SIEMENS

Data sheet 6ES7331-7TB00-0AB0



********** Replacement part ********* SIMATIC DP, HART analog input SM 331, 2 AI, 0/4 - 20 mA HART, to HART rev. 5.0, for ET200M with IM 153-2, 1 x 20-pole

Supply voltage	
Load voltage L+	
● Rated value (DC)	24 V
● Reverse polarity protection	Yes
Input current	
from load voltage L+ (without load), max.	180 mA
from backplane bus 5 V DC, max.	100 mA
output voltage / header	
supply voltage of the transmitters / header	
● present	Yes
● supply voltage / of the transmitters / at DC / rated value	15 V; at 22 mA
● short-circuit proof	Yes; approx. 30 mA
● No-load voltage (DC)	29.6 V
Power loss	
Power loss, typ.	4.5 W
Analog inputs	
Number of analog inputs	2
permissible input current for current input (destruction limit), max.	40 mA
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.	400 m
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; 10 bit to 15 bit + sign
● Integration time, parameterizable	Yes
● Integration time (ms)	2,5 / 16,67 / 20 / 100 ms
● Basic conversion time, including integration time (ms)	2.5 / 16.67 / 20 / 100 (1 channel enabled); 7.5 / 50 / 60 / 300 (2 channels enabled)
● Interference voltage suppression for interference frequency f1 in Hz	10 / 50 / 60 / 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	

Subject to change without notice
© Copyright Siemens

Operational error limit in overall temperature range	
● Current, relative to input range, (+/-)	0.45 %; From 0/4 to 20 mA
Basic error limit (operational limit at 25 °C)	
● Current, relative to input range, (+/-)	0.1 %; From 0/4 to 20 mA
Interrupts/diagnostics/status information	
Diagnostics function	Yes; can be set in parameters, red LED, alarm message
Alarms	
● Diagnostic alarm	Yes; Parameterizable
● Limit value alarm	Yes; Parameterizable, channels 0 and 1
Diagnoses	
● Overrange	Yes; red LED, signal
● Wire-break in signal transmitter cable	Yes; red LED, signal
● Short-circuit of the signal encoder cable	Yes; red LED, signal
● HART communication active	Yes; green LED (H)
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.	26 V
● Io (short-circuit current), max.	96.1 mA
● Po (power output), max.	511 mW
● Co (permissible external capacity), max.	62 nF
● Lo (permissible external inductivity), max.	3 mH
● Um (voltage at non-intrinsically safe connecting terminals), max.	250 V; DC
Potential separation	
Potential separation analog inputs	
● between the channels	Yes
● between the channels and backplane bus	Yes
Permissible potential difference	
between the inputs (UCM)	60 V DC/30 V AC
Standards, approvals, certificates	
FM approval	Available soon
Use in hazardous areas	
● ATEX marking	II3 (2) G Eex nA [ib] IIC T4
● ATEX certificate	KEMA 97 ATEX 3039X
● FM marking	Class I, Division 2, Group A, B, C, D T4; Class I, Zone 2, Group IIC T4
Ambient conditions	
Ambient temperature during operation	
● min.	0 °C
● max.	60 °C
Dimensions	
Width	40 mm
Height	125 mm
Depth	120 mm
Weights	
Weight, approx.	260 g

last modified: 9/11/2023

Subject to change without notice
© Copyright Siemens