

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; Delivery including infeed element, shield 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"> <li>FW update possible</li> </ul>	Yes
Product function	
<ul style="list-style-type: none"> <li>I&amp;M data</li> </ul>	Yes; I&M0 to I&M3
<ul style="list-style-type: none"> <li>Isochronous mode</li> </ul>	Yes
<ul style="list-style-type: none"> <li>Prioritized startup</li> </ul>	No
<ul style="list-style-type: none"> <li>Output range scalable</li> </ul>	No
Engineering with	
<ul style="list-style-type: none"> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	V14 / -
<ul style="list-style-type: none"> <li>STEP 7 configurable/integrated from version</li> </ul>	V5.5 SP3 / -
<ul style="list-style-type: none"> <li>PROFIBUS from GSD version/GSD revision</li> </ul>	V1.0 / V5.1
<ul style="list-style-type: none"> <li>PROFINET from GSD version/GSD revision</li> </ul>	V2.3 / -
Operating mode	

- Oversampling
- MSO

Yes  
Yes

#### CiR - Configuration in RUN

Reparameterization possible in RUN	Yes
Calibration possible in RUN	Yes

#### Supply voltage

Type of supply voltage	DC
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

#### Input current

Current consumption, max.	260 mA; with 24 V DC supply
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#### Power

Power available from the backplane bus	1.15 W
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#### Power loss

Power loss, typ.	7 W
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#### 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

<ul style="list-style-type: none"> <li>with current outputs, inductive load, max.</li> </ul>	1 mH
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>shielded, max.</li> </ul>	200 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
<ul style="list-style-type: none"> <li>Conversion time (per channel)</li> </ul>	50 µs; independent of number of activated channels
<b>Settling time</b>	
<ul style="list-style-type: none"> <li>for resistive load</li> </ul>	30 µs; see additional description in the manual
<ul style="list-style-type: none"> <li>for capacitive load</li> </ul>	100 µs; see additional description in the manual
<ul style="list-style-type: none"> <li>for inductive load</li> </ul>	100 µs; see additional description in the manual
<b>Errors/accuracies</b>	
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 %
<b>Operational error limit in overall temperature range</b>	
<ul style="list-style-type: none"> <li>Voltage, relative to output range, (+/-)</li> </ul>	0.3 %
<ul style="list-style-type: none"> <li>Current, relative to output range, (+/-)</li> </ul>	0.3 %
<b>Basic error limit (operational limit at 25 °C)</b>	
<ul style="list-style-type: none"> <li>Voltage, relative to output range, (+/-)</li> </ul>	0.2 %
<ul style="list-style-type: none"> <li>Current, relative to output range, (+/-)</li> </ul>	0.2 %
<b>Isochronous mode</b>	
Execution and activation time (TCO), min.	100 µs
Bus cycle time (TDP), min.	250 µs
<b>Interrupts/diagnostics/status information</b>	
Diagnostics function	Yes
Substitute values connectable	Yes
<b>Alarms</b>	
<ul style="list-style-type: none"> <li>Diagnostic alarm</li> </ul>	Yes
<b>Diagnoses</b>	
<ul style="list-style-type: none"> <li>Monitoring the supply voltage</li> </ul>	Yes
<ul style="list-style-type: none"> <li>Wire-break</li> </ul>	Yes; Only for output type "current"
<ul style="list-style-type: none"> <li>Short-circuit</li> </ul>	Yes; Only for output type "voltage"
<ul style="list-style-type: none"> <li>Overflow/underflow</li> </ul>	Yes
<b>Diagnostics indication LED</b>	
<ul style="list-style-type: none"> <li>RUN LED</li> </ul>	Yes; green LED

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|--|----------------|
| • 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                     | No  |
| • between the channels, in groups of       | 8   |
| • between the channels and backplane bus   | Yes |
| • Between the channels and load voltage L+ | Yes |

### Permissible potential difference

between S- and MANA (UCM)	8 V DC
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### Isolation

Isolation tested with	707 V DC (type test)
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### Ambient conditions

#### Ambient temperature during operation

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|---------------------------------|-------------------|
| • horizontal installation, min. | -30 °C; From FS03 |
| • horizontal installation, max. | 60 °C             |
| • vertical installation, min.   | -30 °C; From FS03 |
| • vertical installation, max.   | 40 °C             |

#### Altitude during operation relating to sea level

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|---|--|
| • Installation altitude above sea level, max. | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual |
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### Dimensions

Width	35 mm
Height	147 mm
Depth	129 mm

### Weights

Weight, approx.	325 g
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<b>last modified:</b>	10/13/2020
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