

Technical specifications (continued)

	6ES7 134-4GB11-0AB0	6ES7 134-4MB02-0AB0	6ES7 134-4GD00-0AB0	6ES7 134-4FB52-0AB0	6ES7 134-4GB62-0AB0
Permissible potential difference between MANA and M internally (UISO)					75 V DC, 60 V AC
Dimensions Module width, max.		15 mm		15 mm	15 mm
Dimensions and weight Dimensions					
• Width	15 mm	15 mm	15 mm	15 mm	15 mm
• Height	81 mm	81 mm	81 mm	81 mm	81 mm
• Depth	52 mm	52 mm	52 mm	52 mm	52 mm
Weight • Weight, approx.	40 g	45 g	40 g	45 g	45 g
	6ES7 134-4JB01-0AB0	6ES7 134-4JB51-0AB0	6ES7 134-4JD00-0AB0	6ES7 134-4NB01-0AB0	6ES7 134-4NB51-0AB0
Supply voltages Load voltage L+ • Rated value (DC)	24 V; from power module Yes	24 V; from power module Yes	24 V; from power module Yes	24 V; from power module Yes	24 V; from power module Yes
• Reverse polarity protection					
Power supply to the transmitters • present • short-circuit proof		Yes Yes			
Current consumption from load voltage L+ (without load), max.	30 mA	30 mA	30 mA	30 mA	30 mA
from backplane bus 3.3 V DC, max.	10 mA	10 mA	10 mA	10 mA	10 mA
Power losses Power loss, typ.	0.6 W	0.6 W	0.6 W	0.6 W	0.6 W
Address area Address space per module • Address space per module, max.	4 byte	8 byte	8 byte	4 byte	4 byte
Isochronous mode Isochronous mode	No	No	No		No
Analog inputs Number of analog inputs	2	4; 2 for 3 or 4-wire connection	4	2	2
Cable length, shielded, max.	50 m	200 m	50 m	50 m	200 m
Constant measurement current for resistance-type transmitter, typ.		1.67 mA			1.25 mA
Cycle time (all channels) max.	Number of active channels per module x basic conversion time	Number of active channels per module x basic conversion time	Number of active channels per module x basic conversion time	Number of active channels per module x basic conversion time	Number of active channels per module x basic conversion time
Technical unit for temperature measurement adjustable • Voltage • Current • Thermocouple • Resistance thermometer • Resistance	No Yes Yes	No Yes Yes	No Yes Yes	Yes Yes No Yes No	Yes Yes No Yes Yes

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Technical specifications (continued)

	6ES7 134-4JB01-0AB0	6ES7 134-4JB51-0AB0	6ES7 134-4JD00-0AB0	6ES7 134-4NB01-0AB0	6ES7 134-4NB51-0AB0
Input ranges (rated values), voltages					
• -80 mV to +80 mV	Yes		Yes	Yes	
• Input resistance (-80 mV to +80 mV)	1 MΩ		1 MΩ	1 MΩ	
Input ranges (rated values), thermoelements					
• Type B	Yes		Yes	Yes	
• Input resistance (Type B)	1 MΩ		1 MΩ	1 MΩ	
• Type C				Yes	
• Input resistance (Type C)				1 MΩ	
• Type E	Yes		Yes	Yes	
• Input resistance (Type E)	1 MΩ		1 MΩ	1 MΩ	
• Type J	Yes		Yes	Yes	
• Input resistance (type J)	1 MΩ		1 MΩ	1 MΩ	
• Type K	Yes		Yes	Yes	
• Input resistance (Type K)	1 MΩ		1 MΩ	1 MΩ	
• Type L	Yes		Yes	Yes	
• Input resistance (Type L)	1 MΩ		1 MΩ	1 MΩ	
• Type N	Yes		Yes	Yes	
• Input resistance (Type N)	1 MΩ		1 MΩ	1 MΩ	
• Type R	Yes		Yes	Yes	
• Input resistance (Type R)	1 MΩ		1 MΩ	1 MΩ	
• Type S	Yes		Yes	Yes	
• Input resistance (Type S)	1 MΩ		1 MΩ	1 MΩ	
• Type T	Yes		Yes	Yes	
• Input resistance (Type T)	1 MΩ		1 MΩ	1 MΩ	
Input ranges (rated values), resistance thermometers					
• Cu 10					Yes
• Input resistance (Cu 10)					10 MΩ
• Ni 100		Yes; standard/climate			Yes
• Input resistance (Ni 100)		2 000 kΩ			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; standard / climate			Yes
• Input resistance (Pt 100)		2 000 kΩ			10 MΩ

Technical specifications (continued)

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Input ranges (rated values), resistance thermometers					
• 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 Ohm		Yes			Yes
• Input resistance (0 to 150 Ohm)		2 000 kΩ			10 MΩ
• 0 to 300 Ohm		Yes			Yes
• Input resistance (0 to 300 Ohm)		2 000 kΩ			10 MΩ
• 0 to 600 Ohm		Yes			Yes
• Input resistance (0 to 600 Ohm)		2 000 kΩ			10 MΩ
• 0 to 3000 Ohm					Yes
• Input resistance (0 to 3000 Ohm)					10 MΩ
Voltage input					
• permissible input voltage for voltage input (destruction limit), max.	10 V; permanent	9 V	10 V; permanent	20 V; +/-20 V, permanent	9 V
Characteristic linearization					
• parameterizable	Yes; type B, E, J, K, L, N, R, S, T to IEC 584	Yes; for Pt100, Ni100	Yes; type B, E, J, K, L, N, R, S, T to IEC 584	Yes	Yes; for Ptxxx, Nixxx
• for thermocouples				Type B, C, E, J, K, L, N, R, S, T to IEC 584	
• for resistance thermometer		Pt100 (standard, climatic range), Ni100 (standard, climatic range)			Ptxxx, Nixxx
Temperature compensation					
• internal temperature compensation	Not possible		Not possible	Yes; possible with TM-E15S24-AT, TM-E15C24-AT	Yes
• external temperature compensation with compensations socket	Yes; possible, one external compensating box per channel		Yes; possible, one external compensating box per channel	Yes; one external compensating box per channel	
Analog value creation					
Measurement principle	integrating	integrating	integrating	integrating	integrating (Sigma-Delta)
Integrations and conversion time/resolution per channel					
• Resolution with overrange (bit including sign), max.	16 bit; 15 bit + sign	16 bit; 150 Ohm: 14 bit; 300, 600 Ohm: 15 bit, Pt100, Ni100: 16 bit	16 bit; 15 bit + sign	16 bit	16 bit; for Pt100, Ni100, Ni120, Pt200, Ni200, Pt 500, Ni 500, Pt1000, Ni1000, Cu10: 15 bit + sign; for 150, 300, 600, 3000 Ohm: 15 bit; for PTC: 1 bit

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Integrations and conversion time/ resolution per channel					
• Integration time, parameterizable	Yes	Yes	Yes		
• Integration time, ms	16.7 / 20 ms	16.7 / 20 ms	16.7 / 20 ms	16.7 / 20 ms	16.7 / 20 ms
• Interference voltage suppression for interference frequency f1 in Hz	60 / 50 Hz	60 / 50 Hz	60 / 50 Hz	60 / 50 Hz	60 / 50 Hz
• Conversion time (per channel)	55 / 65 ms (additional 20 ms on activated wire-break test)	66 / 80 ms; additional conversion time for diagnostic wire break test	65 ms; 55 / 65 ms (additional 20 ms on activated wire-break test)	66 ms; 66 / 80 ms; additional conversion time for diagnostic wire break test	Basic conversion time incl. integration time: 50 / 60 ms; additional conversion time for diagnostic wire break test: 5 / 5 ms; additional conversion time for line compensation with 3-core connection: 50/60 ms
Smoothing of measured values					
• parameterizable	Yes; in four stages by means of digital filtering	Yes; in four stages by means of digital filtering	Yes; in four stages by means of digital filtering	Yes; in four stages by means of digital filtering	Yes; in four stages by means of digital filtering
• Step: None	Yes; 1 x cycle time	Yes; 1 x cycle time	Yes; 1 x cycle time	Yes; 1 x cycle time	Yes; 1 x cycle time
• Step: Low	Yes; 4 x cycle time	Yes; 4 x cycle time	Yes; 4 x cycle time	Yes; 4 x cycle time	Yes; 4 x cycle time
• Step: Medium	Yes; 32 x cycle time	Yes; 32 x cycle time	Yes; 32 x cycle time	Yes; 32 x cycle time	Yes; 32 x cycle time
• Step: High	Yes; 64 x cycle time	Yes; 64 x cycle time	Yes; 64 x cycle time	Yes; 64 x cycle time	Yes; 64 x cycle time
Encoder					
Connection of signal encoders					
• for voltage measurement	Yes		Yes		
• for resistance measurement with 2-conductor connection		Yes			Yes
• for resistance measurement with 3-conductor connection		Yes			Yes; internal compensation of the line resistances
• for resistance measurement with 4-conductor connection		Yes			Yes
Errors/accuracies					
Linearity error (relative to input area)	+/- 0.01 %	+/- 0.01 %	+/- 0.01 %	+/- 0.01 %	+/- 0.01 %
Temperature error (relative to input area)	+/- 0.005 %/K	+/- 0.005 %/K	+/- 0.005 %/K	+/- 0.005 %/K	+/- 0.0009 %/K
Crosstalk between the inputs, min.	-50 dB	-50 dB	-50 dB	-50 dB	-50 dB
Repeat accuracy in settled status at 25 °C (relative to input area)	+/- 0.05 %	+/- 0.05 %	+/- 0.05 %	+/- 0.05 %	+/- 0.05 %

Technical specifications (continued)

	6ES7 134-4JB01-0AB0	6ES7 134-4JB51-0AB0	6ES7 134-4JD00-0AB0	6ES7 134-4NB01-0AB0	6ES7 134-4NB51-0AB0
Operational limit in overall temperature range					
• Voltage, relative to input area	+/- 0.6 %		+/- 0.6 %	+/- 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)	
• Resistance-type thermometer, relative to input area		+/- 0.6 %			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)					
• Voltage, relative to input area	+/- 0.4 %		+/- 0.4 %	+/- 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)	
• Resistance-type thermometer, relative to input area		+/- 0.4 %			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 $f = n \times (f_l \pm 1\%)$, f_l = interference frequency					
• Series mode interference (peak value of interference < rated value of input range), min.	70 dB	70 dB	70 dB	70 dB	70 dB
• common mode voltage (USS < 2.5 V), min.	90 dB	90 dB	90 dB	90 dB	90 dB
Parameter					
Remark	4 byte		4 byte	4 byte	7 byte
Diagnostics: wire break	Disable / enable (wire break is detected only in thermocouples)	Disable / enable	Disable / enable (wire break is detected only in thermocouples)	Disable / enable (wire break is detected only in thermocouples)	Disable / enable

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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	deactivated/150 Ohm/ ; 300 Ohm/600 Ohm/ Pt100 climatic/ Pt100 standard; Ni100 climatic, 2, 3 or 4-wire	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	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	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	Disable / enable	Disable / enable	Disable / enable	Disable / enable
Overflow/underflow	Disable/enable	Disable/enable	Disable/enable	Disable/enable	Disable/enable
Comparison point	none / RTD		none / RTD	none / yes, internal	
Comparison point number	none / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8		none / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8		
Unit	Celsius		Celsius	Celsius / Fahrenheit	
Alarms/diagnostics/ status information					
Diagnostics					
• Diagnostic functions	Yes; can be read out	Yes; can be read out	Yes; can be read out		
• Diagnostic information readable	Yes		Yes		
• Wire break	Yes; a break in the wire is only detected for thermocouples	Yes	Yes; a break in the wire is only detected for thermocouples	Yes; only thermo- couples	Yes
• Group error	Yes	Yes	Yes	Yes	Yes
• Overflow/underflow	Yes	Yes	Yes	Yes	Yes
Diagnostic indication LED					
• Group error SF (red)	Yes	Yes	Yes	Yes	Yes
Isolation					
Isolation checked with	500 V DC	500 V DC	500 V DC	500 V DC	500 V DC
Galvanic isolation					
Galvanic isolation analog inputs					
• between the channels	No	No	No	No	No
• between the channels and the backplane bus	Yes	Yes	Yes	Yes	Yes
• between the channels and the load voltage L+					
Permissible potential difference					
between inputs and MANA (UCM)	2 V AC PP		2 V AC PP	140 V DC/100 V AC	
between MANA and M internally (UISO)	75 V DC / 60 V AC	75 V DC / 60 V AC	75 V DC / 60 V AC	75 V DC / 60 V AC	75 V DC / 60 V AC
Dimensions and weight					
Dimensions					
• Width	15 mm	15 mm	15 mm	15 mm	15 mm
• Height	81 mm	81 mm	81 mm	81 mm	81 mm
• Depth	52 mm	52 mm	52 mm	52 mm	52 mm
Weight					
• Weight, approx.	40 g	40 g	40 g	40 g	40 g