



Figure similar

SIMATIC DP, HART analog input SM 331, 2 AI, 0/4 - 20 mA HART, as of 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	
Power supply to the transmitters	
• present	Yes
• Rated value (DC)	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
• Basic conversion time, including integration time (ms)	2.5 / 16.67 / 20 / 100 (1 channel enabled); 7.5 / 50 / 60 / 300 (2 channels enabled)
Encoder	
Connection of signal encoders	
• for current measurement as 2-wire transducer	Yes

• for current measurement as 4-wire transducer	Yes
<b>Errors/accuracies</b>	
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
<b>Interrupts/diagnostics/status information</b>	
Diagnostics function	Yes; Parameterizable
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
<b>Ex(i) characteristics</b>	
Module for Ex(i) protection	Yes
Max. values of input circuits for gas group IIC (per channel)	
• Co (permissible external capacity), max.	62 nF
• Io (short-circuit current), max.	96.1 mA
• Lo (permissible external inductivity), max.	3 mH
• Po (power of load), max.	511 mW
• Uo (output no-load voltage), max.	26 V
• Um (fault voltage), max.	250 V; DC
• Ta (permissible ambient temperature), max.	60 °C
<b>Potential separation</b>	
Potential separation analog inputs	
• between the channels	Yes
• between the channels and backplane bus	Yes
<b>Permissible potential difference</b>	
between the inputs (UCM)	60 V DC/30 V AC permitted potential difference (Viso) of signals from hazardous areas
<b>Isolation</b>	
tested with	
• Channels against backplane bus and load voltage L+	2 500 V DC
• Between channels	2 500 V DC
• Load voltage L+ against backplane bus	500 V DC
<b>Standards, approvals, certificates</b>	
CE mark	Yes
UL approval	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
Use in hazardous areas	
• Type of protection acc. to FM	Class I, Division 2, Group A, B, C, D T4; Class I, Zone 2, Group IIC T4
• Test number KEMA	DEKRA 14 ATEX 0052X
<b>Ambient conditions</b>	
Ambient temperature during operation	
• min.	0 °C
• max.	60 °C
<b>Connection method</b>	

required front connector	1x 20-pin
<b>Dimensions</b>	
Width	40 mm
Height	125 mm
Depth	120 mm
<b>Weights</b>	
Weight, approx.	260 g
<b>last modified:</b>	1/16/2021 