

SIMATIC ET 200SP, ANALOG INPUT MODULE, AI 2X1 2-/4-WIRE STANDARD, PACKING UNIT: 1 PIECE, FITS TO BU-TYPE A0, A1, COLOR CODE CC05, MODULE DIAGNOSIS, 16 BIT



General information	
Product type designation	ET 200SP, AI 2x1 2-/4-wire ST, PU 1
Firmware version	V1.0
<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"> 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	
<ul style="list-style-type: none"> Oversampling 	No
<ul style="list-style-type: none"> 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.	45 mA; without sensor supply
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Encoder supply

24 V encoder supply

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|----------------------------|--|
| • 24 V | Yes |
| • Short-circuit protection | Yes |
| • Output current, max. | 50 mA; Total current for both channels |

Additional 24 V encoder supply

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|----------------------------|------------------|
| • 24 V | Yes |
| • Short-circuit protection | Yes; Module-wise |
| • Output current, max. | 200 mA |

Power loss

Power loss, typ.	1.1 W
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Address area

Address space per module

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|----------------------------------|-------------------------------------|
| • Address space per module, max. | 4 byte; + 1 byte for QI information |
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Analog inputs

Number of analog inputs	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

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|---------------------------------------|---------------------------------------|
| • 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

- | | |
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| • shielded, max. | 1 000 m |
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Analog value generation for the inputs

Measurement principle	Sigma Delta
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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, 250 μs without filter
Smoothing of measured values	
• Number of smoothing levels	4
• parameterizable	Yes
• Step: None	Yes; 1 x cycle time
• Step: low	Yes; 4 x cycle time
• Step: Medium	Yes; 8 x cycle time
• Step: High	Yes; 16 x cycle 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 $f = n \times (f_1 \pm 1 \%)$, $f_1 =$ 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
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	No
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)
Dimensions	
Width	15 mm
Height	73 mm
Depth	58 mm
Weights	
Weight, approx.	32 g
last modified:	12/12/2016