



SIMATIC S7-1500,
ANALOG OUTPUT MODULE AQ 4 X U/I ST;
16 BITS OF RESOLUTION, ACCURACY 0.3 %;
4 CHANNELS IN GROUPS OF 4;
DIAGNOSIS,
SUBSTITUTE VALUE INCL. INFEED 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.	190 mA ; with 24 V DC supply
Power	
Power available from the backplane bus	0.6 W
Power losses	
Power loss, typ.	4 W
Analog outputs	
Number of analog outputs	4
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 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 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	
Cable length, shielded, max.	800 m ; for current, 200 m for voltage
Analog value creation	
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 (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), (+/-)	0.0020 %/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 %
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	4
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 (UIISO)	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.	310 g
Status	Sep 29, 2014