

SIPLUS ET200S EM 2AI RTD HF -25 ... +60 DEGREES C BASED
ON 6ES7134-4NB51-0AB0



Supply voltage	
Load voltage L+	
• Rated value (DC)	24 V; From power module
• Reverse polarity protection	Yes
Input current	
from load voltage L+ (without load), max.	30 mA
from backplane bus 3.3 V DC, max.	10 mA
Power loss	
Power loss, typ.	0.6 W
Address area	
Address space per module	
• Address space per module, max.	4 byte
Analog inputs	
Number of analog inputs	2
permissible input voltage for voltage input (destruction limit), max.	9 V

Constant measurement current for resistance-type transmitter, typ.	1.25 mA
Cycle time (all channels) max.	Number of active channels per module x basic conversion time
Technical unit for temperature measurement adjustable	Yes
Input ranges	
• Voltage	Yes
• Current	No
• Thermocouple	Yes
• Resistance thermometer	Yes
• Resistance	Yes
Input ranges (rated values), resistance thermometer	
• Cu 10	Yes
• Input resistance (Cu 10)	10 MΩ
• Ni 100	Yes
• Input resistance (Ni 100)	10 MΩ
• Ni 1000	Yes
• Input resistance (Ni 1000)	10 MΩ
• Ni 120	Yes
• Input resistance (Ni 120)	10 MΩ
• Ni 200	Yes
• Input resistance (Ni 200)	10 MΩ
• Ni 500	Yes
• Input resistance (Ni 500)	10 MΩ
• Pt 100	Yes
• Input resistance (Pt 100)	10 MΩ
• Pt 1000	Yes
• Input resistance (Pt 1000)	10 MΩ
• Pt 200	Yes
• Input resistance (Pt 200)	10 MΩ
• Pt 500	Yes
• Input resistance (Pt 500)	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
• 0 to 600 ohms	Yes
• Input resistance (0 to 600 ohms)	10 MΩ
• 0 to 3000 ohms	Yes
• Input resistance (0 to 3000 ohms)	10 MΩ
Thermocouple (TC)	

Temperature compensation	
— internal temperature compensation	Yes
Characteristic linearization	
• parameterizable	Yes; for Ptxxx, Nixxx
— for resistance thermometer	Ptxxx, Nixxx
Cable length	
• shielded, max.	200 m
Analog value generation for the inputs	
Measurement principle	integrating (Sigma-Delta)
Integration and conversion time/resolution per channel	
• Resolution with overrange (bit including sign), max.	16 bit; for Pt100, Ni100, Ni120, Pt200, Ni200, Pt 500, Ni 500, Pt1000, Ni1000, Cu10: 15 bits + sign; for 150, 300, 600, 3000 ohms: 15 bits; for PTC: 1 bits
• Integration time (ms)	16,7 / 20 ms
• Interference voltage suppression for interference frequency f1 in Hz	50 / 60 Hz
• Conversion time (per channel)	Basic conversion time incl. integration time: 50 / 60 ms; additional conversion time for diagnostics of wire break test: 5 / 5 ms; additional conversion time for line compensation with 3-wire connection: 50 / 60 ms
Smoothing of measured values	
• parameterizable	Yes; In four stages by means of digital filtering
• Step: None	Yes; 1 x cycle time
• Step: low	Yes; 4 x cycle time
• Step: Medium	Yes; 32 x cycle time
• Step: High	Yes; 64 x cycle time
Encoder	
Connection of signal encoders	
• for resistance measurement with two-wire connection	Yes
• for resistance measurement with three-wire connection	Yes; internal compensation of the line resistances
• for resistance measurement with four-wire connection	Yes
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.01 %
Temperature error (relative to input range), (+/-)	0.0009 %/K
Crosstalk between the inputs, min.	-50 dB
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.05 %
Operational error limit in overall temperature range	

<ul style="list-style-type: none"> Resistance thermometer, relative to input range, (+/-) 	Resistance-type transmitter: +/-0.1%; Pt100, Pt200, Pt500, Pt1000 standard: +/-1.0 K; Pt100, Pt200, Pt500, Pt1000 climate: +/-0.25 K; Ni100, Ni120, Ni200, Ni500, Ni1000 standard and climate: +/-0.4 K; Cu10 +/-1.5 K
Basic error limit (operational limit at 25 °C)	
<ul style="list-style-type: none"> Resistance thermometer, relative to input range, (+/-) 	Resistance-type transmitter: +/-0.05%; Pt100, Pt200, Pt500, Pt1000 standard: +/-0.6 K; Pt100, Pt200, Pt500, Pt1000 climate: +/-0.13 K; Ni100, Ni120, Ni200, Ni500, Ni1000 standard and climate: +/-0.2 K; Cu10 +/-1 K
Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, f_1 = interference frequency	
<ul style="list-style-type: none"> Series mode interference (peak value of interference < rated value of input range), min. 	70 dB
<ul style="list-style-type: none"> Common mode interference (USS < 2.5 V), min. 	90 dB
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	No
Interrupts/diagnostics/status information	
Diagnostic messages	
<ul style="list-style-type: none"> Wire-break 	Yes
<ul style="list-style-type: none"> Group error 	Yes
<ul style="list-style-type: none"> Overflow/underflow 	Yes
Diagnostics indication LED	
<ul style="list-style-type: none"> Group error SF (red) 	Yes
Parameter	
Remark	7 byte
Diagnostics wire break	Disable / enable
Measurement type/range	Deactivated/ 150 Ohm / 300 Ohm / 600 Ohm /Pt100/Pt200/Pt500/Pt1000 each standard or climate range / Ni100/Ni120/Ni200/Ni500/Ni1000 each standard or climate range / Cu10 each standard or climate range / PTC
Group diagnostics	Disable / enable
Overflow/underflow	Disable / enable
Potential separation	
Potential separation analog inputs	
<ul style="list-style-type: none"> between the channels 	No
<ul style="list-style-type: none"> between the channels and backplane bus 	Yes
<ul style="list-style-type: none"> Between the channels and load voltage L+ 	Yes
Permissible potential difference	
between MANA and M internally (UISO)	75 V DC/60 V AC
Isolation	
Isolation tested with	500 V DC

Standards, approvals, certificates

CE mark Yes

Ambient conditions

Ambient temperature during operation

- min. -25 °C; = Tmin
- max. 60 °C; = Tmax

Extended ambient conditions

- relative to ambient temperature-atmospheric pressure-installation altitude Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m) // Tmin ... (Tmax - 10K) at 795 hPa ... 658 hPa (+2000 m ... +3500 m) // Tmin ... (Tmax - 20K) at 658 hPa ... 540 hPa (+3500 m ... +5000 m)

Relative humidity

- With condensation, tested in accordance with IEC 60068-2-38, max. 100 %; Relative humidity, incl. condensation / frost permitted (no commissioning under condensation conditions)

Resistance

- against biologically active substances / conformity with EN 60721-3-3 Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
- against chemically active substances / conformity with EN 60721-3-3 Yes; Class 3C4 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!
- against mechanically active substances / conformity with EN 60721-3-3 Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!

Dimensions

Width 15 mm
Height 81 mm
Depth 52 mm

Weights

Weight, approx. 40 g

last modified: 05/25/2017