

SIMATIC ET 200SP, ANALOG HART INPUT MODULE, AI 4XI 2-WIRE HART HIGH FEATURE FITS TO BU-TYPE A0, A1, COLOR CODE CC03, CHANNEL DIAGNOSIS, 16BIT, +/-0.3%

General information

Firmware version	V1.0
<ul style="list-style-type: none"> FW update possible 	Yes
usable BaseUnits	BU type A0, A1
Color code for module-specific color identification plate	CC03

Product function

<ul style="list-style-type: none"> I&M data 	Yes; I&M0 to I&M3
<ul style="list-style-type: none"> Measuring range scalable 	No

Engineering with

<ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated as of version 	V13 SP1
<ul style="list-style-type: none"> STEP 7 configurable/integrated as of version 	V5.5 SP4 and higher
<ul style="list-style-type: none"> PCS 7 configurable/integrated as of version 	V8.1 SP1
<ul style="list-style-type: none"> PROFIBUS as of GSD version/GSD revision 	GSD Revision 5
<ul style="list-style-type: none"> PROFINET as of GSD version/GSD revision 	GSDML V2.3

Operating mode

<ul style="list-style-type: none"> Oversampling 	No
<ul style="list-style-type: none"> MSI 	No

CiR – Configuration in RUN

Reparameterization possible in RUN	Yes
Calibration possible in RUN	No

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, max.	25 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

- Output current, max. 20 mA; max. 50 mA per channel for a duration < 10 s

Power loss

Power loss, typ. 0.65 W; without sensor supply

Address area

Address space per module

- Address space per module, max. 8 byte; + 1 byte for QI information
- Address space per module with HART, max. 28 byte; + 1 byte for QI information

Analog inputs

Number of analog inputs 4; Differential inputs

- For current measurement 4

permissible input current for current input (destruction limit), max. 50 mA

Input ranges (rated values), currents

- 0 to 20 mA No
- -20 mA to +20 mA No
- 4 mA to 20 mA Yes; 15 bit + sign
- Input resistance (4 mA to 20 mA) 280 Ω; + approx. 0.35 V diode forward voltage

Cable length

- shielded, max. 800 m

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
- Integration time, parameterizable Yes; channel by channel
- Interference voltage suppression for interference frequency f1 in Hz 10 / 50 / 60 Hz

Smoothing of measured values

- Number of smoothing levels 4; None; 4/8/16 times
- parameterizable Yes

Encoder

Connection of signal encoders

- for voltage measurement No
- 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, (+/-)	0.3 %
Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, $f_1 =$ interference frequency	
• Series mode interference (peak value of interference < rated value of input range), min.	60 dB
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	No
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
• Diagnostic alarm	Yes
• Limit value alarm	Yes
Diagnostic messages	
• 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
• Group error	Yes
• Overflow/underflow	Yes; channel by channel
Diagnostics indication 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 the power supply of the electronics	No
Isolation	
Isolation tested with	707 V DC (type test)
Dimensions	
Width	15 mm
Height	73 mm
Depth	58 mm
Weights	

Weight, approx.

31 g

last modified:

09/20/2017

