



Figure similar

SIMATIC S7, analog input SM 331, isolated, 4 AE; 0/4 to 20 mA, 1 x 20-pole, for signals from the hazardous area, diagnostics-capable, PTB tested

Supply voltage	
Load voltage L+	
• Rated value (DC)	24 V
• Reverse polarity protection	Yes
Input current	
from load voltage L+ (without load), max.	250 mA
from backplane bus 5 V DC, max.	60 mA
output voltage / header	
supply voltage of the transmitters / header	
• Rated value (DC)	13 V; at 22 mA
Power loss	
Power loss, typ.	3 W
Analog inputs	
Number of analog inputs	4
permissible input current for current input (destruction limit), max.	40 mA
Input ranges	
• Voltage	No
• Current	Yes
• Thermocouple	No
• Resistance thermometer	No
• Resistance	No
Input ranges (rated values), currents	
• 0 to 20 mA	Yes
— Input resistance (0 to 20 mA)	50 Ω
• 4 mA to 20 mA	Yes
— Input resistance (4 mA to 20 mA)	50 Ω
Cable length	
• shielded, max.	200 m
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
• Resolution with overrange (bit including sign), max.	16 bit; 10 bit to 15 bit + sign
• Integration time, parameterizable	Yes; 2.5 to 100 ms
• Interference voltage suppression for interference frequency f1 in Hz	10 to 400 Hz
Encoder	
Connection of signal encoders	
• for current measurement as 2-wire transducer	Yes
• for current measurement as 4-wire transducer	Yes

Errors/accuracies			
Operational error limit in overall temperature range			
• Current, relative to input range, (+/-)	0.45 %		
Basic error limit (operational limit at 25 °C)			
• Current, relative to input range, (+/-)	0.1 %		
Interrupts/diagnostics/status information			
Diagnostics function	Yes		
Diagnoses			
• Diagnostic information readable	Yes		
• Overrange	Yes		
• Wire-break in signal transmitter cable	Yes		
• Short-circuit of the signal encoder cable	Yes		
Diagnostics indication LED			
• Group error SF (red)	Yes		
• Channel fault indicator F (red)	Yes		
Ex(i) characteristics			
Module for Ex(i) protection	Yes		
maximum values for connecting terminals for gas group IIC			
• Uo (no-load voltage), max.	25.2 V		
• Io (short-circuit current), max.	68.5 mA		
• Po (power output), max.	431 mW		
• Co (permissible external capacity), max.	90 nF		
• Lo (permissible external inductivity), max.	7.5 mH		
Potential separation			
Potential separation analog inputs			
• between the channels	Yes		
• between the channels and backplane bus	Yes		
Standards, approvals, certificates			
Use in hazardous areas			
• ATEX marking	ATEX II 3 G (2) GD Ex nA [ib Gb] [ib IIIC Db] IIC T4 Gc		
• FM marking	Class I, Division 2, Group A, B, C, D T4		
• Test number PTB	Ex-96.D.2092X		
Ambient conditions			
Ambient temperature during operation			
• max.	60 °C		
connection method			
required front connector	20-pin		
Dimensions			
Width	40 mm		
Height	125 mm		
Depth	120 mm		
Weights			
Weight, approx.	290 g		
Classifications			
		Version	Classification
	eClass	14	27-24-22-01
	eClass	12	27-24-22-01
	eClass	9.1	27-24-22-01
	eClass	9	27-24-22-01
	eClass	8	27-24-22-01
	eClass	7.1	27-24-22-01
	eClass	6	27-24-22-01
	ETIM	9	EC001420
	ETIM	8	EC001420
	ETIM	7	EC001420
	IDEA	4	3562
	UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval



[Miscellaneous](#)

[Manufacturer Declaration](#)



[Metrological Approval](#)

General Product Approval	For use in hazardous locations
--------------------------	--------------------------------



[FM](#)



For use in hazardous locations	Maritime application
--------------------------------	----------------------



[NK / Nippon Kaiji Kyokai](#)



last modified: 4/7/2025