MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

SIEMENS

6ES7231-7PD22-0XA0

FOUR-CHANNEL THERMOCOUPLE INPUT MODULE

Used with the applicable SIMATIC S7-200 EM 231 configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Siemens 6ES7231-7PD22-0XA0 official product data; applicable specification pages.

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Data sheet 6ES7231-7PD22-0XA0

SIMATIC S7-200, T/C INPUT MOD. EM 231, FOR S7-22X CPU ONLY, 4 AI, +/-80 MV AND THERMOCOUPLE TYPE J,K,S,T,R,E,N; 15BIT+SIGN



Figure similar

Input current	
from load voltage L+ (without load), max.	60 mA
from backplane bus 5 V DC, max.	87 mA
Power loss	
Power loss, typ.	1.8 W
Analog inputs	
Number of analog inputs	4
permissible input voltage for voltage input (destruction limit), max.	30 V
Loop resistance cable	100 Ω
Updating time (all channels)	405 ms
Input ranges	
• Voltage	Yes
• Current	No
• Thermocouple	Yes
• Resistance thermometer	No

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• 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 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 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
Cable length	
• shielded, max.	100 m; to the sensor

Analog value generation for the inputs	
Measurement principle	Sigma Delta
Integration and conversion time/resolution per channel	
• Resolution with overrange (bit including sign), max.	16 bit; Temperature 0.1 °C / 0.1 °F
• Interference voltage suppression for interference frequency f1 in Hz	85 dB at 50 / 60 / 400 Hz

Errors/accuracies	
cold connection point	+/-1,5 °C
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 %
Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency	
• Common mode voltage, max.	120 V; AC
• Common mode interference, min.	120 dB; At 120 V DC

Interrupts/diagnostics/status information	
Diagnostics indication LED	
• external fault EXTF (red)	Yes
• Group error SF (red)	Yes

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Potential separation	
Potential separation analog inputs	
• Potential separation analog inputs	Yes

Permissible potential difference	
Between the inputs and MANA (UCM)	500 V AC
between M internally and the inputs	500 V AC

Connection method	
Plug-in I/O terminals	No

Dimensions	
Width	71.2 mm
Height	80 mm
Depth	62 mm

Weights	
Weight, approx.	210 g

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