

Siemens
EcoTech



SIMATIC ET 200SP HA, analog HART input module, AI 16xI 2-wire mA 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"> FW update possible 	Yes; The firmware update can take more than 5 minutes.
Usable terminal block	type H1, M1, N0, H0, M0 (for details see the system manual)
Color code for module-specific color-coded label	CC01
Product function	
<ul style="list-style-type: none"> I&M data 	Yes; I&M0 to I&M3
Engineering with	
<ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated from version 	V16
<ul style="list-style-type: none"> STEP 7 configurable/integrated from version 	V5.6
<ul style="list-style-type: none"> PCS 7 configurable/integrated from version 	V9.0
<ul style="list-style-type: none"> PCS neo can be configured/integrated from version 	V3.0
<ul style="list-style-type: none"> PROFINET from GSD version/GSD revision 	GSDML V2.3
Redundancy	
<ul style="list-style-type: none"> Redundancy capability 	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"> 24 V 	Yes
<ul style="list-style-type: none"> Short-circuit protection 	Yes; Electronic (response threshold 0.7 A to 1.5 A)
<ul style="list-style-type: none"> Output current per channel, max. 	0.5 A
<ul style="list-style-type: none"> Output current per module, max. 	2 A
Power loss	
Power loss, typ.	4.5 W; without sensor supply
Address area	
Address space per module	

• Address space per module, max.	34 byte; 32-byte inputs and 2 bytes for QI information
• Address space per module with HART, max.	74 byte; 32-byte inputs and 2 bytes for QI information, 40-byte inputs for HART
• Address space per module with MultiHART, max.	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	
• 0 to 20 mA — Input resistance (0 to 20 mA)	Yes; 16 bit incl. sign 250 Ω
• 4 mA to 20 mA — Input resistance (4 mA to 20 mA)	Yes; 16 bit incl. sign 250 Ω
Cable length	
• shielded, max.	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	
• Resolution with overrange (bit including sign), max.	16 bit; 15 bit at 0 ... 10 mA and 60 Hz interference suppression
• Integration time, parameterizable	Yes; channel by channel
Smoothing of measured values	
• parameterizable	Yes; none, weak, medium, strong, channel-by-channel

Encoder

Connection of signal encoders	
• for current measurement as 2-wire transducer	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	
• Current, relative to input range, (+/-)	0.5 %
Basic error limit (operational limit at 25 °C)	
• Current, relative to input range, (+/-)	0.1 %

Interrupts/diagnostics/status information

Diagnostics function	Yes
Alarms	
• Diagnostic alarm	Yes
• Limit value alarm	Yes; two upper and two lower limit values in each case
Diagnoses	
• Monitoring the supply voltage	Yes
• Wire-break	Yes; channel by channel
• Short-circuit	Yes; Channel-by-channel, short-circuit of the encoder supply to ground or of an input to the encoder supply
• Overflow/underflow	Yes; channel by channel
Diagnostics indication LED	
• MAINT LED	Yes; Yellow LED
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED
• Channel status display	Yes; green LED
• for channel diagnostics	Yes; red LED
• for module diagnostics	Yes; green/red DIAG LED

Potential separation

Potential separation channels	
• between the channels	No
• between the channels and backplane bus	Yes
• Between the channels and load voltage L+	No

Isolation

Isolation tested with	1 500 V DC/1 min, type test
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Ambient conditions

Ambient temperature during operation	
• horizontal installation, min.	-40 °C
• horizontal installation, max.	70 °C; Observe derating
• vertical installation, min.	-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
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Classifications

	Version	Classification
eClass	14	27-24-26-01
eClass	12	27-24-26-01
eClass	9.1	27-24-26-01
eClass	9	27-24-26-01
eClass	8	27-24-26-01
eClass	7.1	27-24-26-01
eClass	6	27-24-26-01
ETIM	10	EC001596
ETIM	9	EC001596
ETIM	8	EC001596
ETIM	7	EC001596

Approvals / Certificates

General Product Approval



[Miscellaneous](#)



[China RoHS](#)



General Product Approval **For use in hazardous locations**



[Declaration of Conformity](#)



For use in hazardous locations **Maritime application**



[Miscellaneous](#)



Maritime application **Environment**



[NK / Nippon Kaiji Kyokai](#)



[CCS \(China Classification Society\)](#)



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