply voltage of the electronics	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)
Ambient conditions	
Operating temperature	
horizontal installation, min.	0 °C
horizontal installation, max.	60 °C
vertical installation, min.	0 °C
vertical installation, max.	50 °C
Dimensions	
Width	15 mm
Weights	
Weight, approx.	31 g
Status	Jul 28, 2014