

SIMATIC ET 200AL, AQ 4xU/I, 4xM12, Degree of protection IP67



Figure similar

General information	
Product type designation	AQ 4xU/I
HW functional status	FS03
Firmware version	V1.0.x
Product function	
• I&M data	Yes; I&M0 to I&M3
Engineering with	
• STEP 7 TIA Portal configurable/integrated as of version	STEP 7 V14 or higher
• STEP 7 configurable/integrated as of version	V5.5 SP4 Hotfix 7 or higher
• PROFIBUS as of GSD version/GSD revision	GSD as of Revision 5
• PROFINET as of GSD version/GSD revision	GSDML V2.3.1
Supply voltage	
Load voltage 1L+	
• Rated value (DC)	24 V
• permissible range, lower limit (DC)	20.4 V
• permissible range, upper limit (DC)	28.8 V

- Reverse polarity protection

Yes; Against destruction; actuator power supply outputs applied with reversed polarity

Input current

Current consumption (rated value)	110 mA; without load
from load voltage 1L+ (unswitched voltage)	4 A; Maximum value
from load voltage 2L+, max.	4 A; Maximum value

Actuator supply

Number of outputs	4
Short-circuit protection	Yes; per module, electronic

Output current

<ul style="list-style-type: none"> • Rated value 	Total current 1 A up to 45 °C; 0.5 A up to 55 °C
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Power loss

Power loss, typ.	2.6 W
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Analog outputs

Number of analog outputs	4
Voltage output, short-circuit protection	Yes
Voltage output, short-circuit current, max.	24 mA
Current output, no-load voltage, max.	15 V
Cycle time (all channels) max.	1 ms

Output ranges, voltage

<ul style="list-style-type: none"> • 0 to 10 V 	Yes; 15 bit
<ul style="list-style-type: none"> • 1 V to 5 V 	Yes; 14 bit
<ul style="list-style-type: none"> • -10 V to +10 V 	Yes; 16 bit incl. sign

Output ranges, current

<ul style="list-style-type: none"> • 0 to 20 mA 	Yes; 15 bit
<ul style="list-style-type: none"> • -20 mA to +20 mA 	Yes; 16 bit incl. sign
<ul style="list-style-type: none"> • 4 mA to 20 mA 	Yes; 14 bit

Connection of actuators

<ul style="list-style-type: none"> • for voltage output two-wire connection 	Yes
<ul style="list-style-type: none"> • for voltage output four-wire connection 	Yes
<ul style="list-style-type: none"> • for current output two-wire connection 	Yes
<ul style="list-style-type: none"> • for current output four-wire connection 	Yes

Load impedance (in rated range of output)

<ul style="list-style-type: none"> • with voltage outputs, min. 	1 k Ω
<ul style="list-style-type: none"> • with voltage outputs, capacitive load, max. 	1 μ F
<ul style="list-style-type: none"> • with current outputs, max. 	500 Ω
<ul style="list-style-type: none"> • with current outputs, inductive load, max. 	1 mH

Destruction limits against externally applied voltages and currents

<ul style="list-style-type: none"> • Voltages at the outputs towards MANA 	16 V
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Cable length

<ul style="list-style-type: none"> • shielded, max. 	30 m
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Analog value generation for the outputs

Integration and conversion time/resolution per channel	
<ul style="list-style-type: none"> Resolution with overrange (bit including sign), max. 	16 bit
Settling time	
<ul style="list-style-type: none"> for resistive load 	1 ms
<ul style="list-style-type: none"> for capacitive load 	1 ms
<ul style="list-style-type: none"> for inductive load 	1 ms

Errors/accuracies

Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-)	0.02 %
Linearity error (relative to output range), (+/-)	0.1 %
Temperature error (relative to output range), (+/-)	0.005 %/K
Crosstalk between the outputs, max.	-70 dB
Repeat accuracy in steady state at 25 °C (relative to output range), (+/-)	0.03 %
Operational error limit in overall temperature range	
<ul style="list-style-type: none"> Voltage, relative to output range, (+/-) 	0.25 % from 55 °C to -25 °C and 0.35 % to -30 °C
<ul style="list-style-type: none"> Current, relative to output range, (+/-) 	0.25 %
Basic error limit (operational limit at 25 °C)	
<ul style="list-style-type: none"> Voltage, relative to output range, (+/-) 	0.15 %
<ul style="list-style-type: none"> Current, relative to output range, (+/-) 	0.15 %

Interrupts/diagnostics/status information

Substitute values connectable	Yes; channel by channel, parameterizable
Alarms	
<ul style="list-style-type: none"> Diagnostic alarm 	Yes; Parameterizable
Diagnostic messages	
<ul style="list-style-type: none"> Wire-break 	Yes; channel-by-channel, only for output type "current"
<ul style="list-style-type: none"> Short-circuit 	Yes; Actuator supply module by module; channel by channel for output type "voltage"
Diagnostics indication LED	
<ul style="list-style-type: none"> Channel status display 	Yes; green LED
<ul style="list-style-type: none"> for module diagnostics 	Yes; green/red LED

Potential separation

between the load voltages	Yes
Potential separation channels	
<ul style="list-style-type: none"> between the channels 	No
<ul style="list-style-type: none"> between the channels and backplane bus 	Yes
<ul style="list-style-type: none"> between the channels and the power supply of the electronics 	No

Isolation

Isolation tested with	707 V DC (type test)
Degree and class of protection	
IP degree of protection	IP65/67
Ambient conditions	
Ambient temperature during operation	
• min.	-30 °C
• max.	55 °C
Connection method	
Design of electrical connection for the inputs and outputs	M12, 5-pole
Design of electrical connection for supply voltage	M8, 4-pole
ET-Connection	
• ET-Connection	M8, 4-pin, shielded
Dimensions	
Width	30 mm
Height	159 mm
Depth	40 mm
Weights	
Weight, approx.	175 g
last modified:	05/13/2020