

SIMATIC DP, HART analog input SM 331, 8 AI, 0/4 - 20 mA HART, for ET200M with IM153-2, 1 x 20-pole, Functions: FW update, HART auxiliary variables, redundancy, local diagnostic buffer with time stamping,



Figure similar

Supply voltage	
Load voltage L+	
• Rated value (DC)	24 V
• Reverse polarity protection	Yes
Input current	
from load voltage L+ (without load), max.	20 mA
from backplane bus 5 V DC, max.	120 mA
Output voltage	
Power supply to the transmitters	
• present	Yes
• Rated value (DC)	24 V
• short-circuit proof	Yes
• Supply current, max.	60 mA
Power loss	
Power loss, typ.	1.5 W

Analog inputs

Number of analog inputs	8
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)	140 Ω
• Input resistance (-20 mA to +20 mA)	140 Ω
• Input resistance (4 mA to 20 mA)	140 Ω
Cable length	
• shielded, max.	800 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
• Integration time, parameterizable	Yes
• Integration time (ms)	20 ms at 50 Hz; 16.6 ms at 60 Hz; 100 ms at 100 Hz
• Basic conversion time, including integration time (ms)	55 ms @ 60 Hz, 65 ms @ 50 Hz, 305 ms @ 100 Hz
• Interference voltage suppression for interference frequency f1 in Hz	10 / 50 / 60 Hz
Smoothing of measured values	
• parameterizable	Yes
• Step: None	Yes
• Step: low	Yes
• Step: Medium	Yes
• Step: High	Yes

Encoder

Connection of signal encoders	
• for current measurement as 2-wire transducer	Yes
• for current measurement as 4-wire transducer	Yes

Errors/accuracies

Linearity error (relative to input range), (+/-)	0.01 %
Temperature error (relative to input range), (+/-)	0.001 %/K
Crosstalk between the inputs, min.	70 dB
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.1 %
Operational error limit in overall temperature range	
• Current, relative to input range, (+/-)	0.15 %
Basic error limit (operational limit at 25 °C)	
• Current, relative to input range, (+/-)	0.1 %

Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, $f_1 =$ interference frequency	
<ul style="list-style-type: none"> • Series mode interference (peak value of interference < rated value of input range), min. 	40 dB
<ul style="list-style-type: none"> • Common mode interference, min. 	100 dB
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	No
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
<ul style="list-style-type: none"> • Diagnostic alarm 	Yes
<ul style="list-style-type: none"> • Limit value alarm 	Yes
Diagnostic messages	
<ul style="list-style-type: none"> • Diagnostic information readable 	Yes
Diagnostics indication LED	
<ul style="list-style-type: none"> • Group error SF (red) 	Yes
<ul style="list-style-type: none"> • Channel fault indicator F (red) 	Yes
Potential separation	
Potential separation analog inputs	
<ul style="list-style-type: none"> • between the channels 	No
<ul style="list-style-type: none"> • between the channels and backplane bus 	Yes
Isolation	
Isolation tested with	500 V DC
Degree and class of protection	
IP degree of protection	IP20
Connection method	
required front connector	20-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	117 mm
Weights	
Weight, approx.	205 g
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