

SIMATIC S7-1500, ANALOG OUTPUT MODULE AQ 8 X U/I HS 16 BITS OF RESOLUTION, ACCURACY 0.3 %, 8CHANNELS IN GROUPS OF 8, DIAGNOSIS, SUBSTITUTE VALUE 8 CHANNELS IN 0.125 MS INCL. INFEEED ELEMENT, OVERSAMPLING SHIELD CLAMP AND SHIELD TERMINAL



Figure similar

General information	
Product type designation	AQ 8xU/I HS
HW functional status	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>Output range scalable</li> </ul>	No
Engineering with	
<ul style="list-style-type: none"> <li>STEP 7 TIA Portal configurable/integrated as of version</li> </ul>	V14 / -
<ul style="list-style-type: none"> <li>STEP 7 configurable/integrated as of version</li> </ul>	V5.5 SP3 / -
<ul style="list-style-type: none"> <li>PROFIBUS as of GSD version/GSD revision</li> </ul>	V1.0 / V5.1
<ul style="list-style-type: none"> <li>PROFINET as of GSD version/GSD revision</li> </ul>	V2.3 / -
Operating mode	
<ul style="list-style-type: none"> <li>Oversampling</li> </ul>	Yes
<ul style="list-style-type: none"> <li>MSO</li> </ul>	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)	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
• with current outputs, inductive load, max.	1 mH

### Cable length

• shielded, max.	200 m
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## Analog value generation for the outputs

Integration and conversion time/resolution per channel	
<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
Settling time	
<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
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	
<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 %
Basic error limit (operational limit at 25 °C)	
<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 %
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	Yes
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	
<ul style="list-style-type: none"> <li>Diagnostic alarm</li> </ul>	Yes
Diagnostic messages	
<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
Diagnostics indication LED	
<ul style="list-style-type: none"> <li>RUN LED</li> </ul>	Yes; Green LED
<ul style="list-style-type: none"> <li>ERROR LED</li> </ul>	Yes; Red LED
<ul style="list-style-type: none"> <li>Monitoring of the supply voltage (PWR-LED)</li> </ul>	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

### Isolation

Isolation tested with 707 V DC (type test)

### Decentralized operation

Prioritized startup No

### Dimensions

Width 35 mm  
 Height 147 mm  
 Depth 129 mm

### Weights

Weight, approx. 325 g

**last modified:** 12/06/2016