SIEMENS

Data sheet



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 safetyoriented 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 HW functional status From FS01 FFM update possible Yes Product function • I&M data Yes; I&M0 to I&M3 • Isochronous mode • Prioritized startup No • Output range scalabile No • STEP 7 TIA Portal configurable/integrated from version • STEP 7 Tonfigurable/integrated from version • PROFIBUS from GSD version/GSD revision • PROFIBUS from GSD version Y2.3 / - Operating mode • Oversampling Yes • MSO CIR - Configuration in RUN Reparameterization possible in RUN Reparameterization possible in RUN Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Fower Power Power vauilable from the backplane bus Power loss, typ. Analog outputs Na Q& V Ves Ves Voltage output, short-circuit protection Yes Voltage output, short-circuit current, max. 20 V Voltage output, short-circuit current, max. 20 V		
HW functional status Firmware version Profupdate possible From FS01 From FS0	General information	
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FW update possible Yes Product function I & M data Yes; I&M0 to I&M3 I sochronous mode Yes Prioritized startup No Output range scalable No Engineering with STEP 7 TIA Portal configurable/integrated from version STEP 7 configurable/integrated from version PROFIBUS from GSD version/GSD revision PROFIGURATION PROFIGURATION PROFIGURATION Reparameterization possible in RUN Pes CIR - Configuration in RUN Reparameterization possible in RUN Yes Supply voltage Rated value (DC) Permissible range, lower limit (DC) Permissible range, upper limi	HW functional status	From FS01
Product function • I&M data	Firmware version	V2.1.0
I I I I I I I I I I I I I I I I I I I	 FW update possible 	Yes
Isochronous mode Prioritized startup Output range scalable Engineering with STEP 7 TIA Portal configurable/integrated from version STEP 7 Tonfigurable/integrated from version PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision V1.0 / V5.5 SP3 / - Ves SUBJECT from GSD version/GSD revision V2.3 / - Ves Supply voltage Rated value (DC) PROFINET from RUN Pes Supply voltage Rated value (DC) Promissible range, lower limit (DC) PROFINET from RUN Pes Supply voltage Rated value (DC) Profine from from from from from from from from	Product function	
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 Output range scalable Engineering with STEP 7 TIA Portal configurable/integrated from version STEP 7 configurable/integrated from version PROFIBUS from GSD version/GSD revision PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision PROFINET from GSD version/GSD revision Operating mode Oversampling MSO Yes MSO Yes CiR - Configuration in RUN Reparameterization possible in RUN Yes Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. Power Power available from the backplane bus 1.15 W Power loss Power loss Power loss, typ. Analog outputs Number of analog outputs Ves Voltage output, short-circuit protection Yes Voltage output, short-circuit current, max. 45 mA 	 Isochronous mode 	Yes
Engineering with STEP 7 TIA Portal configurable/integrated from version STEP 7 configurable/integrated from version PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision ProfineTrom GSD version ProfineTrom GSD version ProfineTrom GSD version ProfineTrom GSD version	 Prioritized startup 	No
STEP 7 TIA Portal configurable/integrated from version STEP 7 configurable/integrated from version PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision Operating mode Oversampling MSO Ves MSO Ves CIR - Configuration in RUN Reparameterization possible in RUN Calibration possible in RUN Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. Power Power variable from the backplane bus 1.15 W Power loss Power loss, typ. Analog outputs Number of analog outputs V14 /- V45 SP3 /- V10 /V5.1 V2.3 /- V2.3 /- Ves Ves Ves Ves Supply voltage Rated value (DC) permissible range, lower limit (DC) 28.8 V Reverse polarity protection Yes Input current Current consumption, max. 320 mA; with 19.2 V supply Power Power variable from the backplane bus 1.15 W Power loss Power loss, typ. Analog outputs Number of analog outputs Voltage output, short-circuit protection Yes Voltage output, short-circuit protection Ves Voltage output, short-circuit current, max. 45 mA	Output range scalable	No
version STEP 7 configurable/integrated from version PROFIBUS from GSD version/GSD revision PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision V2.3 /- Operating mode Oversampling MSO MSO Yes CIR - Configuration in RUN Reparameterization possible in RUN Calibration possible in RUN Yes Supply voltage Rated value (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC) Permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. 320 mA; with 19.2 V supply Power Power loss Power loss, typ. 7 W Analog outputs Number of analog outputs Voltage output, short-circuit protection Yes Vyes V1.0 / V5.1 V2.3 /- V2.3 /- Ves V2.3 /- Ves Ves Vas Ves 1.15 W Power loss Voltage output, short-circuit protection Yes Voltage output, short-circuit current, max. 45 mA	Engineering with	
PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision PROFINET from GSD version/GSD revision Operating mode Oversampling MSO Yes MSO Yes CIR - Configuration in RUN Reparameterization possible in RUN Calibration possible in RUN Yes Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. 230 mA; with 19.2 V supply Power Power available from the backplane bus 1.15 W Power loss Power loss, typ. 7 W Analog outputs Number of analog outputs Vultage output, short-circuit protection Yes Voltage output, short-circuit current, max. 45 mA	S S	V14 / -
PROFINET from GSD version/GSD revision Operating mode Oversampling MSO Yes CIR - Configuration in RUN Reparameterization possible in RUN Calibration possible in RUN Yes Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) permissible range, with 19.2 V permissible range, with 19.2 V permissible range, with 19.2 V permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. 320 mA; with 19.2 V supply Power Power loss Power loss Power loss, typ. 7 W Analog outputs Number of analog outputs Voltage output, short-circuit protection Yes Voltage output, short-circuit current, max. 45 mA	 STEP 7 configurable/integrated from version 	V5.5 SP3 / -
Operating mode Oversampling NSO WSO CiR - Configuration in RUN Reparameterization possible in RUN Yes Calibration possible in RUN Yes Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. 320 mA; with 19.2 V supply Power Power available from the backplane bus 1.15 W Power loss Power loss Power loss, typ. Analog outputs Number of analog outputs Voltage output, short-circuit protection Yes Voltage output, short-circuit current, max. 45 mA	 PROFIBUS from GSD version/GSD revision 	V1.0 / V5.1
● Oversampling ● MSO Yes CIR - Configuration in RUN Reparameterization possible in RUN Calibration possible in RUN Yes Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. 320 mA; with 19.2 V supply Power Power available from the backplane bus 1.15 W Power loss Power loss, typ. 7 W Analog outputs Number of analog outputs Voltage output, short-circuit protection Yes Voltage output, short-circuit current, max. 45 mA	 PROFINET from GSD version/GSD revision 	V2.3 / -
● MSO CiR - Configuration in RUN Reparameterization possible in RUN Calibration possible in RUN Yes Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Tourrent Current consumption, max. 220 mA; with 19.2 V supply Power Power available from the backplane bus 1.15 W Power loss Power loss, typ. Analog outputs Number of analog outputs Ves Voltage output, short-circuit protection Yes Ves Ves Voltage output, short-circuit current, max. 45 mA	Operating mode	
CiR - Configuration in RUN Reparameterization possible in RUN Calibration possible in RUN Yes Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. 230 mA; with 19.2 V supply Power Power available from the backplane bus 1.15 W Power loss, typ. 7 W Analog outputs Number of analog outputs Voltage output, short-circuit protection Yes Ves Ves 8 Voltage output, short-circuit current, max. 45 mA	 Oversampling 	Yes
Reparameterization possible in RUN Calibration possible in RUN Yes Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. 320 mA; with 19.2 V supply Power Power available from the backplane bus 1.15 W Power loss Power loss, typ. 7 W Analog outputs Number of analog outputs Voltage output, short-circuit protection Yes Ves Ves Ves Ves Ves Ves Ves Ves Ves V	• MSO	Yes
Calibration possible in RUN Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Current Current consumption, max. 320 mA; with 19.2 V supply Power Power available from the backplane bus 1.15 W Power loss, typ. 7 W Analog outputs Number of analog outputs Voltage output, short-circuit protection Value output, short-circuit current, max. Yes 45 mA	CiR - Configuration in RUN	
Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. 320 mA; with 19.2 V supply Power Power available from the backplane bus 1.15 W Power loss Power loss, typ. 7 W Analog outputs Number of analog outputs Voltage output, short-circuit protection Value output, short-circuit current, max. 24 V 19.2 V 19	Reparameterization possible in RUN	Yes
Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. 220 mA; with 19.2 V supply Power Power available from the backplane bus 1.15 W Power loss Power loss, typ. Analog outputs Number of analog outputs Voltage output, short-circuit protection Voltage output, short-circuit current, max. 24 V 19.2 V	Calibration possible in RUN	Yes
permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. Power available from the backplane bus Power loss Power loss, typ. Analog outputs Number of analog outputs Voltage output, short-circuit protection Ves 19.2 V 28.8 V Yes Yes 1.15 W Power loss 7 W Analog outputs 8 Voltage output, short-circuit protection Voltage output, short-circuit current, max. 45 mA	Supply voltage	
permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. Power Power available from the backplane bus 1.15 W Power loss Power loss, typ. Analog outputs Number of analog outputs Voltage output, short-circuit protection Voltage output, short-circuit current, max. 28.8 V Yes 1.25 W Yes 1.15 W Power loss Fower loss, typ. Analog outputs 8 Voltage output, short-circuit protection Voltage output, short-circuit current, max. 45 mA	Rated value (DC)	24 V
Reverse polarity protection Input current Current consumption, max. Power Power available from the backplane bus 1.15 W Power loss Power loss, typ. 7 W Analog outputs Number of analog outputs Voltage output, short-circuit protection Voltage output, short-circuit current, max. Yes Yes Yes 45 mA	permissible range, lower limit (DC)	19.2 V
Input current Current consumption, max. Power Power available from the backplane bus Power loss Power loss, typ. 7 W Analog outputs Number of analog outputs Voltage output, short-circuit protection Voltage output, short-circuit current, max. 320 mA; with 19.2 V supply 7 W Analog Voltage output 8 Voltage outputs Yes Voltage output, short-circuit current, max. 45 mA	permissible range, upper limit (DC)	28.8 V
Current consumption, max. 320 mA; with 19.2 V supply	Reverse polarity protection	Yes
Power available from the backplane bus Power loss Power loss, typ. 7 W Analog outputs Number of analog outputs Voltage output, short-circuit protection Voltage output, short-circuit current, max. 45 mA	Input current	
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 consumption, max.	320 mA; with 19.2 V supply
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	Power	
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	Power available from the backplane bus	1.15 W
Analog outputs Number of analog outputs Voltage output, short-circuit protection Voltage output, short-circuit current, max. 45 mA	Power loss	
Number of analog outputs Voltage output, short-circuit protection Voltage output, short-circuit current, max. 45 mA	Power loss, typ.	7 W
Voltage output, short-circuit protection Yes Voltage output, short-circuit current, max. 45 mA	Analog outputs	
Voltage output, short-circuit current, max. 45 mA	Number of analog outputs	8
	Voltage output, short-circuit protection	Yes
Current output, no-load voltage, max. 20 V	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	Cycle time (all channels), min.	125 μs; independent of number of activated channels

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Output ranges, voltage	Voc
• 0 to 10 V	Yes
● 1 V to 5 V ● -5 V to +5 V	Yes No
• -10 V to +10 V	Yes
Output ranges, current	Tes
• 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	0.05 %
output range), (+/-) note regarding accuracy	at temperatures below 0 °C, the figures for operating error and
Hote regulating decardey	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	
Diagnostics indication LED	V 150
• RUN LED	Yes; green LED
RUN LED ERROR LED	Yes; red LED
RUN LEDERROR LEDMonitoring of the supply voltage (PWR-LED)	Yes; red LED Yes; green LED
RUN LED ERROR LED	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)	
Standards, approvals, certificates		
Suitable for safety-related tripping of standard modules	Yes; from FS04	
Highest safety class achievable for safety-related tripping of standard modules		
 Performance level according to ISO 13849-1 	PL d	
 Category according to ISO 13849-1 	Cat. 3	
 SIL acc. to IEC 62061 	SIL 2	
Ambient conditions		
Ambient temperature during operation		
 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		
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	
last modified:	3/3/2022 🗗	