

SIMATIC ET 200SP, ANALOG INPUT MODULE, AI 2 X SG 4-/6-WIRE HIGH SPEED, FITS TO BU-TYPE A0, COLOR CODE CC00, CHANNEL DIAGNOSIS, 28/16BIT, +/-0,05%, FOR STRAIN GAUGE FULL BRIDGES



General information	
Product type designation	AI 2xSG 4-/6-wire HS
HW functional status	01
Firmware version	V1.0.0
<ul style="list-style-type: none"> <li>FW update possible</li> </ul>	Yes
usable BaseUnits	BU type A0
Color code for module-specific color identification plate	CC00
Product function	
<ul style="list-style-type: none"> <li>I&amp;M data</li> </ul>	Yes; I&M0 to I&M3
<ul style="list-style-type: none"> <li>Measuring range scalable</li> </ul>	Yes
<ul style="list-style-type: none"> <li>Scalable measured values</li> </ul>	No
<ul style="list-style-type: none"> <li>Adjustment of measuring range</li> </ul>	Yes; $\pm 0.5 \dots 320$ mV/V
Engineering with	
<ul style="list-style-type: none"> <li>STEP 7 TIA Portal configurable/integrated as of version</li> </ul>	V14 SP1
<ul style="list-style-type: none"> <li>STEP 7 configurable/integrated as of version</li> </ul>	V5.6
<ul style="list-style-type: none"> <li>PROFIBUS as of GSD version/GSD revision</li> </ul>	V03.01.105
<ul style="list-style-type: none"> <li>PROFINET as of GSD version/GSD revision</li> </ul>	GSDML V2.33

<b>Operating mode</b>	
• Oversampling	Yes; 2 channels per module
• MSI	No
<b>CiR – Configuration in RUN</b>	
Reparameterization possible in RUN	Yes
Calibration possible in RUN	No
<b>Supply voltage</b>	
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
<b>Input current</b>	
Current consumption (rated value)	70 mA
<b>Encoder supply</b>	
Output voltage (DC)	4.85 V
Short-circuit protection	Yes
<b>Output current</b>	
• Rated value	60 mA; Per channel
<b>Power</b>	
Power available from the backplane bus	65 mW
<b>Power loss</b>	
Power loss, typ.	1.5 W
<b>Address area</b>	
Address space per module	
• Address space per module, max.	32 byte
• Inputs	32 byte
• Outputs	8 byte
<b>Hardware configuration</b>	
Automatic encoding	
• Mechanical coding element	Yes
<b>Analog inputs</b>	
Number of analog inputs	2; Differential inputs
Cycle time (all channels), min.	100 $\mu$ s
Analog input with oversampling	
• Values per cycle, max.	14
• Resolution, min.	100 $\mu$ s
<b>Input ranges</b>	
• Strain gauges (full bridges)	Yes
<b>Cable length</b>	

- shielded, max.

500 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.	28 bit; 16 bits with oversampling
• Integration time, parameterizable	Yes
• Interference voltage suppression for interference frequency f1 in Hz	60 / 50 Hz / no
• Conversion time (per channel)	100 µs
Smoothing of measured values	
• IIR low-pass filter frequency	0.01 ... 600 Hz
• IIR low-pass filter ordinal number	1 ... 4
• Notch filter frequency	0.1 ... 1 000 Hz
• Notch filter quality	5.00 ... 250.00
• Average value filter	0.1 ... 655.3 ms

### Encoder

Connection of signal encoders	
• For strain gauges (full bridges) with 4-conductor connection	Yes
• For strain gauges (full bridges) with 6-conductor connection	Yes
• Resistance of full bridge, min.	80 Ω
• Resistance of full bridge, max.	5 000 Ω

### Errors/accuracies

Linearity error (relative to input range), (+/-)	0.025 %
Temperature error (relative to input range), (+/-)	0.0005 %/°C; Strain gauge full bridge, 6-conductor connection
Temperature coefficient, zero point	≤ ±0.25 µV/K
Temperature coefficient, span, 4-conductor connection (referred to end value)	≤ ±5 ppm/K
Temperature coefficient, span, 6-conductor connection (referred to end value)	≤ ±10 ppm/K
Basic error limit (operational limit at 25 °C)	
• Voltage, relative to input range, (+/-)	0.05 %; See manual for details

### Isochronous mode

Isochronous operation (application synchronized up to terminal)	Yes
Filtering and processing time (TCI), min.	87 µs
Bus cycle time (TDP), min.	125 µs

### Interrupts/diagnostics/status information

Diagnostics function	Yes
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Alarms	
• Diagnostic alarm	Yes
• Limit value alarm	Yes; two upper and two lower limit values in each case
Diagnostic messages	
• Monitoring the supply voltage	Yes
• Wire-break	Yes
• Short-circuit	Yes
• Group error	Yes
• Overflow/underflow	Yes
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	Yes
Isolation	
Isolation tested with	707 V DC (type test)
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	-25 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	-25 °C
• vertical installation, max.	50 °C
Altitude during operation relating to sea level	
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax – 1 K/100 m) at 795 hPa ... 701 hPa (+2 000 m ... +3 000 m)
Dimensions	
Width	15 mm
Height	73 mm
Depth	58 mm
Weights	
Weight, approx.	45 g
<b>last modified:</b>	02/13/2019