Data sheet

SIMATIC ET 200SP, Analog output module, AQ 4XU/I Standard, suitable for BU type A0, A1, Color code CC00, Module diagnostics, 16 bit, +/-0.3%



General information	
Product type designation	AQ 4xU/I ST
HW functional status	From FS07
usable BaseUnits	BU type A0, A1
Color code for module-specific color identification plate	CC00
Product function	
● I&M data	Yes; I&M0 to I&M3
Output range scalable	No
Engineering with	
 STEP 7 TIA Portal configurable/integrated as of version 	V11 SP2 / V13
 STEP 7 configurable/integrated as of version 	V5.5 SP3 / -
 PCS 7 configurable/integrated as of version 	V8.1 SP1
 PROFIBUS as of GSD version/GSD revision 	One GSD file each, Revision 3 and 5 and higher
 PROFINET as of GSD version/GSD revision 	GSDML V2.3
Operating mode	
Oversampling	No
• MSO	No

Reparameterization possible in RUN Calibration possible in RUN No Supply voltage Rated value (DC) permissible range, lower limit (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC) Reverse polarity protection 150 mA Power loss Power loss, typ. Address space per module Address space per module, max. 8 byte; + 1 byte for QI information Analog outputs Number of analog outputs 4 Voltage output, short-circuit current, max. Analog output with oversampling Output ranges, voltage 0 to 10 V Yes; 15 bit 1 V to 5 V 1 V to 5 V 1 V to +10 V Yes; 15 bit incl. sign 0 to 20 mA 2 Output ranges, current 0 to 20 mA 2 Output ranges, current 0 to 20 mA 2 Output ranges, current 0 for voltage output two-wire connection For voltage output two-wire connection For voltage output, current incl. For voltage output two-wire connection For voltage output two-wire connection For voltage output, capacitive load, max. 1 μF with voltage outputs, max. With current outputs, max. With current outputs, max. With voltage outputs, max. With current outputs, max. With current outputs, max. With current outputs, inductive load, max. I mH	CiR – Configuration in RUN	
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 Current consumption, max.		Yes
Rated value (DC)	Calibration possible in RUN	No
Rated value (DC)		
Permissible range, lower limit (DC)		04)/
permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. 150 mA Power loss Power loss, typ. Address area Address space per module • Address space per module, max. Analog outputs Number of analog outputs 4 Voltage output, short-circuit current, max. 45 mA Cycle time (all channels), min. Analog output with oversampling No Output ranges, voltage • 0 to 10 V • 1 V to 5 V • -1 V to +5 V • -5 V to +5 V • -1 0 V to +10 V Ves; 15 bit incl. sign • -20 mA to +20 mA • 4 mA to 20 mA • 4 mA to 20 mA • for voltage output two-wire connection • for ovoltage output, two-wire connection • for ovoltage output, short-circuit current, max. • with voltage output, short-circuit current, max. 28. byte; +1 byte for QI information 4 4 you information 4 4 yes; 15 bit 5 ms Analog output with oversampling No Output ranges, voltage • 0 to 10 V Yes; 15 bit • 28; 16 bit incl. sign • -10 V to +10 V Yes; 16 bit incl. sign • 4 mA to 20 mA • yes; 16 bit incl. sign • for voltage output two-wire connection • for ovoltage output two-wire connection • for current output, wower connection • for current output, spacitive load, max. • with voltage outputs, max. • with current outputs, inductive load, max.		
Pewers polarity protection Yes	• • • • • • • • • • • • • • • • • • • •	
Input current Current consumption, max. 150 mA Power loss Power loss, typ. Address space per module Address space per module, max. 8 byte; + 1 byte for QI information Analog outputs Number of analog outputs 4 Voltage output, short-circuit current, max. 45 mA Cycle time (all channels), min. Analog output with oversampling No Output ranges, voltage 0 to 10 V Yes; 15 bit 1 V to 5 V 1 V to 5 V Yes; 13 bit incl. sign -10 V to +10 V Yes; 15 bit incl. sign Output ranges, current 0 to 20 mA -20 mA to +20 mA 4 m to 20 mA Yes; 16 bit incl. sign Connection of actuators for voltage output two-wire connection for voltage output two-wire connection Yes for current output two-wire connection Yes Vesith voltage outputs, min. With voltage outputs, min. With voltage outputs, min. With voltage outputs, min. With current outputs, inductive load, max. I mH		
Current consumption, max. 150 mA Power loss Power loss, typ. 1.5 W Address area Address space per module • Address space per module, max. 8 byte; + 1 byte for QI information Analog outputs Voltage output, short-circuit current, max. 45 mA Cycle time (all channels), min. 5 ms Analog output with oversampling No Output ranges, voltage • 0 to 10 V Yes; 15 bit • 1 V to 5 V Yes; 13 bit • -5 V to +5 V Yes; 15 bit incl. sign • -10 V to +10 V Yes; 16 bit incl. sign Output ranges, current • 0 to 20 mA Yes; 16 bit incl. sign • 2 cm At to +20 mA Yes; 16 bit incl. sign • 4 mA to 20 mA Yes; 16 bit incl. sign • 4 mA to 20 mA Yes; 16 bit incl. sign • 6 or voltage output two-wire connection Yes • for voltage output four-wire connection Yes • for current output two-wire connection Yes • for current output two-wire connection Yes • for current output two-wire connection Yes • with voltage outputs, min. 2 kΩ • with voltage outputs, capacitive load, max. 1 μF • with current outputs, inductive load, max. 1 mH	Reverse polarity protection	Yes
Power loss, typ. Address area Address space per module • Address space per module, max. 8 byte; + 1 byte for QI information Analog outputs Number of analog outputs 4 Voltage output, short-circuit current, max. 45 mA Cycle time (all channels), min. 5 ms Analog output with oversampling No Output ranges, voltage • 0 to 10 V • 1 V to 5 V • -10 V to +5 V • -10 V to +10 V Output ranges, current • 0 to 20 mA • 20 mA • 4 mA to 20 mA • 4 mA to 20 mA Connection of actuators • for voltage output two-wire connection • for current output two-wire connection • for current output two-wire connection • for current output two-wire connection • with voltage outputs, min. • with voltage outputs, max. • with current outputs, max. • with current outputs, max. • with current outputs, inductive load, max.	Input current	
Power loss, typ. 1.5 W	Current consumption, max.	150 mA
Power loss, typ. 1.5 W	Power less	
Address space per module • Address space per module, max. Analog outputs Number of analog outputs Analog output short-circuit current, max. 45 mA Cycle time (all channels), min. Analog output with oversampling No Output ranges, voltage • 0 to 10 V • 1 V to 5 V • 1 V to 5 V • -5 V to +5 V • -10 V to +10 V Output ranges, current • 0 to 20 mA • -20 mA to +20 mA • -20 mA to 20 mA Connection of actuators • for voltage output two-wire connection • for voltage output two-wire connection • for courrent output two-wire connection • for voltage output two-wire connection • for voltage output, min. • with voltage outputs, capacitive load, max. • with current outputs, inductive load, max.		1.5 W
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Number of analog outputs Voltage output, short-circuit current, max. 45 mA Cycle time (all channels), min. Analog output with oversampling No Output ranges, voltage • 0 to 10 V • 1 V to 5 V • 1 V to 5 V • -5 V to +5 V • -10 V to +10 V Output ranges, current • 0 to 20 mA • -20 mA to +20 mA • 4 mA to 20 mA Connection of actuators • for voltage output two-wire connection • for ovltage output two-wire connection • for current output two-wire connection • with voltage outputs, min. • with voltage outputs, capacitive load, max. • with current outputs, inductive load, max. • mith current outputs, inductive load, max.	 Address space per module, max. 	8 byte; + 1 byte for QI information
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Cycle time (all channels), min. Analog output with oversampling No Output ranges, voltage • 0 to 10 V • 1 V to 5 V • 1 V to 5 V • -5 V to +5 V • -10 V to +10 V Output ranges, current • 0 to 20 mA • -20 mA to +20 mA • 4 mA to 20 mA • for voltage output two-wire connection • for voltage output two-wire connection • for current output two-wire connection • with voltage outputs, min. • with current outputs, max. • with current outputs, inductive load, max.		4
Analog output with oversampling No Output ranges, voltage • 0 to 10 V	Voltage output, short-circuit current, max.	45 mA
Output ranges, voltage • 0 to 10 V • 1 V to 5 V • 1 V to 5 V • -5 V to +5 V • -10 V to +10 V Output ranges, current • 0 to 20 mA • -20 mA to +20 mA • 4 mA to 20 mA • for voltage output two-wire connection • for voltage output two-wire connection • for current output two-wire connection • for current output two-wire connection • with voltage outputs, min. • with voltage outputs, capacitive load, max. • with current outputs, inductive load, max.	Cycle time (all channels), min.	5 ms
 0 to 10 V Yes; 15 bit 1 V to 5 V -5 V to +5 V Yes; 15 bit incl. sign -10 V to +10 V Output ranges, current 0 to 20 mA -20 mA to +20 mA 4 mA to 20 mA Yes; 16 bit incl. sign 6 for voltage output two-wire connection 9 for voltage output four-wire connection 9 for current output two-wire connection Yes 1 for current output two-wire connection Yes 9 for current output two-wire connection Yes 1 per substance of the properties o	Analog output with oversampling	No
$ \begin{array}{lll} \bullet \ 1 \ V \ to \ 5 \ V \\ \bullet \ -5 \ V \ to \ +5 \ V \\ \bullet \ -10 \ V \ to \ +10 \ V \\ \hline \bullet \ -10 \ V \ to \ +10 \ V \\ \hline \end{array} $	Output ranges, voltage	
	• 0 to 10 V	Yes; 15 bit
 -10 V to +10 V Output ranges, current 0 to 20 mA -20 mA to +20 mA 4 mA to 20 mA 50 rovoltage output two-wire connection for voltage output four-wire connection for current output two-wire connection for current output two-wire connection with voltage outputs, min. with voltage outputs, max. with current outputs, max. with current outputs, inductive load, max. mith current outputs, inductive load, max. mith current outputs, max. mith current outputs, inductive load, max. mith 	• 1 V to 5 V	Yes; 13 bit
Output ranges, current • 0 to 20 mA • -20 mA to +20 mA • 4 mA to 20 mA • for voltage output two-wire connection • for current output two-wire connection • with voltage outputs, min. • with current outputs, max. • with current outputs, inductive load, max. • with current outputs, inductive load, max. • with current outputs, inductive load, max. • with current outputs, inductive load, max. 1 mH	• -5 V to +5 V	Yes; 15 bit incl. sign
 • 0 to 20 mA • -20 mA to +20 mA • 4 mA to 20 mA • 6 to voltage output two-wire connection • for voltage output four-wire connection • for current output two-wire connection • for current output two-wire connection • with voltage outputs, min. • with voltage outputs, capacitive load, max. • with current outputs, max. • with current outputs, inductive load, max. 1 mH 	• -10 V to +10 V	Yes; 16 bit incl. sign
 -20 mA to +20 mA 4 mA to 20 mA 7 yes; 16 bit incl. sign 6 for voltage output two-wire connection 9 for voltage output four-wire connection 9 for current output two-wire connection 1 yes 1 yes 2 kΩ 1 μF 1 with voltage outputs, max. 1 with current outputs, max. 1 mH 	Output ranges, current	
 4 mA to 20 mA Yes; 14 bit Connection of actuators for voltage output two-wire connection for voltage output four-wire connection for current output two-wire connection Yes for current output two-wire connection Yes Load impedance (in rated range of output) with voltage outputs, min. with voltage outputs, capacitive load, max. with current outputs, max. with current outputs, inductive load, max. 1 mH 	• 0 to 20 mA	Yes; 15 bit
	• -20 mA to +20 mA	Yes; 16 bit incl. sign
	• 4 mA to 20 mA	Yes; 14 bit
	Connection of actuators	
	for voltage output two-wire connection	Yes
	• for voltage output four-wire connection	Yes
Load impedance (in rated range of output) • with voltage outputs, min. $2 \text{ k}\Omega$ • with voltage outputs, capacitive load, max. $1 \mu\text{F}$ • with current outputs, max. 500Ω • with current outputs, inductive load, max. 1 mH		Yes
• with voltage outputs, min. $2 \text{ k}\Omega$ • with voltage outputs, capacitive load, max. $1 \mu\text{F}$ • with current outputs, max. 500Ω • with current outputs, inductive load, max. 1 mH	·	
• with voltage outputs, capacitive load, max. $1 \mu F$ • with current outputs, max. 500Ω • with current outputs, inductive load, max. $1 mH$		2 kΩ
 with current outputs, max. with current outputs, inductive load, max. 1 mH 		1 μF
• with current outputs, inductive load, max. 1 mH		
	·	
Destruction limits against externally applied voltages and currents	Destruction limits against externally applied voltages a	
Voltages at the outputs 30 V		

Cable length	
• shielded, max.	1 000 m; 200 m for voltage output
Analog value generation for the outputs	
Integration and conversion time/resolution per channel	16 bit
 Resolution with overrange (bit including sign), max. 	10 Dit
Settling time	
for resistive load	0.1 ms
for capacitive load	1 ms
• for inductive load	0.5 ms
Errors/accuracies	
Linearity error (relative to output range), (+/-)	0.03 %
Temperature error (relative to output range), (+/-)	0.005 %/K
Crosstalk between the outputs, min.	-50 dB
Repeat accuracy in steady state at 25 $^{\circ}$ C (relative to output range), (+/-)	0.05 %
Operational error limit in overall temperature range	
Voltage, relative to output range, (+/-)	0.5 %
Current, relative to output range, (+/-)	0.5 %
Basic error limit (operational limit at 25 °C)	
 Voltage, relative to output range, (+/-) 	0.3 %
Current, relative to output range, (+/-)	0.3 %
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Substitute values connectable	Yes
Alarms	
Diagnostic alarm	Yes
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	No
• for module diagnostics	Yes; green/red DIAG LED
Potential separation	
Potential separation channels	
• between the channels	No

• between the channels and backplane bus Yes Yes • between the channels and the power supply of the electronics Isolation tested with 707 V DC (type test) Ambient conditions Ambient temperature during operation -30 °C • horizontal installation, min. 60 °C; Observe derating • horizontal installation, max. -30 °C • vertical installation, min. 50 °C; Observe derating • vertical installation, max. Altitude during operation relating to sea level 2 000 m; On request: Installation altitudes greater than 2 000 m • Installation altitude above sea level, max. Width 15 mm Height 73 mm Depth 58 mm

31 g

02/14/2020

Weights

Weight, approx.

last modified: