SIEMENS

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	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
• Scalable 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

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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

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.	0.95 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)

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	Yes; 13 bit
• Input resistance (1 V 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 mA to +20 mA	Yes; 16 bit incl. sign
• Input resistance (-20 mA to +20 mA)	130 Ω
• 4 mA to 20 mA	Yes; 14 bit
• Input resistance (4 mA to 20 mA)	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.	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 full-scale), (+/-)	0.03 %
Temperature error (relative to full-scale), (+/-)	0.01 %/K
Crosstalk between the inputs, min.	-50 dB
Repeat accuracy in steady state at 25 °C (relative to full-scale), (+/-)	0.1 %
Operational error limit in overall temperature range	
• Voltage, relative to full-scale, (+/-)	0.3 %
• Current, relative to full-scale, (+/-)	0.3 %
Basic error limit (operational limit at 25 °C)	
• Voltage, relative to full-scale, (+/-)	0.2 %

• Current, relative to full-scale, (+/-)	0.2 %
Interference voltage suppression for f = n x (f1 +/- 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.	80 µs
Bus cycle time (TDP), min.	125 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

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

Isolation

Isolation tested with	707 V DC (type test)

Dimensions

Width	15 mm

Weights

Weight, approx.	32 g

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