



Figure similar

SIPLUS S7-1200 SM 1234 4AI/2AQ based on 6ES7234-4HE32-0XB0 with conformal coating, -20...+60 °C, analog I/O +/-10 V: 14-bit resolution or 0-20 mA: 13-bit resolution

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 (destruction limit), max.	35 V
permissible input current for current input (destruction limit), max.	40 mA
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	No
Input ranges (rated values), voltages	
• -10 V to +10 V	Yes
— Input resistance (-10 V to +10 V)	≥9 MOhm
• -2.5 V to +2.5 V	Yes
— Input resistance (-2.5 V to +2.5 V)	≥9 MOhm
• -5 V to +5 V	Yes
— Input resistance (-5 V to +5 V)	≥9 MOhm
Input ranges (rated values), currents	
• 0 to 20 mA	Yes
— 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)	
<ul style="list-style-type: none"> with voltage outputs, min. with current outputs, max. 	1 000 Ω 600 Ω
Analog value generation for the inputs	
Measurement principle	Differential
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 f1 in Hz 	12 bit; + sign Yes 40 dB, DC to 60 V for interference frequency 50 / 60 Hz
Smoothing of measured values	
<ul style="list-style-type: none"> parameterizable Step: None Step: low Step: Medium Step: High 	Yes Yes Yes Yes Yes
Analog value generation for the outputs	
Integration and conversion time/resolution per channel	
<ul style="list-style-type: none"> Resolution with overrange (bit including sign), max. 	14 bit; 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 style="list-style-type: none"> Voltage, relative to input range, (+/-) Current, relative to input range, (+/-) Voltage, relative to output range, (+/-) Current, relative to output range, (+/-) 	0.1 % 0.1 % 0.3 % 0.3 %
Interference voltage suppression for $f = n \times (f1 \pm 1 \%)$, f1 = interference frequency	
<ul style="list-style-type: none"> Common mode voltage, max. 	12 V
Interrupts/diagnostics/status information	
Alarms	Yes
Diagnostics function	Yes
Alarms	
<ul style="list-style-type: none"> Diagnostic alarm 	Yes
Diagnoses	
<ul style="list-style-type: none"> Monitoring the supply voltage Wire-break Short-circuit 	Yes Yes Yes
Diagnostics indication LED	
<ul style="list-style-type: none"> for status of the inputs for status of the outputs for maintenance 	Yes Yes Yes
Potential separation	
Potential separation analog outputs	
<ul style="list-style-type: none"> between the channels and the power supply of the electronics 	No
Degree and class of protection	
IP degree of protection	IP20
Ambient conditions	
Free fall	
<ul style="list-style-type: none"> Fall height, max. 	0.3 m; five times, in product package
Ambient temperature during operation	
<ul style="list-style-type: none"> min. max. 	-20 °C; = Tmin (incl. condensation/frost); start-up @ 0 °C 60 °C; = Tmax
Ambient temperature during storage/transportation	
<ul style="list-style-type: none"> min. max. 	-40 °C 70 °C
Altitude during operation relating to sea level	
<ul style="list-style-type: none"> Installation altitude above sea level, max. Ambient air temperature-barometric pressure-altitude 	5 000 m 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 style="list-style-type: none"> • With condensation, tested in accordance with IEC 60068-2-38, max. 	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	
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
— to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
— to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
— to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
— Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)
— Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	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	
— Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!
Conformal coating	
<ul style="list-style-type: none"> • Coatings for printed circuit board assemblies acc. to EN 61086 • Protection against fouling acc. to EN 60664-3 • Military testing according to MIL-I-46058C, Amendment 7 • Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A 	<p>Yes; Class 2 for high reliability</p> <p>Yes; Type 1 protection</p> <p>Yes; Discoloration of coating possible during service life</p> <p>Yes; Conformal coating, Class A</p>
connection method / header	
required front connector	Yes
Mechanics/material	
Enclosure material (front) <ul style="list-style-type: none"> • Plastic 	Yes
Dimensions	
Width	45 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	220 g
last modified:	3/11/2021 