

Siemens
EcoTech



SIMATIC ET 200SP, Analog input module, AI 2xI 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 2xI 2-/4-wire ST
HW functional status	from FS04
Firmware version	
• FW update possible	Yes
usable BaseUnits	BU type A0, A1
Color code for module-specific color-coded label	CC05
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	V13 SP1
• STEP 7 configurable/integrated from version	V5.5 SP3
• PROFIBUS from GSD version/GSD revision	One GSD file each, Revision 3 and 5 and higher
• PROFINET from GSD version/GSD revision	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.	45 mA; without sensor supply
Encoder supply	
24 V encoder supply	
• 24 V	Yes
• Short-circuit protection	Yes
• Output current, max.	50 mA; Total current for both channels (two-wire)
Additional 24 V encoder supply	
• 24 V	Yes

<ul style="list-style-type: none"> • Short-circuit protection • Output current, max. 	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	
<ul style="list-style-type: none"> • Address space per module, max. 	4 byte; + 1 byte for QI information
Hardware configuration	
Automatic encoding	Yes
<ul style="list-style-type: none"> • Mechanical coding element • Type of mechanical coding element 	Yes Type A
Selection of BaseUnit for connection variants	
<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • 0 to 20 mA <ul style="list-style-type: none"> — Input resistance (0 to 20 mA) • -20 mA to +20 mA <ul style="list-style-type: none"> — Input resistance (-20 mA to +20 mA) • 4 mA to 20 mA <ul style="list-style-type: none"> — Input resistance (4 mA to 20 mA) 	Yes; 15 bit 130 Ω ; 90 ohms with two wires Yes; 16 bit incl. sign 130 Ω Yes; 15 bit 130 Ω ; 90 ohms with two wires
Cable length	
<ul style="list-style-type: none"> • shielded, max. 	1 000 m
Analog value generation for the inputs	
Measurement principle	Sigma Delta
Integration and conversion time/resolution per channel	
<ul style="list-style-type: none"> • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Interference voltage suppression for interference frequency f_1 in Hz • Conversion time (per channel) 	16 bit Yes 16.6 / 50 / 60 Hz / off 50 ms @ 60 Hz, 60 ms @ 50 Hz, 180 ms @ 16.6 Hz, 500 μ s without filter
Smoothing of measured values	
<ul style="list-style-type: none"> • Number of smoothing levels • parameterizable • Step: None • Step: low • Step: Medium • Step: High 	4 Yes Yes; 1x conversion time Yes; 4x conversion time Yes; 8x conversion time Yes; 16x conversion time
Encoder	
Connection of signal encoders	
<ul style="list-style-type: none"> • for current measurement as 2-wire transducer <ul style="list-style-type: none"> — Burden of 2-wire transmitter, max. • for current measurement as 4-wire transducer 	Yes 650 Ω 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	
<ul style="list-style-type: none"> • Current, relative to input range, (+/-) 	0.5 %
Basic error limit (operational limit at 25 °C)	

<ul style="list-style-type: none"> • Current, relative to input range, (+/-) 	0.3 %
Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, f_1 = interference frequency	
<ul style="list-style-type: none"> • Series mode interference (peak value of interference < rated value of input range), min. 	70 dB
<ul style="list-style-type: none"> • Common mode voltage, max. 	10 V
<ul style="list-style-type: none"> • Common mode interference, min. 	90 dB
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
<ul style="list-style-type: none"> • Diagnostic alarm 	Yes
<ul style="list-style-type: none"> • Limit value alarm 	No
Diagnoses	
<ul style="list-style-type: none"> • Monitoring the supply voltage 	Yes
<ul style="list-style-type: none"> • Wire break 	Yes; at 4 to 20 mA
<ul style="list-style-type: none"> • Short-circuit 	Yes; Short-circuit of the encoder supply
<ul style="list-style-type: none"> • Group error 	Yes
<ul style="list-style-type: none"> • Overflow/underflow 	Yes
Diagnostics indication LED	
<ul style="list-style-type: none"> • Monitoring of the supply voltage (PWR-LED) 	Yes; green PWR LED
<ul style="list-style-type: none"> • Channel status display 	Yes; green LED
<ul style="list-style-type: none"> • for channel diagnostics 	No
<ul style="list-style-type: none"> • for module diagnostics 	Yes; green/red DIAG LED
Potential separation	
Potential separation channels	
<ul style="list-style-type: none"> • between the channels 	No
<ul style="list-style-type: none"> • between the channels and backplane bus 	Yes
<ul style="list-style-type: none"> • 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)
Standards, approvals, certificates	
Ecological footprint	
<ul style="list-style-type: none"> • environmental product declaration 	Yes
Global warming potential	
— global warming potential, (total) [CO2 eq]	9.32 kg
— global warming potential, (during production) [CO2 eq]	4.97 kg
— global warming potential, (during operation) [CO2 eq]	4.79 kg
— global warming potential, (after end of life cycle) [CO2 eq]	-0.449 kg
Ambient conditions	
Ambient temperature during operation	
<ul style="list-style-type: none"> • horizontal installation, min. 	-30 °C; < 0 °C as of FS04
<ul style="list-style-type: none"> • horizontal installation, max. 	60 °C
<ul style="list-style-type: none"> • vertical installation, min. 	-30 °C; < 0 °C as of FS04
<ul style="list-style-type: none"> • vertical installation, max. 	50 °C
Altitude during operation relating to sea level	
<ul style="list-style-type: none"> • Installation altitude above sea level, max. 	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Absolute humidity	
<ul style="list-style-type: none"> • dew point, min. 	-60 °C; suitable for dry room applications
Dimensions	
Width	15 mm
Height	73 mm
Depth	58 mm
Weights	
Weight, approx.	32 g
Classifications	

	Version	Classification
eClass	14	27-24-26-01
eClass	12	27-24-26-01
eClass	9.1	27-24-26-01
eClass	9	27-24-26-01
eClass	8	27-24-26-01
eClass	7.1	27-24-26-01
eClass	6	27-24-26-01
ETIM	10	EC001596
ETIM	9	EC001596
ETIM	8	EC001596
ETIM	7	EC001596
IDEA	4	3562
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval

[Miscellaneous](#)



[Manufacturer Declaration](#)

[China RoHS](#)



General Product Approval

For use in hazardous locations

[Metrological Approval](#)



[FM](#)

For use in hazardous locations

Maritime application

[CCC-Ex](#)



[Type Examination Certificate](#)

[Miscellaneous](#)



Maritime application



[NK / Nippon Kaiji Kyokai](#)



Maritime application

Environment

[CCS \(China Classification Society\)](#)

[KR \(Korean Register of Shipping\)](#)



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