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	O.7 and A. with and a second sound.
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 Power loss, typ.	0.85 W; Without encoder supply voltage
1 6wei 1633, typ.	0.00 VV, VVIIIIout enough 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
- Wile confliction	20 ()porto, / ()
Analog inputs	
Number of analog inputs	4; Differential inputs
permissible input current for current input (destruction	50 mA
limit), max.	
Cycle time (all channels), min.	Sum of the basic conversion times and additional processing
land an an analysis of the same of	times (depending on the parameterization of the active channels)
Input ranges (rated values), currents	V 401%: 1 :
• 0 to 20 mA	Yes; 16 bit incl. sign
— Input resistance (0 to 20 mA)	100 Ω ; + approx. 0.7 V diode forward voltage in 2-wire operation
• -20 mA to +20 mA	Yes

— 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	

Limit value alarm No Diagnostic messages Monitoring the supply voltage Yes Wire-break Yes; at 4 to 20 mA Short-circuit Yes; 2-wire mode: Short-circuit of the encoder supply to ground or of an input to the encoder supply to ground or	Diagnostic clarm	Yes
Diagnostic messages • Monitoring the supply voltage • Wire-break • Short-circuit • Short-circuit • Group error • Overflowlunderflow Diagnostics indication LED • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics • for module diagnostics • between the channels • between the channels and backplane bus • between the channels and the power supply of the electronics Permissible potential difference Detween the inputs (UCM) Isolation Isolation tested with Ambient conditions Ambient conditions Ambient condition, max. • vertical installation, min. • horizontal installation, max. • vertical installation relating to sea level • Installation altitude above sea level, max. Dimensions Width 15 mm Depth Weights	Diagnostic alarm Limit valve alarm	
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