



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, SHIELD CLAMP AND SHIELD TERMINAL

General information	
Hardware product version	E01
Firmware version	V2.0.0
Product function	
• I&M data	Yes; I&M0 to I&M3
Engineering with	
• STEP 7 TIA Portal can be configured/integrated as of version	V12 / V12
• STEP 7 can be configured/integrated as of version	V5.5 SP3 / -
• PROFIBUS as of GSD version/GSD revision	V1.0 / V5.1
• PROFINET as of GSD version/GSD revision	V2.3 / -
Operating mode	
• 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)	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
Power	
Power available from the backplane bus	1.15 W
Power losses	
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 to 5 V	Yes
• -10 to +10 V	Yes
Output ranges, current	
• 0 to 20 mA	Yes
• -20 to +20 mA	Yes
• 4 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	
• Cable length, shielded, max.	200 m

Analog value creation	
Integration and conversion time/resolution per channel	
• Resolution with overrange (bit including sign), max.	16 bit
• Conversion time (per channel)	50 µs
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 (based on output area, 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 area), (+/-)	0.05 %
Operational limit in overall temperature range	
• Voltage, relative to output area, (+/-)	0.3 %
• Current, relative to output area, (+/-)	0.3 %
Basic error limit (operational limit at 25 °C)	
• Voltage, relative to output area, (+/-)	0.2 %
• Current, relative to output area, (+/-)	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	
Substitute values connectable	Yes
Alarms	
• Diagnostic alarm	Yes
Diagnostic messages	
• Diagnostics	Yes
• 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
Galvanic isolation	
Electrical isolation channels	
• between the channels	No
• between the channels, in groups of	8
• between the channels and the backplane bus	Yes
• between the channels and the load voltage L+	Yes
Permissible potential difference	
between MANA and M internally (UISO)	75 V DC/60 V AC (base isolation)
between S- and MANA (UCM)	+/- 8 V
Isolation	
Isolation checked 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:	30.09.2014