

SIMATIC ET 200SP, Analog input module, AI 2x1 2-/4-wire Standard, Pack quantity: 1 unit, suitable for BU type A0, A1, Color code CC05, Module diagnostics, 16 bit



General information	
Product type designation	AI 2x1 2-/4-wire ST
HW functional status	from FS04
Firmware version	
<ul style="list-style-type: none"> FW update possible 	Yes
usable BaseUnits	BU type A0, A1
Color code for module-specific color identification plate	CC05
Product function	
<ul style="list-style-type: none"> I&M data 	Yes; I&M0 to I&M3
<ul style="list-style-type: none"> Isochronous mode 	No
<ul style="list-style-type: none"> Measuring range scalable 	No
Engineering with	
<ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated as of version 	V13 SP1
<ul style="list-style-type: none"> STEP 7 configurable/integrated as of version 	V5.5 SP3
<ul style="list-style-type: none"> PROFIBUS as of GSD version/GSD revision 	GSD Revision 5
<ul style="list-style-type: none"> PROFINET as of GSD version/GSD revision 	V2.3 / -
Operating mode	

- Oversampling
- MSI

No

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.

45 mA; without sensor supply

Encoder supply

24 V encoder supply

- 24 V
- Short-circuit protection
- Output current, max.

Yes

Yes

50 mA; Total current for both channels (two-wire)

Additional 24 V encoder supply

- 24 V
- Short-circuit protection
- Output current, max.

Yes

Yes; Module-wise

200 mA; Total current for both channels (four-wire)

Power loss

Power loss, typ.

1.1 W

Address area

Address space per module

- Address space per module, max.

4 byte; + 1 byte for QI information

Hardware configuration

Selection of BaseUnit for connection variants

- 1-wire connection
- 2-wire connection
- 4-wire connection

BU type A0, A1

BU type A0, A1

BU type A0, A1

Analog inputs

Number of analog inputs

2

- For current measurement

2

permissible input current for current input (destruction limit), max.

50 mA

Cycle time (all channels), min.

500 μ s

Input ranges (rated values), currents

- 0 to 20 mA

Yes; 15 bit

— Input resistance (0 to 20 mA)	130 Ω; 90 ohms with two wires
• -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; 15 bit
— Input resistance (4 mA to 20 mA)	130 Ω; 90 ohms with two wires
Cable length	
• shielded, max.	1 000 m
Analog value generation for the inputs	
Measurement principle	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 / off
• Conversion time (per channel)	50 ms @ 60 Hz, 60 ms @ 50 Hz, 180 ms @ 16.6 Hz, 500 μs without filter
Smoothing of measured values	
• Number of smoothing levels	4
• parameterizable	Yes
• Step: None	Yes; 1x conversion time
• Step: low	Yes; 4x conversion time
• Step: Medium	Yes; 8x conversion time
• Step: High	Yes; 16x conversion time
Encoder	
Connection of signal encoders	
• 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
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 $f = n \times (f1 \pm 1 \%)$, $f1 =$ 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

Diagnostic messages

- Monitoring the supply voltage Yes
- Wire-break Yes; at 4 to 20 mA
- Short-circuit Yes; Short-circuit of the 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 No
- for module diagnostics Yes; green/red DIAG LED

Potential separation

Potential separation channels

- between the channels No
- 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) 10 Vpp

Isolation

Isolation tested with 707 V DC (type test)

Ambient conditions

Ambient temperature during operation

- horizontal installation, min. -30 °C
- horizontal installation, max. 60 °C
- vertical installation, min. -30 °C
- 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.	32 g
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