

Siemens
EcoTech



SIMATIC S7-1500, analog output module AQ8xU/I HS, 16-bit resolution accuracy 0.3%, 8 channels in groups of 8, diagnostics; substitute value 8 channels in 0.125 ms oversampling; the module supports the safety-oriented shutdown of load groups up to SIL2 according to EN IEC 62061:2021 and Category 3 / PL d according to EN ISO 13849-1:2015. delivery including infeed element, shielding bracket and shield terminal: front connector (screw terminals or push-in) to be ordered separately

Figure similar

General information	
Product type designation	AQ 8xU/I HS
HW functional status	from FS01
Firmware version	V2.1.0
<ul style="list-style-type: none"> FW update possible 	Yes
Product function	
<ul style="list-style-type: none"> I&M data 	Yes; I&M0 to I&M3
<ul style="list-style-type: none"> Isochronous mode 	Yes
<ul style="list-style-type: none"> Prioritized startup 	No
<ul style="list-style-type: none"> Output range scalable 	No
Engineering with	
<ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated from version 	V14 / -
<ul style="list-style-type: none"> STEP 7 configurable/integrated from version 	V5.5 SP3 / -
<ul style="list-style-type: none"> PROFIBUS from GSD version/GSD revision 	V1.0 / V5.1
<ul style="list-style-type: none"> PROFINET from GSD version/GSD revision 	V2.3 / -
Operating mode	
<ul style="list-style-type: none"> Oversampling 	Yes
<ul style="list-style-type: none"> 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.	320 mA; with 19.2 V supply
Power	
Power consumption from the backplane bus	1.15 W
Power loss	
Power loss, typ.	7 W
Analog outputs	
Number of analog outputs	8
Voltage output, short-circuit protection	Yes
Voltage output, short-circuit current, max.	45 mA

Current output, no-load voltage, max.	20 V
Cycle time (all channels), min.	125 µs; 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 kΩ
• with voltage outputs, capacitive load, max.	100 nF
• with current outputs, max.	500 Ω
• with current outputs, inductive load, max.	1 mH
Cable length	
• shielded, max.	200 m
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)	50 µs; independent of number of activated channels
Settling time	
• for resistive load	30 µs; see additional description in the manual
• for capacitive load	100 µs; see additional description in the manual
• for inductive load	100 µs; see additional description in the manual
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 %
note regarding accuracy	at temperatures below 0 °C, the figures for operating error and temperature error are doubled
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 %
Isochronous mode	
Execution and activation time (TCO), min.	100 µs
Bus cycle time (TDP), min.	250 µs
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

<ul style="list-style-type: none"> • ERROR LED • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics • for module diagnostics 	Yes; red LED Yes; green LED Yes; green LED Yes; red LED Yes; red LED	
Potential separation		
Potential separation channels		
<ul style="list-style-type: none"> • between the channels • between the channels, in groups of • between the channels and backplane bus • Between the channels and load voltage L+ 	No 8 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 FS04	
Ecological footprint		
<ul style="list-style-type: none"> • environmental product declaration 	Yes	
Global warming potential		
— global warming potential, (total) [CO2 eq]	37.6 kg	
— global warming potential, (during production) [CO2 eq]	11.1 kg	
— global warming potential, (during operation) [CO2 eq]	26.8 kg	
— global warming potential, (after end of life cycle) [CO2 eq]	-0.364 kg	
Highest safety class achievable for safety-related tripping of standard modules		
<ul style="list-style-type: none"> • Performance level according to ISO 13849-1 • Category according to ISO 13849-1 • SIL acc. to IEC 62061 • remark on safety-oriented shutdown 	PL d Cat. 3 SIL 2 https://support.industry.siemens.com/cs/de/en/view/39198632	
product functions / security / header		
signed firmware update	No	
data integrity	No	
Ambient conditions		
Ambient temperature during operation		
<ul style="list-style-type: none"> • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. 	-30 °C; From FS03 60 °C -30 °C; From FS03 40 °C	
Altitude during operation relating to sea level		
<ul style="list-style-type: none"> • Installation altitude above sea level, max. 	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual	
Dimensions		
Width	35 mm	
Height	147 mm	
Depth	129 mm	
Weights		
Weight, approx.	325 g	
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	10	EC001420
ETIM	9	EC001420
ETIM	8	EC001420
ETIM	7	EC001420
IDEA	4	3562
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval



[Miscellaneous](#)

[Manufacturer Declaration](#)



[Metrological Approval](#)

General Product Approval **For use in hazardous locations**

[KC](#)



[EM](#)



[EM](#)

For use in hazardous locations **Maritime application**

[CCC-Ex](#)



[Type Examination Certificate](#)

[Miscellaneous](#)



Maritime application



[NK / Nippon Kaiji Kyokai](#)



Maritime application **Environment**

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



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last modified:

10/23/2025