



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%

Product type designation

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
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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
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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
Additional 24 V encoder supply	
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
Input ranges (rated values), thermoelements	
Input ranges (rated values), resistance thermometer	

Input ranges (rated values), resistors	
Thermocouple (TC)	
Temperature compensation	
Resistance thermometer (RTD)	
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 $f = n \times (f_1 \pm 1 \%)$, f_1 = 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	
Operating temperature	
• horizontal installation, min.	0 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	0 °C
• vertical installation, max.	50 °C
Extended ambient conditions	
Relative humidity	
Resistance	
Connection method	
ET-Connection	

Dimensions

Width	15 mm
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Weights

Weight, approx.	32 g
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last modified:	01.12.2014
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