

SIPLUS ET 200S EM 2AI TC HF 0...+70 °C with conformal coating based on 6ES7134-4NB01-0AB0 . 15 mm width, 15 bit+sign with internal temperature Compensation



Figure similar

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.	20 V; ± 20 V, continuous

Cycle time (all channels) max.	Number of active channels per module x basic conversion time
Technical unit for temperature measurement adjustable	Yes; Celsius / Fahrenheit
Input ranges	
• Voltage	Yes
• Current	No
• Thermocouple	Yes
• Resistance thermometer	No
• Resistance	No
Input ranges (rated values), voltages	
• -80 mV to +80 mV	Yes
• Input resistance (-80 mV to +80 mV)	1 MΩ
Input ranges (rated values), thermocouples	
• Type B	Yes
• Input resistance (Type B)	1 MΩ
• Type C	Yes
• Input resistance (Type C)	1 MΩ
• Type E	Yes
• Input resistance (Type E)	1 MΩ
• Type J	Yes
• Input resistance (type J)	1 MΩ
• Type K	Yes
• Input resistance (Type K)	1 MΩ
• Type L	Yes
• Input resistance (Type L)	1 MΩ
• Type N	Yes
• Input resistance (Type N)	1 MΩ
• Type R	Yes
• Input resistance (Type R)	1 MΩ
• Type S	Yes
• Input resistance (Type S)	1 MΩ
• Type T	Yes
• Input resistance (Type T)	1 MΩ
Thermocouple (TC)	
Temperature compensation	
— internal temperature compensation	Yes; possible with TM-E15S24-AT, TM-E15C24-AT
— external temperature compensation with compensations socket	Yes; one external compensating box per channel
Characteristic linearization	
• parameterizable	Yes
— for thermocouples	Type B, C, E, J, K, L, N, R, S, T to IEC 584
Cable length	

- shielded, max.

50 m

Analog value generation for the inputs

Measurement principle	integrating
Integration and conversion time/resolution per channel	
<ul style="list-style-type: none"> • Resolution with overrange (bit including sign), max. 	16 bit
<ul style="list-style-type: none"> • Integration time (ms) 	16,7 / 20 ms
<ul style="list-style-type: none"> • Interference voltage suppression for interference frequency f1 in Hz 	50 / 60 Hz
<ul style="list-style-type: none"> • Conversion time (per channel) 	66 ms; 66 / 80 ms; additional conversion time for diagnostic wire break test
Smoothing of measured values	
<ul style="list-style-type: none"> • parameterizable 	Yes; In four stages by means of digital filtering
<ul style="list-style-type: none"> • Step: None 	Yes; 1 x cycle time
<ul style="list-style-type: none"> • Step: low 	Yes; 4 x cycle time
<ul style="list-style-type: none"> • Step: Medium 	Yes; 32 x cycle time
<ul style="list-style-type: none"> • Step: High 	Yes; 64 x cycle time
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.01 %
Temperature error (relative to input range), (+/-)	0.005 %/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"> • Voltage, relative to input range, (+/-) 	0.1 %; ±1.5 K for thermocouples, ±7 K for thermocouples type C, ±2.5 K with static thermal state (ambient temperature change < 0.3 K/min)
Basic error limit (operational limit at 25 °C)	
<ul style="list-style-type: none"> • Voltage, relative to input range, (+/-) 	0.05 %; ±1 K with thermocouples, ±5 K with thermocouples type C, ±1.5 K with static thermal state (ambient temperature change < 0.3 K/min)
Interference voltage suppression for $f = n \times (f1 \pm 1 \%)$, $f1 =$ 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
Interrupts/diagnostics/status information	
Diagnostic messages	
<ul style="list-style-type: none"> • Wire-break 	Yes; only thermocouples
<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	4 byte
Diagnostics wire break	Disable / enable (wire break is detected only in thermocouples)
Measurement type/range	Deactivated/ ±80 mV/ TC-EL Type T (Cu-CuNi)/ TC-EL Type K (NiCr-Ni)/ TC-EL Type B (PtRh-PtRh)/ TC-EL Type c (Wer-Wer) TC-EL Type N (NiCrSi-NiSi)/ TC-EL Type E (NiCr-CuNi)/ TC-EL Type R (PtRh-Pt)/ TC-EL Type S (PtRh-Pt)/ TC-EL Type J (Fe-Cu-Ni)/ TC
Group diagnostics	Disable / enable
Overflow/underflow	Disable / enable
Comparison point	none / yes, internal

Potential separation	
Potential separation analog inputs	
• between the channels	No
• between the channels and backplane bus	Yes
• Between the channels and load voltage L+	Yes

Permissible potential difference	
Between the inputs and MANA (UCM)	140 V DC/100 V AC
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.	0 °C; = Tmin
• max.	70 °C; = Tmax

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	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost permitted (no commissioning in bedewed state)

Resistance	
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; *
from supply voltage 1L+	
— Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!

Dimensions	
Width	15 mm
Height	81 mm
Depth	52 mm

Weights	
Weight, approx.	40 g
last modified:	05/16/2018