



SIMATIC ET 200SP HA, analog HART input module, AI 16xI 2-wire HART HA, suitable for terminal block H1, M1, color code CC01, channel diagnostics, 16-bit, +/-0.1%,

General information	
Product type designation	AI 16 x I 2-wire mA HART
Firmware version	V1.1
<ul style="list-style-type: none"> <li>FW update possible</li> </ul>	Yes; The firmware update can take more than 5 minutes.
Usable terminal block	TB type H1, M1, P0 and N0
Color code for module-specific color identification plate	CC01
Product function	
<ul style="list-style-type: none"> <li>I&amp;M data</li> </ul>	Yes; I&M0 to I&M3
Engineering with	
<ul style="list-style-type: none"> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	V16
<ul style="list-style-type: none"> <li>STEP 7 configurable/integrated from version</li> </ul>	V5.6
<ul style="list-style-type: none"> <li>PCS 7 configurable/integrated from version</li> </ul>	V9.0
<ul style="list-style-type: none"> <li>PCS neo can be configured/integrated from version</li> </ul>	V3.0
<ul style="list-style-type: none"> <li>PROFINET from GSD version/GSD revision</li> </ul>	GSDML V2.3
Redundancy	
<ul style="list-style-type: none"> <li>Redundancy capability</li> </ul>	Yes; With TB type M1
CIR - Configuration in RUN	
Reparameterization possible in RUN	Yes
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Input current	
Current consumption (rated value)	80 mA; without sensor supply
Current consumption, max.	90 mA; without sensor supply
Encoder supply	
24 V encoder supply	
<ul style="list-style-type: none"> <li>24 V</li> </ul>	Yes
<ul style="list-style-type: none"> <li>Short-circuit protection</li> </ul>	Yes; Electronic (response threshold 0.7 A to 1.5 A)
<ul style="list-style-type: none"> <li>Output current per channel, max.</li> </ul>	0.5 A
<ul style="list-style-type: none"> <li>Output current per module, max.</li> </ul>	2 A
Power loss	
Power loss, typ.	4.5 W; without sensor supply
Address area	
Address space per module	
<ul style="list-style-type: none"> <li>Address space per module, max.</li> </ul>	34 byte; 32-byte inputs and 2 bytes for QI information
<ul style="list-style-type: none"> <li>Address space per module with HART, max.</li> </ul>	74 byte; 32-byte inputs and 2 bytes for QI information, 40-byte inputs for HART
<ul style="list-style-type: none"> <li>Address space per module with MultiHART, max.</li> </ul>	41 byte; 32-byte inputs for HART and 2 bytes for QI information, 6-byte inputs for HART, and 1-byte output for MultiHART command

Analog inputs	
Number of analog inputs	16
permissible input current for current input (destruction limit), max.	30 mA
Input ranges (rated values), currents	
<ul style="list-style-type: none"> <li>• 0 to 20 mA <ul style="list-style-type: none"> <li>— Input resistance (0 to 20 mA)</li> </ul> </li> <li>• 4 mA to 20 mA <ul style="list-style-type: none"> <li>— Input resistance (4 mA to 20 mA)</li> </ul> </li> </ul>	Yes; 16 bit incl. sign 250 Ω Yes; 16 bit incl. sign 250 Ω
Cable length	
<ul style="list-style-type: none"> <li>• shielded, max.</li> </ul>	800 m; with unshielded cables up to 800 m, remember that (external) EMC loads can cause incorrect measured values
Analog value generation for the inputs	
Measurement principle	integrating (Sigma-Delta)
Integration and conversion time/resolution per channel	
<ul style="list-style-type: none"> <li>• Resolution with overrange (bit including sign), max.</li> <li>• Integration time, parameterizable</li> </ul>	16 bit; 15 bit at 0 ... 10 mA and 60 Hz interference suppression Yes; channel by channel
Smoothing of measured values	
<ul style="list-style-type: none"> <li>• parameterizable</li> </ul>	Yes; none, weak, medium, strong, channel-by-channel
Encoder	
Connection of signal encoders	
<ul style="list-style-type: none"> <li>• for current measurement as 2-wire transducer</li> </ul>	Yes
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.01 %
Temperature error (relative to input range), (+/-)	0.005 %/K
Crosstalk between the inputs, min.	60 dB
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.05 %
Operational error limit in overall temperature range	
<ul style="list-style-type: none"> <li>• Current, relative to input range, (+/-)</li> </ul>	0.5 %
Basic error limit (operational limit at 25 °C)	
<ul style="list-style-type: none"> <li>• Current, relative to input range, (+/-)</li> </ul>	0.1 %
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
<ul style="list-style-type: none"> <li>• Diagnostic alarm</li> <li>• Limit value alarm</li> </ul>	Yes Yes; two upper and two lower limit values in each case
Diagnoses	
<ul style="list-style-type: none"> <li>• Monitoring the supply voltage</li> <li>• Wire-break</li> <li>• Short-circuit</li> <li>• Overflow/underflow</li> </ul>	Yes Yes; channel by channel Yes; Channel-by-channel, short-circuit of the encoder supply to ground or of an input to the encoder supply Yes; channel by channel
Diagnostics indication LED	
<ul style="list-style-type: none"> <li>• MAINT LED</li> <li>• Monitoring of the supply voltage (PWR-LED)</li> <li>• Channel status display</li> <li>• for channel diagnostics</li> <li>• for module diagnostics</li> </ul>	Yes; Yellow LED Yes; green PWR LED Yes; green LED Yes; red LED Yes; green/red DIAG LED
Potential separation	
Potential separation channels	
<ul style="list-style-type: none"> <li>• between the channels</li> <li>• between the channels and backplane bus</li> <li>• Between the channels and load voltage L+</li> </ul>	No Yes No
Isolation	
Isolation tested with	1 500 V DC/1 min, type test
Ambient conditions	
Ambient temperature during operation	
<ul style="list-style-type: none"> <li>• horizontal installation, min.</li> <li>• horizontal installation, max.</li> <li>• vertical installation, min.</li> </ul>	-40 °C 70 °C; Observe derating -40 °C

• vertical installation, max.

60 °C; Observe derating

#### Dimensions

Width	22.5 mm
Height	115 mm
Depth	138 mm

#### Weights

Weight, approx.	148 g
-----------------	-------

**last modified:**

3/12/2024 