

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	
Product type designation	ET 200SP, AI 2xU/I 2-/4-wire High Speed
Firmware version	V2.0.1
FW update possible	Yes
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
Measuring range scalable	No
Scalable measured values	No
Adjustment of measuring range	No
Engineering with	
STEP 7 TIA Portal configurable/integrated as of version	V13 SP1
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	GSDML V2.3
Operating mode	

• Oversampling	Yes; 2 channels per module
• 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 (rated value)	39 mA; without sensor supply
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Encoder supply

24 V encoder supply	
• 24 V	Yes; For current measurement
• Short-circuit protection	Yes
• Output current, max.	20 mA; max. 50 mA per channel for a duration < 10 s

Power loss

Power loss, typ.	0.95 W; without sensor supply
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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)

Hardware configuration

Selection of BaseUnit for connection variants	
• 2-wire connection	BU type A0, A1
• 4-wire connection	BU type A0, A1

Analog inputs

Number of analog inputs	2; Differential inputs
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.	125 µs
Analog input with oversampling	Yes
• Values per cycle, max.	16
• Resolution, min.	50 µs
Input ranges (rated values), voltages	
• 0 to +10 V	Yes; 15 bit
• Input resistance (0 to 10 V)	75 kΩ

• 1 V to 5 V • Input resistance (1 V to 5 V) • -10 V to +10 V • Input resistance (-10 V to +10 V) • -5 V to +5 V • Input resistance (-5 V to +5 V)	Yes; 13 bit 75 k Ω Yes; 16 bit incl. sign 75 k Ω Yes; 15 bit incl. sign 75 k Ω
Input ranges (rated values), currents	
• 0 to 20 mA • Input resistance (0 to 20 mA) • -20 mA to +20 mA • Input resistance (-20 mA to +20 mA) • 4 mA to 20 mA • Input resistance (4 mA to 20 mA)	Yes; 15 bit 130 Ω Yes; 16 bit incl. sign 130 Ω Yes; 14 bit 130 Ω
Cable length	
• shielded, max.	1 000 m; 200 m for voltage measurement
Analog value generation for the inputs	
Measurement principle	Actual value encryption (successive approximation)
Integration and conversion time/resolution per channel	
• Resolution with overrange (bit including sign), max. • Interference voltage suppression for interference frequency f1 in Hz • Conversion time (per channel)	16 bit No 10 μ s
Smoothing of measured values	
• Number of smoothing levels • parameterizable	7; none; 2-/4-/8-/16-/32-/64-fold Yes
Encoder	
Connection of signal encoders	
• for voltage measurement • for current measurement as 2-wire transducer — Burden of 2-wire transmitter, max. • for current measurement as 4-wire transducer	Yes Yes 650 Ω 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 range), (+/-)	0.1 %
Operational error limit in overall temperature range	
• Voltage, relative to input range, (+/-) • Current, relative to input range, (+/-)	0.3 % 0.3 %

Basic error limit (operational limit at 25 °C)	
• Voltage, relative to input range, (+/-)	0.2 %
• Current, relative to input range, (+/-)	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.	80 μ s
Bus cycle time (TDP), min.	125 μ s; Starting from firmware Version V2.0.1
Interrupts/diagnostics/status information	
Alarms	
• Diagnostic alarm	Yes
• Limit value alarm	Yes; two upper and two lower limit values in each case
Diagnostic messages	
• 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
• Group error	Yes
• 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
Potential separation	
Potential separation channels	
• between the channels	Yes
• between the channels and backplane bus	Yes
• between the channels and the power supply of the electronics	Yes
Permissible potential difference	
between the inputs (UCM)	75 V DC/60 V AC
Isolation	
Isolation tested with	707 V DC (type test)
Dimensions	
Width	15 mm
Height	73 mm
Depth	58 mm

Weights

Weight, approx.

32 g

last modified:

10/28/2016