

Siemens
EcoTech



SIMATIC S7-1500, analog output module AQ 2x U/I ST, 16-bit resolution accuracy 0.3%. 2 channels in groups of 2, diagnostics; substitute value; the module supports the safety-oriented shutdown of load groups up to SIL2 according to EN IEC 62061:2021 and Category 2 / PL c according to EN ISO 13849-1:2015. delivery including front connector push-in, infeed element, shielding bracket and shield terminal

General information	
Product type designation	AQ 2xU/I ST
HW functional status	from FS01
Firmware version	V1.0.0
• FW update possible	Yes
Product function	
• I&M data	Yes; I&M0 to I&M3
• Isochronous mode	No
• Prioritized startup	No
• Output range scalable	No
Engineering with	
• STEP 7 TIA Portal configurable/integrated from version	V13 / V13.0.2
• STEP 7 configurable/integrated from version	V5.5 SP3 / -
• PROFIBUS from GSD version/GSD revision	V1.0 / V5.1
• PROFINET from GSD version/GSD revision	V2.3 / -
Operating mode	
• Oversampling	No
• MSO	Yes
CiR - Configuration in RUN	
Reparameterization possible in RUN	Yes
Calibration possible in RUN	Yes
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, max.	110 mA
Power	
Power consumption from the backplane bus	0.65 W
Power loss	
Power loss, typ.	2.7 W
Analog outputs	
Number of analog outputs	2
Voltage output, short-circuit protection	Yes
Voltage output, short-circuit current, max.	24 mA
Current output, no-load voltage, max.	22 V

Cycle time (all channels), min.	3.2 ms; independent of number of activated channels
Output ranges, voltage	
• 0 to 10 V	Yes
• 1 V to 5 V	Yes
• -5 V to +5 V	No
• -10 V to +10 V	Yes
Output ranges, current	
• 0 to 20 mA	Yes
• -20 mA to +20 mA	Yes
• 4 mA to 20 mA	Yes
Connection of actuators	
• for voltage output two-wire connection	Yes
• for voltage output four-wire connection	Yes
• for current output two-wire connection	Yes
Load impedance (in rated range of output)	
• with voltage outputs, min.	1 k Ω ; 0.5 k Ω m at 1 to 5 V
• with voltage outputs, capacitive load, max.	1 μ F
• with current outputs, max.	750 Ω
• with current outputs, inductive load, max.	10 mH
Cable length	
• shielded, max.	800 m; for current, 200 m for voltage
Analog value generation for the outputs	
Integration and conversion time/resolution per channel	
• Resolution with overrange (bit including sign), max.	16 bit
• Conversion time (per channel)	0.5 ms
Settling time	
• for resistive load	1.5 ms
• for capacitive load	2.5 ms
• for inductive load	2.5 ms
Errors/accuracies	
Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-)	0.02 %
Linearity error (relative to output range), (+/-)	0.15 %
Temperature error (relative to output range), (+/-)	0.002 %/K
Crosstalk between the outputs, max.	-100 dB
Repeat accuracy in steady state at 25 °C (relative to output range), (+/-)	0.05 %
Operational error limit in overall temperature range	
• Voltage, relative to output range, (+/-)	0.3 %
• Current, relative to output range, (+/-)	0.3 %
Basic error limit (operational limit at 25 °C)	
• Voltage, relative to output range, (+/-)	0.2 %
• Current, relative to output range, (+/-)	0.2 %
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Substitute values connectable	Yes
Alarms	
• Diagnostic alarm	Yes
Diagnoses	
• Monitoring the supply voltage	Yes
• Wire-break	Yes; Only for output type "current"
• Short-circuit	Yes; Only for output type "voltage"
• Overflow/underflow	Yes
Diagnostics indication LED	
• RUN LED	Yes; green LED
• ERROR LED	Yes; red LED
• Monitoring of the supply voltage (PWR-LED)	Yes; green LED
• Channel status display	Yes; green LED
• for channel diagnostics	Yes; red LED
• for module diagnostics	Yes; red LED
Potential separation	

Potential separation channels			
• between the channels • between the channels, in groups of • between the channels and backplane bus • Between the channels and load voltage L+	No 2 Yes Yes		
Permissible potential difference			
between S- and MANA (UCM)	8 V DC		
Isolation			
Isolation tested with	707 V DC (type test)		
Standards, approvals, certificates			
Siemens Eco Profile (SEP)	Siemens EcoTech		
Suitable for safety-related tripping of standard modules	Yes; From FS02		
Ecological footprint			
• environmental product declaration	Yes		
Global warming potential			
— global warming potential, (total) [CO2 eq] — global warming potential, (during production) [CO2 eq] — global warming potential, (during operation) [CO2 eq] — global warming potential, (after end of life cycle) [CO2 eq]	37.6 kg 11.1 kg 26.8 kg -0.364 kg		
Highest safety class achievable for safety-related tripping of standard modules			
• Performance level according to ISO 13849-1 • Category according to ISO 13849-1 • SILCL according to IEC 62061	PL d Cat. 3 SIL 2		
product functions / security / header			
signed firmware update	No		
data integrity	No		
Ambient conditions			
Ambient temperature during operation			
• horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max.	-30 °C; from FS04 60 °C -30 °C; from FS04 40 °C		
Altitude during operation relating to sea level			
• Installation altitude above sea level, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual		
Dimensions			
Width	25 mm		
Height	147 mm		
Depth	129 mm		
Weights			
Weight, approx.	200 g		
Other			
Note:	Supplied incl. 40-pole push-in front connectors		
Classifications			
		Version	Classification
	eClass	14	27-24-22-01
	eClass	12	27-24-22-01
	eClass	9.1	27-24-22-01
	eClass	9	27-24-22-01
	eClass	8	27-24-22-01
	eClass	7.1	27-24-22-01
	eClass	6	27-24-22-01
	ETIM	9	EC001420
	ETIM	8	EC001420
	ETIM	7	EC001420
	IDEA	4	3562

Approvals / Certificates

General Product Approval



[Miscellaneous](#)

[KC](#)

General Product Approval

EMV

Test Certificates



[BIS CRS](#)



[Miscellaneous](#)

[Special Test Certificate](#)

[Type Test Certificates/Test Report](#)

Marine / Shipping



[CCS \(China Classification Society\)](#)

other

Environment

[Confirmation](#)

[Miscellaneous](#)

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