



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

Figure similar

General information	
Product type designation	AQ 4xU/I
HW functional status	from FS04
Firmware version	V1.0.x
Product function	
<ul style="list-style-type: none"> <li>I&amp;M data</li> </ul>	Yes; I&M0 to I&M3
Engineering with	
<ul style="list-style-type: none"> <li>STEP 7 TIA Portal configurable/integrated from version</li> <li>STEP 7 configurable/integrated from version</li> <li>PROFIBUS from GSD version/GSD revision</li> <li>PROFINET from GSD version/GSD revision</li> </ul>	STEP 7 V14 or higher V5.5 SP4 Hotfix 7 or higher GSD as of Revision 5 GSDML V2.3.1
Supply voltage	
power supply according to NEC Class 2 required	No
Load voltage 1L+	
<ul style="list-style-type: none"> <li>Rated value (DC)</li> <li>permissible range, lower limit (DC)</li> <li>permissible range, upper limit (DC)</li> <li>Reverse polarity protection</li> </ul>	24 V 20.4 V 28.8 V 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"> <li>Rated value</li> </ul>	Total current 1 A up to 45 °C; 0.5 A up to 55 °C
Power loss	
Power loss, typ.	2.6 W
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"> <li>• 0 to 10 V</li> <li>• 1 V to 5 V</li> <li>• -10 V to +10 V</li> </ul>	Yes; 15 bit Yes; 14 bit Yes; 16 bit incl. sign
<b>Output ranges, current</b>	
<ul style="list-style-type: none"> <li>• 0 to 20 mA</li> <li>• -20 mA to +20 mA</li> <li>• 4 mA to 20 mA</li> </ul>	Yes; 15 bit Yes; 16 bit incl. sign Yes; 14 bit
<b>Connection of actuators</b>	
<ul style="list-style-type: none"> <li>• for voltage output two-wire connection</li> <li>• for voltage output four-wire connection</li> <li>• for current output two-wire connection</li> <li>• for current output four-wire connection</li> </ul>	Yes Yes Yes Yes
<b>Load impedance (in rated range of output)</b>	
<ul style="list-style-type: none"> <li>• with voltage outputs, min.</li> <li>• with voltage outputs, capacitive load, max.</li> <li>• with current outputs, max.</li> <li>• with current outputs, inductive load, max.</li> </ul>	1 k $\Omega$ 1 $\mu$ F 500 $\Omega$ 1 mH
<b>Destruction limits against externally applied voltages and currents</b>	
<ul style="list-style-type: none"> <li>• Voltages at the outputs towards MANA</li> </ul>	16 V
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>• shielded, max.</li> </ul>	30 m
<b>Analog value generation for the outputs</b>	
<b>Integration and conversion time/resolution per channel</b>	
<ul style="list-style-type: none"> <li>• Resolution with overrange (bit including sign), max.</li> </ul>	16 bit
<b>Settling time</b>	
<ul style="list-style-type: none"> <li>• for resistive load</li> <li>• for capacitive load</li> <li>• for inductive load</li> </ul>	1 ms 1 ms 1 ms
<b>Errors/accuracies</b>	
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 %
<b>Operational error limit in overall temperature range</b>	
<ul style="list-style-type: none"> <li>• Voltage, relative to output range, (+/-)</li> <li>• Current, relative to output range, (+/-)</li> </ul>	0.25 % from 55 °C to -25 °C and 0.35 % to -30 °C 0.25 %
<b>Basic error limit (operational limit at 25 °C)</b>	
<ul style="list-style-type: none"> <li>• Voltage, relative to output range, (+/-)</li> <li>• Current, relative to output range, (+/-)</li> </ul>	0.15 % 0.15 %
<b>Interrupts/diagnostics/status information</b>	
Substitute values connectable	Yes; channel by channel, parameterizable
<b>Alarms</b>	
<ul style="list-style-type: none"> <li>• Diagnostic alarm</li> </ul>	Yes; Parameterizable
<b>Diagnoses</b>	
<ul style="list-style-type: none"> <li>• Wire-break</li> <li>• Short-circuit</li> </ul>	Yes; channel-by-channel, only for output type "current" Yes; Actuator supply module by module; channel by channel for output type "voltage"
<b>Diagnostics indication LED</b>	
<ul style="list-style-type: none"> <li>• Channel status display</li> <li>• for module diagnostics</li> </ul>	Yes; green LED Yes; green/red LED
<b>Potential separation</b>	
between the load voltages	Yes
<b>Potential separation channels</b>	
<ul style="list-style-type: none"> <li>• between the channels</li> <li>• between the channels and backplane bus</li> <li>• between the channels and the power supply of the electronics</li> </ul>	No Yes No

Isolation	
Isolation tested with	707 V DC (type test)
Degree and class of protection	
IP degree of protection	IP65/67
Standards, approvals, certificates	
Suitable for safety-related tripping of standard modules	Yes; from FS04
Highest safety class achievable for safety-related tripping of standard modules	
<ul style="list-style-type: none"> <li>• Performance level according to ISO 13849-1</li> <li>• Category according to ISO 13849-1</li> <li>• SIL acc. to IEC 62061</li> </ul>	PL d Cat. 3 SIL 2
Ambient conditions	
Ambient temperature during operation	
<ul style="list-style-type: none"> <li>• min.</li> <li>• max.</li> </ul>	-30 °C 55 °C
connection method / header	
Design of electrical connection for the inputs and outputs	M12, 5-pole
Design of electrical connection for supply voltage	M8, 4-pole
ET-Connection	
<ul style="list-style-type: none"> <li>• ET-Connection</li> </ul>	M8, 4-pin, shielded
Dimensions	
Width	30 mm
Height	159 mm
Depth	40 mm
Weights	
Weight, approx.	175 g
<b>last modified:</b>	3/7/2022 