Data sheet

SIMATIC ET 200SP, ANALOG INPUT MODULE, AI 4XI 2-/4-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	Al 4xl 2-/4-wire ST
HW functional status	From FS02
Firmware version	
 FW update possible 	Yes
usable BaseUnits	BU type A0, A1
Color code for module-specific color identification	CC03
plate	
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 as of	V14 / -
version	
 STEP 7 configurable/integrated as of version 	V5.6 and higher
 PCS 7 configurable/integrated as of version 	V8.1 SP1
 PROFIBUS as of GSD version/GSD revision 	One GSD file each, Revision 3 and 5 and higher
 PROFINET as of 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
Supar surrent, max.	,,
Power loss	
Power loss, typ.	0.85 W; Without encoder supply voltage
Address area	
Address space per module	
 Address space per module, max. 	8 byte; + 1 byte for QI information
Hardware configuration	
Automatic encoding	
 Mechanical coding element 	Yes
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	4; Differential inputs
	4; Differential inputs 50 mA
Number of analog inputs	
Number of analog inputs permissible input current for current input (destruction	50 mA Sum of the basic conversion times and additional processing
Number of analog inputs permissible input current for current input (destruction limit), max. Cycle time (all channels), min.	50 mA
Number of analog inputs permissible input current for current input (destruction limit), max. Cycle time (all channels), min. Input ranges (rated values), currents	50 mA Sum of the basic conversion times and additional processing times (depending on the parameterization of the active channels)
Number of analog inputs permissible input current for current input (destruction limit), max. Cycle time (all channels), min. Input ranges (rated values), currents • 0 to 20 mA	50 mA Sum of the basic conversion times and additional processing times (depending on the parameterization of the active channels) Yes; 16 bit incl. sign
Number of analog inputs permissible input current for current input (destruction limit), max. Cycle time (all channels), min. Input ranges (rated values), currents	50 mA Sum of the basic conversion times and additional processing times (depending on the parameterization of the active channels)

— Input resistance (-20 mA to +20 mA)	100 Ω
• 4 mA to 20 mA	Yes; 15 bit
— Input resistance (4 mA to 20 mA)	100 Ω ; + approx. 0.7 V diode forward voltage in 2-wire operation
Cable length	
• shielded, max.	1 000 m

Analog value generation for the inputs	
Measurement principle	integrating (Sigma-Delta)
Integration and conversion time/resolution per channel	
 Resolution with overrange (bit including sign), 	16 bit
max.	
 Integration time, parameterizable 	Yes
 Interference voltage suppression for 	16.6 / 50 / 60 Hz
interference frequency f1 in 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	No
• 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), (+/-)	0.01 %
Temperature error (relative to input range), (+/-)	0.005 %/K
Crosstalk between the inputs, min.	50 dB; Applies to up to ±5 V overvoltage in other channels
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.05 %
Operational error limit in overall temperature range	
 Current, relative to input range, (+/-) 	0.5 %
Basic error limit (operational limit at 25 °C)	
• 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	

Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	

Diagnostic alarm Ves	• Diamontic alama	Yes
Diagnostic messages • Monitoring the supply voltage • Wire-break • Short-circuit • Short-circuit of the encoder supply to ground or of an input to the encoder supply to ground or of an input to the encoder supply • Group error • Overflowlunderflow Diagnostics indication LED • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel status display • for channel diagnostics • for module diagnostics • Ves; Green/red LED Potential separation Potential separation Potential separation channels • between the channels and backplane bus • between the channels and the power supply of the electronics • between the inputs (UCM) Isolation tested with 707 V DC (type test) Ambient conditions Ambient emperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation peration relating to sea level • Installation altitude above sea level, max. Dimensions Width 15 mm Plepth Weights		
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