



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	V1.0.1
• FW update possible	Yes
usable BaseUnits	BU type A0
Color code for module-specific color identification plate	CC00
Product function	
• I&M data	Yes; I&M0 to I&M3
• Isochronous mode	Yes
• Measuring range scalable	Yes
• Scalable measured values	No
• Adjustment of measuring range	Yes; ±0.5 ... 320 mV/V
Engineering with	
• STEP 7 TIA Portal configurable/integrated from version	V14 SP1
• STEP 7 configurable/integrated from version	V5.6
• PROFIBUS from GSD version/GSD revision	V03.01.105
• PROFINET from GSD version/GSD revision	GSDML V2.33
Operating mode	
• Oversampling	Yes; 2 channels per module
• 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 (rated value)	70 mA
Encoder supply	
Output voltage (DC)	4.85 V
Short-circuit protection	Yes
Output current	
• Rated value	60 mA; Per channel
Power	
Power available from the backplane bus	65 mW
Power loss	
Power loss, typ.	1.5 W

Address area	
Address space per module	
• Address space per module, max.	32 byte
• Inputs	32 byte
• Outputs	8 byte
Hardware configuration	
Automatic encoding	Yes
• Mechanical coding element	Yes
• Type of mechanical coding element	Type A
Analog inputs	
Number of analog inputs	2; Differential inputs
Cycle time (all channels), min.	100 $\mu$ s
Analog input with oversampling	Yes
• Values per cycle, max.	14
• Resolution, min.	100 $\mu$ s
Input ranges	
• Strain gauges (full bridges)	Yes
Cable length	
• 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 $f_1$ in Hz	60 / 50 Hz / no
• Conversion time (per channel)	100 $\mu$ s
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 $\Omega$
• Resistance of full bridge, max.	5 000 $\Omega$
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	$\leq \pm 0.25 \mu\text{V/K}$
Temperature coefficient, span, 4-wire connection (in relation to end value)	$\leq \pm 5 \text{ ppm/K}$
Temperature coefficient, span, 6-wire connection (in relation to end value)	$\leq \pm 10 \text{ ppm/K}$
Basic error limit (operational limit at 25 °C)	
• Voltage, relative to input range, (+/-)	0.05 %; See manual for details
Isochronous mode	
Filtering and processing time (TCI), min.	87 $\mu$ s
Bus cycle time (TDP), min.	125 $\mu$ s
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

• Short-circuit	Yes
• Group error	Yes
• Overflow/underflow	Yes
<b>Diagnostics indication LED</b>	
• 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
<b>Potential separation</b>	
<b>Potential separation channels</b>	
• between the channels	No
• between the channels and backplane bus	Yes
• between the channels and the power supply of the electronics	Yes
<b>Isolation</b>	
Isolation tested with	707 V DC (type test)
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
• horizontal installation, min.	-25 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	-25 °C
• vertical installation, max.	50 °C
<b>Altitude during operation relating to sea level</b>	
• 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)
<b>Dimensions</b>	
Width	15 mm
Height	73 mm
Depth	58 mm
<b>Weights</b>	
Weight, approx.	45 g

**last modified:** 12/28/2021 