

SIPLUS S7-1200 SM 1231 RTD T1 RAIL -25 ... +55°C T1 with 70°C for 10 min with conformal coating Based on: 6ES7231-5PD32-0XB0 . SIMATIC S7-1200, Analog input, SM 1231 RTD, 4xAI RTD module

### General information

Product type designation SM 1231 RTD 4x16bit

### Supply voltage

Rated value (DC)

- 24 V DC

Yes

### Input current

Current consumption, typ.

40 mA

from backplane bus 5 V DC, typ.

80 mA

### Power loss

Power loss, typ.

1.5 W

### Analog inputs

Number of analog inputs 4; Resistance thermometer

permissible input voltage for current input (destruction limit), max.

± 35 V

Technical unit for temperature measurement adjustable

Degrees Celsius/degrees Fahrenheit

### Input ranges

- Voltage

No

- Current

No

- Thermocouple

No

- Resistance thermometer

Yes; Resistance-type transmitter: Pt10, Pt50, Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10, Cu50, Cu100, LG-Ni1000

- Resistance

Yes; 150 Ω, 300 Ω, 600 Ω

### Input ranges (rated values), resistance thermometer

- Cu 10

Yes

- Input resistance (Cu 10)

10 Ω

- Ni 100

Yes

- Input resistance (Ni 100)

100 Ω

- Ni 1000

Yes

- Input resistance (Ni 1000)

1 000 Ω

- LG-Ni 1000

Yes

- Input resistance (LG-Ni 1000)

1 000 Ω

- Ni 120

Yes

• Input resistance (Ni 120)	120 Ω
• Ni 200	Yes
• Input resistance (Ni 200)	200 Ω
• Ni 500	Yes
• Input resistance (Ni 500)	500 Ω
• Pt 100	Yes
• Input resistance (Pt 100)	100 Ω
• Pt 1000	Yes
• Input resistance (Pt 1000)	1 000 Ω
• Pt 200	Yes
• Input resistance (Pt 200)	200 Ω
• Pt 500	Yes
• Input resistance (Pt 500)	500 Ω
<b>Input ranges (rated values), resistors</b>	
• 0 to 150 ohms	Yes
• 0 to 300 ohms	Yes
• 0 to 600 ohms	Yes
<b>Thermocouple (TC)</b>	
<b>Temperature compensation</b>	
— parameterizable	No
<b>Errors/accuracies</b>	
Temperature error (relative to input range), (+/-)	25 °C ±0.1%, to 55 °C ±0.2% total measurement range
Repeat accuracy in steady state at 25 °C (relative to output range), (+/-)	0.05 %
<b>Interrupts/diagnostics/status information</b>	
<b>Alarms</b>	Yes
<b>Diagnostic functions</b>	Yes; Can be read out
<b>Alarms</b>	
• Diagnostic alarm	Yes
<b>Diagnostic messages</b>	
• Monitoring the supply voltage	Yes
• Wire-break	Yes
<b>Degree and class of protection</b>	
Degree of protection acc. to EN 60529	
• IP20	Yes
<b>Standards, approvals, certificates</b>	
<b>CE mark</b>	Yes
<b>Railway application</b>	
• EN 50121-3-2	Yes
• EN 50121-4	Yes

• EN 50124-1	Yes; OVC II, PD2
• EN 50125-1	Yes; Class Ax up to 2 000 m above sea level
• EN 50125-2	Yes; Class Ax up to 2 000 m above sea level
• EN 50125-3	Yes; track-side use 1 - 3 m next to track bed
• EN 50155	Yes; T1 Category 1 Class A/B ST2 horizontal mounting position
• EN 61373	Yes; Category 1 Class B
• Fire protection acc. to EN 45545-2	Yes; Verification on request

## Ambient conditions

<b>Free fall</b>	
• Fall height, max.	0.3 m; five times, in product package
<b>Ambient temperature during operation</b>	
• min.	-25 °C
• max.	60 °C; = Tmax; +70 °C for 10 minutes (T1 acc. to EN 50155) for horizontal mounting position
<b>Ambient temperature during storage/transportation</b>	
• min.	-40 °C
• max.	70 °C
<b>Air pressure acc. to IEC 60068-2-13</b>	
• Storage/transport, min.	660 hPa
• Storage/transport, max.	1 080 hPa
<b>Altitude during operation relating to sea level</b>	
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 080 hPa ... 795 hPa (-1 000 m ... +2 000 m)
<b>Relative humidity</b>	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
<b>Resistance</b>	
<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 according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!
<b>Use on land craft, rail vehicles and special-purpose vehicles</b>	
— to biologically active substances according to EN 60721-3-5	Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request
— to chemically active substances according to EN 60721-3-5	Yes; Class 5C3 (RH < 75%) including salt spray according to EN 50155 (ST2). The supplied plug covers must remain in place over the unused interfaces during operation!
— to mechanically active substances according to EN 60721-3-5	Yes; Class 5S3 including sand and dust. The supplied plug covers must remain in place over the unused interfaces during operation!

### Connection method

required front connector	Yes
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### Mechanics/material

Enclosure material (front)	
• Plastic	Yes

### Dimensions

Width	45 mm
Height	100 mm
Depth	75 mm

### Other

Note:	For use in railway applications, also observe the product information "SIPLUS extreme RAIL" A5E37661960A Online Support article 109736776
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