SIEMENS

SIMATIC ET 200SP, ANALOG INPUT MODULE, AI 4XU/I 2-WIRE STANDARD, PACKING UNIT: 1 PIECE, FITS TO BU-TYPE A0, A1, COLOR CODE CC03, MODULE DIAGNOSIS, 16BIT, +/-0,3%

General information

Product type designation	AI 4x U/I 2-wire
HW functional status	From FS02
Firmware version	
● FW update possible	Yes
usable BaseUnits	BU type A0, A1
Color code for module-specific color identification plate	CC03

Product function

● I&M data	Yes; I&M0 to I&M3
● Isochronous mode	No
● Measuring range scalable	No

Engineering with

● STEP 7 TIA Portal configurable/integrated from version	V14 / -
● STEP 7 configurable/integrated from version	V5.6 and higher
● PCS 7 configurable/integrated from version	V8.1 SP1
● PROFIBUS from GSD version/GSD revision	One GSD file each, Revision 3 and 5 and higher
● PROFINET from GSD version/GSD revision	GSDML V2.3

Operating mode

● Oversampling	No
● 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, 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 encoder supply voltage

Address area

Address space per module	

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● Address space per module, max.	8 byte; + 1 byte for QI information

Hardware configuration

Automatic encoding	Yes
● Mechanical coding element	Yes
● Type of mechanical coding element	Type A

Selection of BaseUnit for connection variants

● 2-wire connection	BU type A0, A1

Analog inputs

Number of analog inputs	4; 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.	Sum of the basic conversion times and additional processing times (depending on the parameterization of the active channels)

Input ranges (rated values), voltages

● 0 to +10 V	Yes; 15 bit
— Input resistance (0 to 10 V)	120 kΩ
● 1 V to 5 V	Yes; 15 bit
— Input resistance (1 V to 5 V)	120 kΩ
● -10 V to +10 V	Yes; 16 bit incl. sign
— Input resistance (-10 V to +10 V)	120 kΩ
● -5 V to +5 V	Yes; 16 bit incl. sign
— Input resistance (-5 V to +5 V)	120 kΩ

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
● 4 mA to 20 mA	Yes; 15 bit
— Input resistance (4 mA to 20 mA)	100 Ω; + approx. 0.7 V diode forward voltage

Cable length

● shielded, max.	1 000 m; 200 m for voltage measurement

Analog value generation for the inputs

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

● Number of smoothing levels	4; None; 4/8/16 times
● 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	No

Errors/accuracies

Linearity error (relative to input range), (+/-)	0.01 %
Temperature error (relative to input range), (+/-)	0.005 %/K
Crosstalk between the inputs, min.	50 dB
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.05 %

Operational error limit in overall temperature range

● Voltage, relative to input range, (+/-)	0.5 %
● Current, relative to input range, (+/-)	0.5 %

Basic error limit (operational limit at 25 °C)

● Voltage, relative to input range, (+/-)	0.3 %
● Current, relative to input range, (+/-)	0.3 %

Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = 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	
Diagnostics function	Yes

Alarms	
● Diagnostic alarm	Yes
● Limit value alarm	No

Diagnoses	
● Monitoring the supply voltage	Yes
● Wire-break	Yes; at 4 to 20 mA
● Short-circuit	Yes; with 1 to 5 V or 2-wire mode: Short-circuit of the encoder supply to ground or of an input to the encoder supply
● Group error	Yes
● Overflow/underflow	Yes

Diagnostics indication LED	
● Monitoring of the supply voltage (PWR-LED)	Yes; green LED
● Channel status display	Yes; green LED
● for channel diagnostics	No
● for module diagnostics	Yes; green/red LED

Potential separation	

Potential separation channels	
● between the channels	Yes; channel group-specific between 2-wire current input group and voltage input group
● between the channels and backplane bus	Yes
● between the channels and the power supply of the electronics	Yes; only for voltage inputs

Permissible potential difference	
between the inputs (UCM)	10 V DC

Isolation	
Isolation tested with	707 V DC (type test)

Standards, approvals, certificates	
Suitable for applications according to AMS 2750	Yes; Declaration of Conformity, see online support entry 109757262
Suitable for applications according to CQI-9	Yes

Ambient conditions	

Ambient temperature during operation	
● horizontal installation, min.	-30 °C; < 0 °C as of FS02
● horizontal installation, max.	60 °C
● vertical installation, min.	-30 °C; < 0 °C as of FS02
● vertical installation, max.	50 °C

Altitude during operation relating to sea level	
● Installation altitude above sea level, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual

Dimensions	
Width	15 mm
Height	73 mm
Depth	58 mm

Weights	
Weight, approx.	31 g

last modified:	2/6/2021 ↗

12/14/2022