



Figure similar

SIMATIC S7-200, Analog input EM 231, only for S7-22X CPU, 8 AI, +/-80 mV a. thermocouples Type J, K, S, T, R, E, N; 15 bit+sign

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	8
permissible input voltage for voltage input (destruction limit), max.	30 V
Loop resistance cable	100 Ω
Updating time (all channels)	810 ms
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 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	
<ul style="list-style-type: none"> Resolution with overrange (bit including sign), max. Interference voltage suppression for interference frequency f1 in Hz 	16 bit; Temperature 0.1 °C / 0.1 °F 85 dB at 50 / 60 / 400 Hz
Displayable conversion value range	
<ul style="list-style-type: none"> bipolar signals 	-27 648 to +27 648
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	
<ul style="list-style-type: none"> Voltage, relative to input range, (+/-) 	0.1 %
Interference voltage suppression for $f = n \times (f1 \pm 1 \%)$, f1 = interference frequency	
<ul style="list-style-type: none"> Common mode voltage, max. Common mode interference, min. 	120 V; AC 120 dB; At 120 V AC
Interrupts/diagnostics/status information	
Diagnostics indication LED	
<ul style="list-style-type: none"> external fault EXTF (red) Group error SF (red) 	Yes Yes
Potential separation	
Potential separation analog inputs	
<ul style="list-style-type: none"> 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 / header	
Plug-in I/O terminals	No
Dimensions	
Width	71.2 mm
Height	80 mm
Depth	62 mm
Weights	
Weight, approx.	210 g
last modified:	1/20/2021 