Data sheet

SIPLUS S7-1200 SM 1234 4AI/2AQ for medial exposure with conformal coating based on 6ES7234-4HE32-0XB0 . analog I/O +/-10 V: 14-bit resolution or 0-20mA: 13-bit resolution



Figure similar

General information		
Product type designation	SM 1234, AI 4x13 bit/AQ 2x14 bit	
Supply voltage		
Rated value (DC)	24 V	
Input current		
Current consumption, typ.	60 mA	
from backplane bus 5 V DC, typ.	80 mA	
Power loss		
Power loss, typ.	2 W	
Analog inputs		
Number of analog inputs	4; Current or voltage differential inputs	
permissible input voltage for voltage input	35 V	
(destruction limit), max.		
permissible input current for current input (destruction	40 mA	
limit), max.		
Cycle time (all channels) max.	625 µs	

Input ranges		
• Voltage	Yes; ±10V, ±5V, ±2.5V	
• Current	Yes; 4 to 20 mA, 0 to 20 mA	
Thermocouple	No	
Resistance thermometer	No	
Resistance thermometer     Resistance	No	
Input ranges (rated values), voltages	INU	
• -10 V to +10 V	Yes	
— Input resistance (-10 V to +10 V)	≥9 MOhm	
• -2.5 V to +2.5 V	Yes	
	≥9 MOhm	
— Input resistance (-2.5 V to +2.5 V)	Yes	
• -5 V to +5 V		
— Input resistance (-5 V to +5 V)	≥9 MOhm	
Input ranges (rated values), currents	Yes	
• 0 to 20 mA		
— Input resistance (0 to 20 mA)	280 Ω	
• 4 mA to 20 mA	Yes	
Analog outputs		
Number of analog outputs	2; Current or voltage	
Output ranges, voltage		
• -10 V to +10 V	Yes	
Output ranges, current		
• 0 to 20 mA	Yes	
• 4 mA to 20 mA	Yes	
Load impedance (in rated range of output)		
• with voltage outputs, min.	1 000 Ω	
<ul><li>with current outputs, max.</li></ul>	600 Ω	
Analog value generation for the inputs		
Measurement principle	Differential	
Integration and conversion time/resolution per channel		
Resolution with overrange (bit including sign),	12 bit; + sign	
max.		
<ul> <li>Integration time, parameterizable</li> </ul>	Yes	
<ul> <li>Interference voltage suppression for</li> </ul>	40 dB, DC to 60 V for interference frequency 50 / 60 Hz	
interference frequency f1 in Hz		
Smoothing of measured values		
parameterizable	Yes	
• Step: None	Yes	
• Step: low	Yes	
	Yes	
Step: Medium	165	

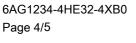


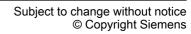
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Analog value generation for the outputs		
Integration and conversion time/resolution per channel		
• Resolution (incl. overrange)	Voltage: 14 bit; Current : 13 bit	
Errors/accuracies		
Temperature error (relative to input range), (+/-)	25 °C ±0.1%, to 55 °C ±0.2% total measurement range	
Temperature error (relative to output range), (+/-)	25 °C ±0.3%, to 55 °C ±0.6% total measurement range	
Basic error limit (operational limit at 25 °C)		
<ul> <li>Voltage, relative to input range, (+/-)</li> </ul>	0.1 %	
<ul><li>Current, relative to input range, (+/-)</li></ul>	0.1 %	
<ul> <li>Voltage, relative to output range, (+/-)</li> </ul>	0.3 %	
<ul> <li>Current, relative to output range, (+/-)</li> </ul>	0.3 %	
Interference voltage suppression for f = n x (f1 +/- 1 %),	f1 = interference frequency	
Common mode voltage, max.	12 V	
Interrupts/diagnostics/status information		
Alarms	Yes	
Diagnostics function	Yes	
Alarms		
Diagnostic alarm	Yes	
Diagnoses		
Monitoring the supply voltage	Yes	
Wire-break	Yes	
Short-circuit	Yes	
Diagnostics indication LED		
for status of the inputs	Yes	
• for status of the outputs	Yes	
• for maintenance	Yes	
Potential separation		
Potential separation analog outputs		
<ul> <li>between the channels and the power supply of</li> </ul>	No	
the electronics		
Degree and class of protection		
IP degree of protection	IP20	
Ambient conditions		
Free fall		
● Fall height, max.	0.3 m; five times, in product package	
Ambient temperature during operation		
• min.	-20 °C; = Tmin (incl. condensation/frost); start-up @ 0 °C	
• max.	60 °C; = Tmax	
Ambient temperature during storage/transportation		
● min.	-40 °C	



• max.	70 °C
Altitude during operation relating to sea level	
Installation altitude above sea level, max.	5 000 m
Ambient air temperature-barometric pressure- altitude	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax -20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m)
Relative humidity	
<ul> <li>With condensation, tested in accordance with IEC 60068-2-38, max.</li> </ul>	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	
Coolants and lubricants	
Resistant to commercially available coolants and lubricants	Yes; Incl. diesel and oil droplets in the air
Use in stationary industrial systems	
<ul> <li>to biologically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
<ul> <li>to chemically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); $^{\star}$
<ul> <li>to mechanically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
<ul> <li>to biologically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
<ul> <li>to chemically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); $^{\star}$
<ul> <li>to mechanically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
<ul> <li>Against chemically active substances acc.</li> <li>to EN 60654-4</li> </ul>	Yes; Class 3 (excluding trichlorethylene)
<ul> <li>Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04</li> </ul>	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
<ul> <li>Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04</li> </ul>	* The supplied plug covers must remain in place over the unused interfaces during operation!
Conformal coating	
<ul> <li>Coatings for printed circuit board assemblies acc. to EN 61086</li> </ul>	Yes; Class 2 for high reliability
Protection against fouling acc. to EN 60664-3	Yes; Type 1 protection
<ul> <li>Military testing according to MIL-I-46058C,</li> <li>Amendment 7</li> </ul>	Yes; Discoloration of coating possible during service life





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• Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A

Yes; Conformal coating, Class A

Connection method	
required front connector	Yes
Mechanics/material	
Enclosure material (front)	
• Plastic	Yes
Dimensions	
Width	45 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	220 g
last modified:	10/13/2020

