



SIMATIC DP, HART ANALOG INPUT SM 331,  
 8 AI, 0/4 - 20MA HART,  
 FOR ET200M WITH IM153-2, 1 X 20-POLE,  
 FEATURES: FW UPDATE,  
 HART SECONDARY VARIABLES, REDUNDANCY,  
 LOCAL DIAGNOSTIC BUFFER WITH TIMESTAMP,

<b>Supply voltage</b>	
<b>Load voltage L+</b>	
Rated value (DC)	24 V
Reverse polarity protection	Yes
<b>Input current</b>	
from load voltage L+ (without load), max.	20 mA
from backplane bus 5 V DC, max.	120 mA
<b>Output voltage</b>	
<b>Power supply to the transmitters</b>	
present	Yes
Rated value (DC)	24 V
short-circuit proof	Yes
<b>Power losses</b>	
Power loss, typ.	1.5 W
<b>Analog inputs</b>	
Number of analog inputs	8
permissible input current for current input (destruction limit), max.	40 mA
<b>Input ranges</b>	

Voltage	No
Current	Yes
Thermocouple	No
Resistance thermometer	No
Resistance	No
<b>Input ranges (rated values), currents</b>	
0 to 20 mA	Yes
Input resistance (0 to 20 mA)	240 Ω
Input resistance (-20 to +20 mA)	240 Ω
Input resistance (4 to 20 mA)	240 Ω
<b>Cable length</b>	
Cable length, shielded, max.	800 m
<b>Analog value creation</b>	
Measurement principle	Sigma Delta
<b>Integrations and conversion time/ resolution per channel</b>	
Resolution with overrange (bit including sign), max.	16 bit
Integration time, parameterizable	Yes
Integration time, ms	20 ms@50 Hz/16.6 ms@60 Hz/100 ms@100 Hz
Basic conversion time, including integration time, ms	65ms@50Hz / 55ms@60Hz / 305ms@100Hz
<b>Encoder</b>	
<b>Connection of signal encoders</b>	
for current measurement as 2-wire transducer	Yes
for current measurement as 4-wire transducer	Yes
<b>Errors/accuracies</b>	
Linearity error (relative to input area)	+/- 0.01 %
Temperature error (relative to input area)	+/- 0.001 %/K
Crosstalk between the inputs, min.	70 dB
Repeat accuracy in settled status at 25 °C (relative to input area)	+/- 0.1 %
<b>Operational limit in overall temperature range</b>	
Current, relative to input area	+/- 0,15 %
<b>Basic error limit (operational limit at 25 °C)</b>	
Current, relative to input area	+/- 0,1 %
<b>Interference voltage suppression for <math>f = n \times (f_1 \pm 1 \%)</math>, <math>f_1 =</math> interference frequency</b>	
Series mode interference (peak value of interference < rated value of input range), min.	40 dB
Common mode interference, min.	100 dB
<b>Isochronous mode</b>	
Isochronous operation (application synchronized up to terminal)	No

<b>Interrupts/diagnostics/status information</b>	
<b>Alarms</b>	
Diagnostic alarm	Yes
Limit value alarm	Yes
<b>Diagnostic messages</b>	
Diagnostic functions	Yes
Diagnostic information readable	Yes
Diagnostics	Yes
Group error	Yes
<b>Diagnostics indication LED</b>	
Group error SF (red)	Yes
<b>Galvanic isolation</b>	
<b>Galvanic isolation analog inputs</b>	
between the channels	No
between the channels, in groups of	8
between the channels and the backplane bus	Yes
<b>Isolation</b>	
Isolation checked with	500
<b>Connection method</b>	
required front connector	20-pin
<b>Dimensions</b>	
Width	40 mm
Height	125 mm
Depth	117 mm
<b>Weights</b>	
Weight, approx.	205 g

Status Sep 2, 2013