

SIPLUS S7-1200 SM 1232 4AQ with conformal coating based on 6ES7232-4HD32-0XB0 . SIMATIC S7-1200, Analog output, SM 1232, 4 AO, +/-10 V, 14-bit resolution, or 0-20 mA, 13-bit resolution



### General information

Product type designation	SM 1232, AQ 4x14 bit
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### Supply voltage

Rated value (DC)	24 V
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### Input current

Current consumption, typ.	45 mA
from backplane bus 5 V DC, typ.	80 mA

### Power loss

Power loss, typ.	1.5 W
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### Analog outputs

Number of analog outputs	4; Current or voltage
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#### Output ranges, voltage

• -10 V to +10 V	Yes
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#### Output ranges, current

• 0 to 20 mA	Yes
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#### Load impedance (in rated range of output)

• with voltage outputs, min.	1 000 $\Omega$
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- with current outputs, max.

600  $\Omega$

## 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 output range), (+/-)

25 °C  $\pm 0.3\%$ , to 55 °C  $\pm 0.6\%$  total measurement range

Basic error limit (operational limit at 25 °C)

- Voltage, relative to output range, (+/-)
- Current, relative to output range, (+/-)

0.3 %

0.3 %

Interference voltage suppression for  $f = n \times (f_1 \pm 1 \%)$ ,  $f_1$  = 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
- Wire-break
- Short-circuit

Yes

Yes

Yes

Diagnostics indication LED

- for status of the outputs
- for maintenance

Yes

Yes

## 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.
- max.

-20 °C; = Tmin (incl. condensation/frost); start-up @ 0 °C

60 °C; = Tmax

Ambient temperature during storage/transportation

- min.
- max.

-40 °C

70 °C

Altitude during operation relating to sea level

- 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"> <li>• Operation at 25 °C without condensation, max.</li> <li>• With condensation, tested in accordance with IEC 60068-2-38, max.</li> </ul>	95 % 100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
<b>Resistance</b>	
<b>Coolants and lubricants</b>	
— Resistant to commercially available coolants and lubricants	Yes; Incl. diesel and oil droplets in the air
<b>Use in stationary industrial systems</b>	
— 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, *
<b>Use on ships/at sea</b>	
— 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; *
<b>Usage in industrial process technology</b>	
— 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)
<b>Remark</b>	
— 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!
<b>Conformal coating</b>	
<ul style="list-style-type: none"> <li>• Coatings for printed circuit board assemblies acc. to EN 61086</li> <li>• Protection against fouling acc. to EN 60664-3</li> <li>• Military testing according to MIL-I-46058C, Amendment 7</li> <li>• Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A</li> </ul>	Yes; Class 2 for high reliability  Yes; Type 1 protection Yes; Discoloration of coating possible during service life  Yes; Conformal coating, Class A
<b>Connection method</b>	
required front connector	Yes
<b>Mechanics/material</b>	
Enclosure material (front)	

- Plastic

Yes

## Dimensions

Width	45 mm
Height	100 mm
Depth	75 mm

## Weights

Weight, approx.	180 g
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**last modified:** 10/13/2020