SIEMENS

Data sheet

6ES7332-5HF00-0AB0



SIMATIC S7-300, Analog output SM 332, isolated, 8 AO, U/I; diagnostics; resolution 11/12 bits, 40-pole, removing and inserting possible with active backplane bus

Figure similar

Supply voltage L + Rated value (DC) 24 V Reverse polarity protection Yes Yes Yes Trom load voltage L+ (without load), max. 340 mA from backplane bus 5 V DC, max. 100 mA 70 m		
Rated value (DC) Reverse polarity protection Tom load voltage L+ (without load), max. from load voltage L+ (without load), max.	Supply voltage	
Reverse polarity protection Yes	<u> </u>	
Input current From load voltage L+ (without load), max. 340 mA 100 mA 70 mb ackplane bus 5 V DC, max. 100 mA 70 mb ackplane bus 5 V DC, max. 100 mA 70 mb ackplane bus 5 V DC, max. 100 mA 70 mb ackplane bus 5 V DC, max. 100 mA 70 mb ackplane bus 5 V DC, max. 100 mA 70 mb ackplane bus 5 V DC, max. 100 mB 70 mb ackplane bus 5 V DC, max. 100 mB 70 mb ackplane bus 5 V DC, max. 100 mB 70 mb ackplane bus 5 V DC, max. 100 mB 70 mb ackplane bus 5 V DC, max. 100 mB 70 mb ackplane bus 5 V DC, max. 100 mB 70 mb ackplane bus 5 V DC, max. 100 mB 70 mb ackplane bus 5 V DC, max. 100 mB 70 mb ackplane bus 5 V DC, max. 100 mB 70 mb ackplane bus 5 V DC, max. 100 mB 70 mb ackplane bus 5 V DC, max. 100 mB 70 mb ackplane bus 5 V DC, max. 100 mB 70 mb ackplane bus 5 V DC, max. 100 mB 70 mb ackplane bus 5 V DC, max. 100 mB 70 mb ackplane bus 5 V DC, max. 100 mB 70 mb ackplane bus 6 V DC, max. 100 mB 70 mb ackplane bus 6 V DC, max. 100 mB 70 mb ackplane bus 6 V DC, max. 100 mB 70 mb ackplane bus 6 V DC, max. 100 mB 70 mb ackplane bus 6 V DC, max. 100 mB 70 mb ackplane bus 6 V DC, max. 100 mB 70 mb ackplane bus 6 V DC, max. 100 mB 70 mb ackplane bus 6 V DC, max. 100 mB 70 mb ackplane bus 6 V DC, max. 100 mB 70 mb ackplane bus 6 V DC, max. 100 mB 70 mb ackplane bus 6 V DC, max. 100 mB 70 mb ackplane bus 6 V DC, max. 100 mB 70 mb ackplane bus 6 V DC, max. 100 mB 100 mb ackplane bus 6 V DC, max. 100 mB 100 mb ackplane bus 6 V DC, max. 100 mB 100 mb ackplane bus 6 V DC, max. 100 mB 100 mb ackplane bus 6 V DC, max. 100 mB 100 mb ackplane bus 6 V DC, max. 100 mB 100 mb ackplane bus 6 V DC, max. 100 mB 100 mb ackplane bus 6 V DC, max. 100 mB 100 mb ackplane bus 6 V DC, max. 100 mB 100 mb ackplane bus 6 V DC, max. 100 mB 100 mb ackplane bus 6 V DC, max. 100 mB 100 mb ackplane bus 6 V DC, max. 100 mb ackplane bus 6 V DC, max. 100 mb ackplane bus 6 V DC, max. 1	` '	
from load voltage L+ (without load), max. 340 mA 100 mA 1	Reverse polarity protection	Yes
From backplane bus 5 V DC, max. 100 mA	Input current	
Power loss Power loss, typ. 6 W	from load voltage L+ (without load), max.	340 mA
Power loss, typ. 6 W Analog outputs Number of analog outputs	from backplane bus 5 V DC, max.	100 mA
Analog outputs 8 Number of analog outputs 8 Voltage output, short-circuit current, max. 25 mA Current output, no-load voltage, max. 18 V Output ranges, voltage • 0 to 10 V • 10 V to 5 V Yes • -10 V to +10 V Yes Output ranges, current • 0 to 20 mA • 20 mA to +20 mA Yes • 4 mA to 20 mA Yes • 4 mA to 20 mA Yes • with voltage outputs, min. 1 kΩ • with voltage outputs, capacitive load, max. 1 μF • with current outputs, inductive load, max. 10 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. 12 bit; ±10 V, ±20 mA, 4 mA to 20 mA, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA: 12 bit • Conversion time (per channel) 0.8 ms Settling time • for repacitive load 0.2 ms • for inductive load 0.5 ms; 0.5 ms; (1 mH); 3.3 ms (10 mH) Errors/accuracies	Power loss	
Number of analog outputs Voltage output, short-circuit protection Voltage output, short-circuit current, max. 25 mA Current output, no-load voltage, max. 18 V Output ranges, voltage • 0 to 10 V • 1 V to 5 V • -10 V to +10 V Output ranges, current • 0 to 20 mA • -20 mA to +20 mA • -20 mA to 20 mA • 4 mA to 20 mA Ves • 4 mA to 20 mA Load impedance (in rated range of output) • with voltage outputs, min. • with voltage outputs, min. • with voltage outputs, max. • with current outputs, max. • with current outputs, inductive load, max. • with current outputs, inductive load, max. 10 mH Cable length • shielded, max. Analog value generation for the outputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Conversion time (per channel) Settling time • for resistive load • for capacitive load • for capacitive load • for capacitive load • for inductive load	Power loss, typ.	6 W
Voltage output, short-circuit protection Voltage output, short-circuit current, max. Current output, no-load voltage, max. Output ranges, voltage • 0 to 10 V • 1 V to 5 V • -10 V to +10 V Output ranges, current • 0 to 20 mA • -20 mA to +20 mA • 4 mA to 20 mA Load impedance (in rated range of output) • with voltage outputs, min. • with voltage outputs, max. • with current outputs, max. • with current outputs, inductive load, max. • where the conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Conversion time (per channel) Settling time • for capacitive load • for capacitive load • for capacitive load • for capacitive load • for inductive load	Analog outputs	
Voltage output, short-circuit current, max. Current output, no-load voltage, max. 0 to 10 V • 1 V to 5 V • -10 V to +10 V Output ranges, current • 0 to 20 mA • -20 mA to +20 mA • 4 mA to 20 mA • with voltage outputs, capacitive load, max. • with current outputs, inductive load, max. • with current outputs, inductive load, max. • with current outputs, inductive load, max. • shielded, max. Analog value generation for the outputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Conversion time (per channel) Settling time • for capacitive load • for capacitive load • for capacitive load • for inductive load	Number of analog outputs	8
Current output, no-load voltage, max. Output ranges, voltage • 0 to 10 V	Voltage output, short-circuit protection	Yes
Output ranges, voltage • 0 to 10 V • 1 V to 5 V • -10 V to +10 V Output ranges, current • 0 to 20 mA • -20 mA to +20 mA • 4 mA to 20 mA Load impedance (in rated range of output) • with voltage outputs, min. • with voltage outputs, capacitive load, max. • with current outputs, max. • with current outputs, inductive load, max. • with current outputs, inductive load, max. • with current outputs, inductive load, max. Cable length • shielded, max. Analog value generation for the outputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Conversion time (per channel) Settling time • for resistive load • for capacitive load • for capacitive load • for capacitive load • for capacitive load • for inductive load	Voltage output, short-circuit current, max.	25 mA
 0 to 10 V 1 V to 5 V -10 V to +10 V Yes -10 V to +10 V Yes Output ranges, current 0 to 20 mA -20 mA to +20 mA Yes 4 mA to 20 mA with voltage outputs, capacitive load, max. with voltage outputs, capacitive load, max. with current outputs, max. with current outputs, inductive load, max. with current outputs, inductive load, max. a with current outputs, inductive load, max. a with current outputs, inductive load, max. a with current outputs, inductive load, max. a conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) Settling time for resistive load for resistive load for capacitive load for capacitive load for inductive load 	Current output, no-load voltage, max.	18 V
 • 1 V to 5 V • -10 V to +10 V Yes Output ranges, current • 0 to 20 mA • -20 mA to +20 mA • 4 mA to 20 mA • with voltage outputs, min. • with voltage outputs, capacitive load, max. • with current outputs, max. • with current outputs, inductive load, max. 1 μF • with current outputs, inductive load, max. 10 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. • Conversion time (per channel) Settling time • for resistive load • for resistive load • for capacitive load • for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) Errors/accuracies		
• -10 V to +10 V Output ranges, current • 0 to 20 mA • -20 mA to +20 mA • 4 mA to 20 mA Load impedance (in rated range of output) • with voltage outputs, min. • with voltage outputs, capacitive load, max. • with current outputs, max. • with current outputs, inductive load, max. • with current outputs, inductive load, max. • shielded, max. Cable length • shielded, max. Analog value generation for the outputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Conversion time (per channel) Settling time • for resistive load • for capacitive load • for capacitive load • for inductive load	• 0 to 10 V	Yes
Output ranges, current • 0 to 20 mA • -20 mA to +20 mA • 4 mA to 20 mA • with voltage outputs, min. • with voltage outputs, capacitive load, max. • with current outputs, inductive load, max. • bound • Shielded, max. • conversion for the outputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Settling time • for resistive load • for capacitive load • for capacitive load • for inductive load • for inductive load • Sms; 0.5 ms (1 mH); 3.3 ms (10 mH)	• 1 V to 5 V	Yes
 0 to 20 mA -20 mA to +20 mA 4 mA to 20 mA with voltage outputs, min. with voltage outputs, capacitive load, max. with current outputs, inductive load, max. with current outputs, inductive load, max. with current outputs, inductive load, max. b with current outputs, inductive load, max. with current outputs, inductive load, max. b mH Cable length shielded, max. a 200 m Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. 12 bit; ±10 V, ±20 mA, 4 mA to 20 mA, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA: 12 bit a Conversion time (per channel) b Settling time for resistive load for capacitive load for capacitive load for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) Errors/accuracies	• -10 V to +10 V	Yes
 -20 mA to +20 mA	Output ranges, current	
• 4 mA to 20 mA Load impedance (in rated range of output) • with voltage outputs, min. • with voltage outputs, capacitive load, max. • with current outputs, max. • with current outputs, inductive load, max. • with current outputs, inductive load, max. 10 mH Cable length • shielded, max. Analog value generation for the outputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. 12 bit; ±10 V, ±20 mA, 4 mA to 20 mA, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA: 12 bit • Conversion time (per channel) Settling time • for resistive load • for capacitive load • for capacitive load • for inductive load • for capacitive load • for inductive load • for inductive load • for inductive load • for inductive load • for capacitive load • for inductive load	• 0 to 20 mA	Yes
Load impedance (in rated range of output) • with voltage outputs, min. • with voltage outputs, capacitive load, max. • with current outputs, max. • with current outputs, inductive load, max. • with current outputs, inductive load, max. 10 mH Cable length • shielded, max. Analog value generation for the outputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. Property of the conversion time (per channel) Conversion time (per channel) Settling time • for resistive load • for capacitive load • for capacitive load • for inductive load	• -20 mA to +20 mA	Yes
$ \begin{array}{lll} \bullet \text{ with voltage outputs, min.} & 1 \text{ k}\Omega \\ \bullet \text{ with voltage outputs, capacitive load, max.} & 1 \mu\text{F} \\ \bullet \text{ with current outputs, max.} & 500 \ \Omega \\ \bullet \text{ with current outputs, inductive load, max.} & 10 \text{ mH} \\ \hline \textbf{Cable length} & \bullet \text{ shielded, max.} & 200 \text{ m} \\ \hline \textbf{Analog value generation for the outputs} \\ \hline \textbf{Integration and conversion time/resolution per channel} & \bullet \text{ Resolution with overrange (bit including sign), max.} & 12 \text{ bit; } \pm 10 \text{ V, } \pm 20 \text{ mA, } 4 \text{ mA to } 20 \text{ mA, } 1 \text{ V to } 5 \text{ V: } 11 \text{ bit } + \text{ sign; } 0 \text{ V to } 10 \text{ V, } 0 \text{ mA to } 20 \text{ mA: } 12 \text{ bit} \\ \hline \bullet \text{ Conversion time (per channel)} & 0.8 \text{ ms} \\ \hline \textbf{Settling time} & \bullet \text{ for resistive load} & 0.2 \text{ ms} \\ \hline \bullet \text{ for inductive load} & 0.5 \text{ ms; } 0.5 \text{ ms (1 mH); } 3.3 \text{ ms (10 mH)} \\ \hline \textbf{Errors/accuracies} & \hline \end{array}$	• 4 mA to 20 mA	Yes
 with voltage outputs, capacitive load, max. with current outputs, max. with current outputs, inductive load, max. 10 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. Conversion time (per channel) 8 ms Settling time for resistive load for capacitive load for inductive load for inductive load for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) Errors/accuracies 1 μF 500 Ω 0 mH 0.2 ms for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) 	Load impedance (in rated range of output)	
 with current outputs, max. with current outputs, inductive load, max. Cable length shielded, max. Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Econversion time (per channel) Settling time for resistive load for capacitive load for inductive load for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) Errors/accuracies	with voltage outputs, min.	1 kΩ
 with current outputs, inductive load, max. Cable length shielded, max. Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) Settling time for resistive load for capacitive load for inductive load for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) Errors/accuracies	 with voltage outputs, capacitive load, max. 	1 μF
Cable length ◆ shielded, max. Analog value generation for the outputs Integration and conversion time/resolution per channel ◆ Resolution with overrange (bit including sign), max. ◆ Conversion time (per channel) Settling time ◆ for resistive load ◆ for capacitive load ◆ for inductive load ◆ for inductive load ◆ shielded, max. 200 m 12 bit; ±10 V, ±20 mA, 4 mA to 20 mA, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA: 12 bit 0.8 ms 0.2 ms 3.3 ms ◆ for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) Errors/accuracies	 with current outputs, max. 	500 Ω
shielded, max. Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) Settling time for resistive load for capacitive load for inductive load for inductive load Errors/accuracies 200 m 200 m 200 m 200 m 12 bit; ±10 V, ±20 mA, 4 mA to 20 mA, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA: 12 bit 0.8 ms 0.2 ms 3.3 ms 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH)	 with current outputs, inductive load, max. 	10 mH
Analog value generation for the outputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Conversion time (per channel) Settling time • for resistive load • for capacitive load • for inductive load • for inductive load • for inductive load • The outputs 12 bit; ±10 V, ±20 mA, 4 mA to 20 mA, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA: 12 bit 0.8 ms 0.2 ms 3.3 ms • for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) Errors/accuracies	Cable length	
Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Conversion time (per channel) • Settling time • for resistive load • for capacitive load • for inductive load • for inductive load • for inductive load • for miductive load • for miductive load • for miductive load • for miductive load • for inductive load • for miductive load	shielded, max.	200 m
Resolution with overrange (bit including sign), max. 12 bit; ±10 V, ±20 mA, 4 mA to 20 mA, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA: 12 bit Conversion time (per channel) 8 ms Settling time 10 for resistive load 10 for capacitive load 10 for inductive load 11 bit; ±10 V, ±20 mA, 4 mA to 20 mA, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA: 12 bit 10 for inductive load 10 for inductive load 10 for inductive load 11 bit; ±10 V, ±20 mA, 4 mA to 20 mA, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA: 12 bit 12 bit; ±10 V, ±20 mA, 4 mA to 20 mA, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA: 12 bit 13 bit; ±10 V, ±20 mA, 4 mA to 20 mA, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA: 12 bit 14 bit; ±10 V, ±20 mA, 4 mA to 20 mA, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA: 12 bit 15 bit; ±10 V, ±20 mA, 4 mA to 20 mA, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA: 12 bit 16 for inductive load 17 for inductive load 18 for inductive load 19 for inductive load 19 for inductive load 10 for inductive load	Analog value generation for the outputs	
Onversion time (per channel) Settling time of resistive load of reapacitive load of reinductive load	Integration and conversion time/resolution per channel	
Settling time • for resistive load • for capacitive load • for inductive load • for inductive load 0.2 ms 3.3 ms • for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) Errors/accuracies	Resolution with overrange (bit including sign), max.	12 bit; ±10 V, ±20 mA, 4 mA to 20 mA, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA: 12 bit
for resistive load for capacitive load for inductive load	Conversion time (per channel)	0.8 ms
 for capacitive load for inductive load Errors/accuracies 3.3 ms 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH)	Settling time	
• for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) Errors/accuracies	for resistive load	0.2 ms
Errors/accuracies	 for capacitive load 	3.3 ms
	 for inductive load 	0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH)
Operational error limit in overall temperature range	Errors/accuracies	
	Operational error limit in overall temperature range	

 Voltage, relative to output range, (+/-) 	0.5 %
Current, relative to output range, (+/-)	0.6 %
Basic error limit (operational limit at 25 °C)	
 Voltage, relative to output range, (+/-) 	0.4 %
 Current, relative to output range, (+/-) 	0.5 %
Interrupts/diagnostics/status information	
Diagnostics function	Yes; Parameterizable
Alarms	
Diagnostic alarm	Yes; Parameterizable
Diagnoses	
Diagnostic information readable	Yes
Diagnostics indication LED	
 Group error SF (red) 	Yes
Potential separation	
Potential separation analog outputs	
 between the channels 	No
 between the channels and backplane bus 	Yes
 Between the channels and load voltage L+ 	Yes
 between the channels and the power supply of the 	Yes
electronics	
Isolation	
Isolation tested with	500 V DC
connection method / header	
required front connector	40-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	117 mm
Weights	
Weight, approx.	272 g

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last modified: