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Data sheet 6ES7134-6JF00-0CA1



SIMATIC ET 200SP, Analog input module, AI 8xRTD/TC 2-wire High Feature suitable for BU type A0, A1, Color code CC00, channel diagnostics, 16 bit, +/-0.1%



General information	
Product type designation	AI 8xRTD/TC 2-wire HF
HW functional status	FS22 or higher
Firmware version	V3.0.0
● FW update possible	Yes
usable BaseUnits	BU type A0, A1
Color code for module-specific color-coded label	CC00
Product function	
● I&M data	Yes; I&M0 to I&M3
● Isochronous mode	No
● Measuring range scalable	Yes
Engineering with	
● STEP 7 TIA Portal configurable/integrated from version	V21 HSP0495 / integrated as of V21.1
● STEP 7 configurable/integrated from version	V5.7 SP3 HF3 with HSP0348 V2.0 / integrated as of V5.8
● PCS 7 configurable/integrated from version	V10.1
● PROFIBUS from GSD version/GSD revision	One GSD file each, Revision 3 and 5 and higher
● PROFINET from GSD version/GSD revision	GSDML V2.45
Operating mode	
● Oversampling	No
● MSI	Yes
CiR - Configuration in RUN	
Reparameterization possible in RUN	Yes
Calibration possible in RUN	Yes
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Input current	
Current consumption (rated value)	34 mA
Current consumption, max.	35 mA
Power loss	
Power loss, typ.	0.75 W
Address area	
Address space per module	
● Address space per module, max.	16 byte; + 1 byte for QI information

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Hardware configuration	
Automatic encoding	Yes
● Mechanical coding element	Yes
● Type of mechanical coding element	Type A
Selection of BaseUnit for connection variants	
● 2-wire connection	BU type A0, A1
Analog inputs	
Number of analog inputs	8
● For voltage measurement	8
permissible input voltage for voltage input (destruction limit), max.	30 V
Constant measurement current for resistance-type transmitter, typ.	2 mA
Cycle time (all channels), min.	Sum of the basic conversion times and additional processing times (depending on the parameterization of the active channels)
Technical unit for temperature measurement adjustable	Yes; °C/°F/K
Input ranges (rated values), voltages	
● -1 V to +1 V	Yes; 16 bit incl. sign
— Input resistance (-1 V to +1 V)	1 MΩ
● -250 mV to +250 mV	Yes; 16 bit incl. sign
— Input resistance (-250 mV to +250 mV)	1 MΩ
● -50 mV to +50 mV	Yes; 16 bit incl. sign
— Input resistance (-50 mV to +50 mV)	1 MΩ
● -80 mV to +80 mV	Yes; 16 bit incl. sign
— Input resistance (-80 mV to +80 mV)	1 MΩ
Input ranges (rated values), thermocouples	
● Type B	Yes; 16 bit incl. sign
— Input resistance (Type B)	1 MΩ
● Type C	Yes; 16 bit incl. sign
— Input resistance (Type C)	1 MΩ
● Type E	Yes; 16 bit incl. sign
— Input resistance (Type E)	1 MΩ
● Type J	Yes; 16 bit incl. sign
— Input resistance (type J)	1 MΩ
● Type K	Yes; 16 bit incl. sign
— Input resistance (Type K)	1 MΩ
● Type L	Yes; 16 bit incl. sign
— Input resistance (Type L)	1 MΩ
● Type N	Yes; 16 bit incl. sign
— Input resistance (Type N)	1 MΩ
● Type R	Yes; 16 bit incl. sign
— Input resistance (Type R)	1 MΩ
● Type S	Yes; 16 bit incl. sign
— Input resistance (Type S)	1 MΩ
● Type T	Yes; 16 bit incl. sign
— Input resistance (Type T)	1 MΩ
● Type U	Yes; 16 bit incl. sign
— Input resistance (Type U)	1 MΩ
● Type TXK/TXK(L) to GOST	Yes; 16 bit incl. sign
— Input resistance (Type TXK/TXK(L) to GOST)	1 MΩ
Input ranges (rated values), resistance thermometer	
● Ni 100	Yes; 16 bit incl. sign
— Input resistance (Ni 100)	1 MΩ
● Ni 1000	Yes; 16 bit incl. sign
— Input resistance (Ni 1000)	1 MΩ
● LG-Ni 1000	Yes; 16 bit incl. sign
— Input resistance (LG-Ni 1000)	1 MΩ
● Ni 120	Yes; 16 bit incl. sign
— Input resistance (Ni 120)	1 MΩ
● Ni 200	Yes; 16 bit incl. sign

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— Input resistance (Ni 200)	1 MΩ
● Ni 500	Yes; 16 bit incl. sign
— Input resistance (Ni 500)	1 MΩ
● Pt 100	Yes; 16 bit incl. sign
— Input resistance (Pt 100)	1 MΩ
● Pt 1000	Yes; 16 bit incl. sign
— Input resistance (Pt 1000)	1 MΩ
● Pt 200	Yes; 16 bit incl. sign
— Input resistance (Pt 200)	1 MΩ
● Pt 500	Yes; 16 bit incl. sign
— Input resistance (Pt 500)	1 MΩ
Input ranges (rated values), resistors	
● 0 to 150 ohms	Yes; 15 bit
— Input resistance (0 to 150 ohms)	1 MΩ
● 0 to 300 ohms	Yes; 15 bit
— Input resistance (0 to 300 ohms)	1 MΩ
● 0 to 600 ohms	Yes; 15 bit
— Input resistance (0 to 600 ohms)	1 MΩ
● 0 to 3000 ohms	Yes; 15 bit
— Input resistance (0 to 3000 ohms)	1 MΩ
● 0 to 6000 ohms	Yes; 15 bit
— Input resistance (0 to 6000 ohms)	1 MΩ
● PTC	Yes; 15 bit
— Input resistance (PTC)	1 MΩ
Thermocouple (TC)	
Temperature compensation	
— Parameterizable	Yes
— Reference channel of the module	Yes
— internal comparison point	Yes; with BaseUnit type A1
— Reference channel of the group	Yes
— Number of reference channel groups	4; Group 0 to 3
— fixed reference temperature	Yes
Cable length	
● shielded, max.	200 m; 50 m with thermocouples
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
● Integration time, parameterizable	Yes
● Basic conversion time, including integration time (ms)	
— additional processing time for wire-break check	2 ms; In the ranges resistance thermometers, resistors and thermocouples
● Interference voltage suppression for interference frequency f1 in Hz	16.6 / 50 / 60 Hz
● Conversion time (per channel)	180 / 60 / 50 / (67.5 / 22.5 / 18.75) ms
Smoothing of measured values	
● Number of smoothing levels	4
● parameterizable	Yes
● Step: None	Yes
● Step: low	Yes; 4x smoothing
● Step: Medium	Yes; 8x smoothing
● Step: High	Yes; 16x smoothing
Encoder	
Connection of signal encoders	
● for voltage measurement	Yes
● for resistance measurement with two-wire connection	Yes
● for resistance measurement with three-wire connection	No
● for resistance measurement with four-wire connection	No
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.01 %; ±0.1 % for resistance thermometers and resistance

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Temperature error (relative to input range), (+/-)	0.0009 %/K; ±0.005 % / K at thermocouple
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	
● Voltage, relative to input range, (+/-)	0.1 %
● Resistance, relative to input range, (+/-)	0.1 %
Basic error limit (operational limit at 25 °C)	
● Voltage, relative to input range, (+/-)	0.05 %
● Resistance, relative to input range, (+/-)	0.05 %
Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency	
● Series mode interference (peak value of interference < rated value of input range), min.	70 dB; With conversion time 67.5 / 22.5 / 18.75 ms: 40 dB
● Common mode voltage, max.	10 V
● Common mode interference, min.	90 dB
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
● Diagnostic alarm	Yes
● Limit value alarm	Yes; two upper and two lower limit values in each case
Diagnoses	
● Monitoring the supply voltage	Yes
● Wire break	Yes; channel by channel
● Short-circuit	No
● Group error	Yes
● Overflow/Underflow	Yes; channel by channel
Diagnostics indication LED	
● Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED
● Channel status display	Yes; green LED
● for channel diagnostics	Yes; red LED
● for module diagnostics	Yes; green/red DIAG LED
Potential separation	
Potential separation channels	
● between the channels	No
● between the channels and backplane bus	Yes
● between the channels and the power supply of the electronics	Yes
Permissible potential difference	
between the inputs (UCM)	10 V DC
Isolation	
Isolation tested with	707 V DC (type test)
Standards, approvals, certificates	
Ecological footprint	
● environmental product declaration	Yes
Global warming potential	
— global warming potential, (total) [CO2 eq]	9.32 kg
— global warming potential, (during production) [CO2 eq]	4.97 kg
— global warming potential, (during operation) [CO2 eq]	4.79 kg
— global warming potential, (after end of life cycle) [CO2 eq]	-0.449 kg
Security	
signed firmware update	Yes; Firmware V3.0.0 or higher
Ambient conditions	
Ambient temperature during operation	
● horizontal installation, min.	-30 °C
● horizontal installation, max.	60 °C
● vertical installation, min.	-30 °C
● vertical installation, max.	50 °C

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Altitude during operation relating to sea level	
● Installation altitude above sea level, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Absolute humidity	
● dew point, min.	-60 °C; suitable for dry room applications

Dimensions	
Width	15 mm
Height	73 mm
Depth	58 mm

Weights	
Weight, approx.	32 g

Classifications

	Version	Classification
eClass	16	27-24-26-01
eClass	14	27-24-26-01
eClass	12	27-24-26-01
eClass	9.1	27-24-26-01
eClass	9	27-24-26-01
eClass	8	27-24-26-01
eClass	7.1	27-24-26-01
eClass	6	27-24-26-01
ETIM	10	EC001596
ETIM	9	EC001596
ETIM	8	EC001596
ETIM	7	EC001596
IDEA	4	3562
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval

Miscellaneous | Manufacturer Declaration | Metrological Approval

General Product Approval

China RoHS

General Product Approval	EMV	For use in hazardous locations			
			FM	CCC-Ex	

For use in hazardous locations				Maritime application	
Type Examination Certificate		Miscellaneous	CCC-Ex		

Maritime application

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DNV

LRS

NK / Nippon Kaiji Kyokai

RINA

RMRS

CCS (China Classification Society)

Maritime application	Environment
KR (Korean Register of Shipping)	

last modified: 3/30/2026

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