



SIMATIC ET 200SP, ANALOG INPUT MODULE,
AI 2 X U/I 2-,4-WIRE HIGH SPEED FITS TO BU-TYPE A0,
A1, COLOR CODE CC00, CHANNEL DIAGNOSIS,
16BIT, +/-0,3%

General information	
Firmware version	V1.1
Usable BaseUnits	BU type A0, A1
Color code for module-specific color identification plate	CC00
Product function	
I&M data	Yes ; I&M0 to I&M3
Engineering with	
STEP 7 TIA Portal can be configured/integrated as of version	V12 SP1 / V13
STEP 7 can be configured/integrated as of version	V5.5 SP3 / -
PROFIBUS as of GSD version/GSD revision	GSD Revision 5
PROFINET as of GSD version/GSD revision	GSDML V2.3
Operating mode	
Oversampling	Yes
Values per cycle max.	16
Resolution min.	50 µs
CiR - Configuration in RUN	
Reparameterization possible in RUN	Yes
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 (rated value)	39 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 losses	
Power loss, typ.	0.95 W ; without sensor supply
Address area	
Address space per module	
Address space per module, max.	4 byte ; + 1 byte for QI information (32 bytes in the oversampling operating mode)
Analog inputs	
Number of analog inputs	2
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.	250 µs
Input ranges (rated values), voltages	
0 to +10 V	Yes ; 15 bit
Input resistance (0 to 10 V)	75 kΩ
1 to 5 V	Yes ; 13 bit
Input resistance (1 to 5 V)	75 kΩ
-10 V to +10 V	Yes ; 16 bit incl. sign
Input resistance (-10 V to +10 V)	75 kΩ
-5 V to +5 V	Yes ; 15 bit incl. sign
Input resistance (-5 V to +5 V)	75 kΩ
Input ranges (rated values), currents	
0 to 20 mA	Yes ; 15 bit
Input resistance (0 to 20 mA)	130 Ω
-20 to +20 mA	Yes ; 16 bit incl. sign
Input resistance (-20 to +20 mA)	130 Ω
4 to 20 mA	Yes ; 14 bit
Input resistance (4 to 20 mA)	130 Ω
Cable length	
Cable length, shielded, max.	200 m

Analog value creation	
Measurement principle	Actual value encryption (successive approximation)
Integration and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	16 bit
Interference voltage suppression for interference frequency f1 in Hz	No
Conversion time (per channel)	10 µs
Smoothing of measured values	
Number of levels	7 ; none; 2-/4-/8-/16-/32-/64-fold
Parameterizable	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
for current measurement as 4-wire transducer	Yes
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.03 %
Temperature error (relative to input range), (+/-)	0.01 %/K
Crosstalk between the inputs, min.	-50 dB
Repeat accuracy in steady state at 25 °C (relative to input area), (+/-)	0.1 %
Operational limit in overall temperature range	
Voltage, relative to input area, (+/-)	0.3 %
Current, relative to input area, (+/-)	0.3 %
Basic error limit (operational limit at 25 °C)	
Voltage, relative to input area, (+/-)	0.2 %
Current, relative to input area, (+/-)	0.2 %
Interference voltage suppression for $f = n \times (f1 \pm 1 \%)$, f1 = interference frequency	
common mode voltage, max.	35 V
Common mode interference, min.	90 dB
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	Yes
Filtering and processing time (TCI), min.	130 µs
Bus cycle time (TDP), min.	250 µs
Interrupts/diagnostics/status information	
Alarms	
Diagnostic alarm	Yes
Limit value alarm	Yes ; two upper and two lower limit values in each case

Diagnostic messages	
Diagnostics	Yes
Monitoring the supply voltage	Yes
Wire break	Yes ; channel-by-channel, at 4 to 20 mA only
Short circuit	Yes ; channel-by-channel, at 1 to 5 V or for current measuring ranges short-circuit in encoder supply
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	Yes ; Red LED
for module diagnostics	Yes ; green/red DIAG LED
Galvanic isolation	
Electrical isolation channels	
between the channels	Yes
between the channels and the backplane bus	Yes
between the channels and the supply voltage of the electronics	Yes
Permissible potential difference	
between different circuits	75 V DC/60 V AC (base isolation)
between the inputs (UCM)	75 VDC / 60 VAC
Isolation	
Isolation checked with	707 V DC (type test)
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
Weights	
Weight, approx.	32 g
Status	Nov 30, 2014