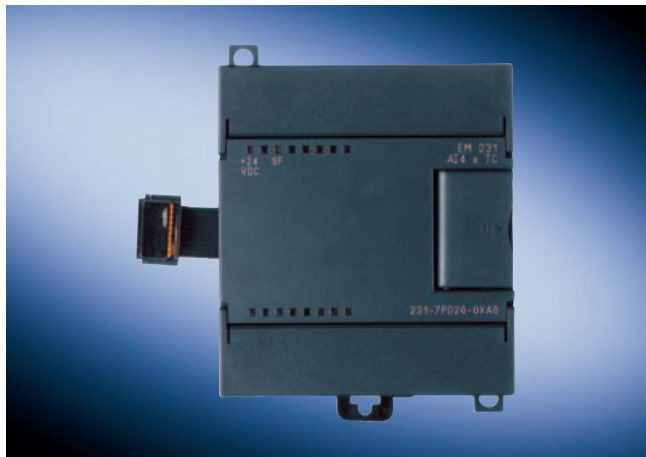


SIMATIC S7-200

Analog modules

EM 231 thermocouple module

Overview



- For user-friendly, high precision temperature detection
- 7 standard types of thermocouple can be used
- For measuring low-level analog signals (± 80 mV), as well
- Easy to install in an existing system

Technical specifications

6ES7 231-7PD22-0XA0	
Current consumption	
from load voltage L+ (without load), max.	60 mA
from backplane bus DC 5 V, max.	87 mA
Power loss, typ.	1.8 W
Connection point	
pluggable I/O terminals	No
Analog inputs	
Number of analog inputs	4
cable length, shielded, max.	100 m; to the sensor
permissible input frequency for voltage input (destruction limit), max.	30 V
Loop resistance cable	100 Ω
Updating time (all channels)	405 ms
Input ranges (rated values), voltages	
• -80 mV to +80 mV	Yes
Input ranges (rated values), thermoelements	
• Type E	Yes
• Type J	Yes
• Type K	Yes
• Type N	Yes
• Type R	Yes
• Type S	Yes
• Type T	Yes
Analog value creation	
Measurement principle	Sigma-Delta

6ES7 231-7PD22-0XA0	
Integrations and conversion time/resolution per channel	
<ul style="list-style-type: none"> • Resolution with overload area (bit including sign), max. • Interference voltage suppression for interference frequency f_1 in Hz 	16 Bit; Temperature 0.1 °C / 0.1 °F 85 dB at 50 / 60 / 400 Hz
Displayable conversion value range	
• bipolar signals	-27,648 to +27,648
Errors/accuracies	
cold connection point	+/-1.5 °C
Repeat accuracy in settled status at 25 °C (relative to input area)	+/- 0.05 %
Operational limit in overall temperature range	
• Voltage, relative to output area	+/- 0.1 %
Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, $f_1 =$ interference frequency	
• common mode voltage, max.	120 V; AC
• common mode voltage, min.	120 dB; at 120 V AC
Isolation	
Isolation, analog inputs	
• Isolation, analog inputs	Yes
Dimensions and weight	
Width	71.2 mm
Height	80 mm
Depth	62 mm
Weights	
Weight, approx.	210 g

Ordering data	Order No.
EM 231 thermocouple modules A)	6ES7 231-7PD22-0XA0
4 inputs +/- 80 mV, 15-bit resolution + sign, thermocouples type J, K, S, T, R, E, N	
Grounding terminal	6ES5 728-8MA11
10 items	
Backplane bus expansion cable A)	6ES7 290-6AA20-0XA0
for connecting the two equipment tiers in a two-tier configuration, for CPU 222/224/224 XP/226	
S7-200 programmable controller, system manual	see analog modules, page 3/37
for CPU 221/222/224/224 XP/226 and STEP 7-Micro/Win V4	

A) Subject to export regulations: AL: N and ECCN: EAR99H