



SIMATIC ET 200AL, AI 4xU/I/RTD, 4x M12, Degree of protection IP67

General information	
Product type designation	AI 4xU/I/RTD
HW functional status	FS07
Firmware version	V2.0.x
Product function	
• I&M data	Yes; I&M0 to I&M3
Engineering with	
• STEP 7 TIA Portal configurable/integrated from version	STEP 7 V13 SP1 or higher
• STEP 7 configurable/integrated from version	From V5.5 SP4 Hotfix 3
• PROFIBUS from GSD version/GSD revision	GSD as of Revision 5
• PROFINET from GSD version/GSD revision	GSDML V2.3.1
Supply voltage	
power supply according to NEC Class 2 required	No
Load voltage 1L+	
• Rated value (DC)	24 V
• permissible range, lower limit (DC)	20.4 V
• permissible range, upper limit (DC)	28.8 V
• Reverse polarity protection	Yes; against destruction
Input current	
Current consumption (rated value)	35 mA; without load
from load voltage 1L+ (unswitched voltage)	4 A; Maximum value
from load voltage 2L+, max.	4 A; Maximum value
Encoder supply	
Number of outputs	4
24 V encoder supply	
• Short-circuit protection	Yes; per channel, electronic
• Output current, max.	0.5 A; Per channel, total current of all channels max. 1 A
Power loss	
Power loss, typ.	1.5 W
Analog inputs	
Number of analog inputs	4
• For current measurement	4
• For voltage measurement	4
• For resistance/resistance thermometer measurement	4
permissible input voltage for voltage input (destruction limit), max.	30 V
permissible input current for current input (destruction limit), max.	50 mA
Cycle time (all channels), min.	8 ms
Technical unit for temperature measurement adjustable	Yes; Degrees Celsius / degrees Fahrenheit / Kelvin

Input ranges (rated values), voltages	
• 0 to +10 V	Yes
— Input resistance (0 to 10 V)	10 MΩ
• 1 V to 5 V	Yes
— Input resistance (1 V to 5 V)	10 MΩ
Input ranges (rated values), currents	
• 0 to 20 mA	Yes
— Input resistance (0 to 20 mA)	50 Ω
• 4 mA to 20 mA	Yes
— Input resistance (4 mA to 20 mA)	50 Ω
Input ranges (rated values), resistance thermometer	
• Ni 100	Yes; Standard/climate
— Input resistance (Ni 100)	10 MΩ
• Pt 100	Yes; Standard/climate
— Input resistance (Pt 100)	10 MΩ
Input ranges (rated values), resistors	
• 0 to 150 ohms	Yes
— Input resistance (0 to 150 ohms)	10 MΩ
• 0 to 300 ohms	Yes
— Input resistance (0 to 300 ohms)	10 MΩ
Cable length	
• shielded, max.	30 m
Analog value generation for the inputs	
Measurement principle	integrating
Integration and conversion time/resolution per channel	
• Resolution with overrange (bit including sign), max.	16 bit
• Integration time, parameterizable	Yes; channel by channel
• Integration time (ms)	0,3 / 16,7 / 20 / 60
• Interference voltage suppression for interference frequency f1 in Hz	3 600 / 60 / 50 / 16.7
• Conversion time (per channel)	2 / 18 / 21 / 61 ms
Smoothing of measured values	
• parameterizable	Yes
• Step: None	Yes; 1x cycle time
• Step: low	Yes; 4x cycle time
• Step: Medium	Yes; 16x cycle time
• Step: High	Yes; 32x cycle time
Encoder	
Connection of signal encoders	
• for voltage measurement	Yes
• for current measurement as 2-wire transducer	Yes
• for current measurement as 4-wire transducer	Yes
• for resistance measurement with two-wire connection	Yes
• for resistance measurement with three-wire connection	Yes
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.025 %
Temperature error (relative to input range), (+/-)	0.01 %/K
Crosstalk between the inputs, max.	-70 dB
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.01 %
Operational error limit in overall temperature range	
• Voltage, relative to input range, (+/-)	0.35 %
• Current, relative to input range, (+/-)	0.45 %
• Resistance, relative to input range, (+/-)	0.25 %
• Resistance thermometer, relative to input range, (+/-)	0.25 %
Basic error limit (operational limit at 25 °C)	
• Voltage, relative to input range, (+/-)	0.25 %
• Current, relative to input range, (+/-)	0.25 %
• Resistance, relative to input range, (+/-)	0.15 %
• Resistance thermometer, relative to input range, (+/-)	0.15 %
Interference voltage suppression for $f = n \times (f1 \pm 0.5 \%)$, f1 = interference frequency	

Series mode interference (peak value of interference < rated value of input range), min.	40 dB		
Interrupts/diagnostics/status information			
Alarms			
Diagnostic alarm	Yes; Parameterizable		
Limit value alarm	Yes; Parameterizable		
Diagnoses			
Wire-break	Yes; at 4 mA to 20 mA and 1 V to 5 V		
Short-circuit	Yes; Encoder supply to M, channel by channel		
Overflow/underflow	Yes		
Diagnostics indication LED			
Channel status display	Yes; green LED		
for module diagnostics	Yes; green/red LED		
Potential separation			
between the load voltages	Yes		
Potential separation channels			
between the channels	No		
between the channels and backplane bus	Yes		
between the channels and the power supply of the electronics	No		
Isolation			
Isolation tested with	707 V DC (type test)		
Degree and class of protection			
IP degree of protection	IP65/67		
Standards, approvals, certificates			
Suitable for safety-related tripping of standard modules	Yes; From FS02		
Highest safety class achievable for safety-related tripping of standard modules			
Performance level according to ISO 13849-1	PL d		
Category according to ISO 13849-1	Cat. 3		
SIL acc. to IEC 62061	SIL 2		
remark on safety-oriented shutdown	https://support.industry.siemens.com/cs/de/en/view/39198632		
product functions / security / header			
signed firmware update	Yes		
data integrity	Yes		
Ambient conditions			
Ambient temperature during operation			
min.	-30 °C		
max.	55 °C		
Altitude during operation relating to sea level			
Ambient air temperature-barometric pressure-altitude	Up to max. 5 000 m, at installation height > 2 000 m additional restrictions		
connection method			
Design of electrical connection for the inputs and outputs	M12, 5-pole		
Design of electrical connection for supply voltage	M8, 4-pole		
ET-Connection			
ET-Connection	M8, 4-pin, shielded		
Dimensions			
Width	30 mm		
Height	159 mm		
Depth	40 mm		
Weights			
Weight, approx.	168 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	9	EC001596
ETIM	8	EC001596
ETIM	7	EC001596
IDEA	4	3562
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval

[Manufacturer Declaration](#)





[KC](#)





EMV

Functional Safety

Marine / Shipping

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



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