SIEMENS

Data sheet

6ES7332-5HD01-0AB0



SIMATIC S7-300, Analog output SM 332, isolated, 4 AO, U/I; diagnostics; resolution 11/12 bits, 20-pole, removing and inserting possible with active backplane bus

Figure	similar
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Load voltage L+ • Rated value (DC) 24 V • Reverse polarity protection Yes Input durrent from backplane bus 5 V DC, max. from backplane bus 5 V DC, max. 60 mA Power loss. Power loss. Power loss. typ. 3 W Analog outputs 4 Number of analog outputs 4 Voltage output, short-circuit protection Yes Voltage output, short-circuit protection Yes Output ranges, voltage 18 V Output ranges, voltage 0 to 10 V • 10 to 10 V Yes • 10 to 10 V Yes • 10 to 20 mA Yes • 20 mA to 20 mA Yes • 20 mA to 20 mA Yes • 20 mA to 20 mA Yes Load impedance (in rated range of output) 1 kΩ • with voltage outputs, max. 500 Q • with current outputs, max. 20 m • with current outputs, max. 20 m • with current outputs, max. 200 m Analog value generation for the outputs • with current outputs, max. 200 m <t< th=""><th>Supply voltage</th><th></th></t<>	Supply voltage	
• Rated value (DC) 24 V • Reverse polarity protection Yes Input current From load voltage L+ (without load), max. 240 mA from backplane bus 5 V DC, max. 80 mA Power loss. Power loss. Power loss. Form load voltage L+ (without load), max. 60 mA Power loss. Form load voltage L+ (without load), max. 60 mA Power loss. Form load voltage low (max) 80 mA Power loss. Form load voltage low (max) 80 mA Power loss. Form load voltage low (max) 80 mA Voltage output. short-circuit protection Yes 90 mA Voltage output. short-circuit current, max. 25 mA 25 mA Current output. short-circuit current, max. 25 mA 25 mA Current output. short-circuit current, max. 25 mA 20 mA • 0 to 10 V Yes •10 V to 5 V Yes • 0 to 10 V Yes •10 V to 10 V Yes Output ranges.current • 0 to 20 mA Yes *10 mL • ad mA to 20 mA Yes *10 mL *10 mL • with voltage outputs, max. 10 F		
• Reverse polarity protection Yes Input current 240 mA from backplane bus 5 V DC, max. 60 mA Power loss. 60 mA Power loss, typ. 3 W Analog outputs 4 Voltage output, short-circuit protection Yes Voltage output, short-circuit current, max. 25 mA Current output, short-circuit current, max. 25 mA Current output, short-circuit current, max. 18 V Output ranges, voltage • • 0 to 10 V Yes • 10 to 10 V Yes • 10 to 20 mA Yes • 20 mA to +20 mA Yes • 20 and to +20 and Yes • 20 and to +20 anA Yes • 20 and t		24 \/
Input current Analog value from backplane bus 5 V DC, max. 240 mA from backplane bus 5 V DC, max. 60 mA Power loss, typ. 3 W Analog outputs 4 Voltage output, short-circuit protection Yes Voltage output, short-circuit protection Yes Output ranges, voltage 7 • 0 to 10 V Yes • 0 to 20 mA Yes • 0 to 20 mA Yes Load impedance (in rated range of output) Yes Load impedance (in rated range of output) • with voltage outputs, min. 1 kΩ • with ourrent outputs, inductive load, max. 1 μF • with ourrent outputs, max. 500 Ω • with ourrent outputs, inductive load, max. 10 mH Cable length • • shielded, max. 200 m Analog value generation for the outputs 10 V. 0 C		
from load voltage L+ (without load), max. 240 mA from backplane bus 5 V DC, max. 60 mA Power loss Power loss Power loss, typ. 3 W Analog outputs 4 Voltage output, short-circuit protection Yes Voltage output, short-circuit current, max. 25 mA Current output, no-load voltage, max. 18 V Output ranges, voltage 0 to 10 V • 0 to 10 V Yes • 0 to 20 mA Yes • 10 V to +10 V Yes Output ranges, current • • 0 to 20 mA Yes • 0 to 10 V Yes • 0 to 20 mA Yes • 0 to 20 mA Yes • 10 V to +10 V Yes Load impedance (in rated range of output) • • with voltage outputs, min. 1 μF • with outgage outputs, inductive load, max. 10 mH Cable length • • shielded, max. 200 m Analog value generation for 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 • Shielded, max. 200 m <		
from backplane bus 5 V DC, max. 60 mA Power loss - Power loss, typ. 3 W Analog outputs 4 Voltage output, short-circuit protection Yes Voltage output, short-circuit current, max. 25 mA Current output, no-load voltage, max. 18 V Output ranges, voltage - • 0 to 10 V Yes • 0 to 10 V Yes • 10 V to +10 V Yes • 10 V to +10 V Yes • 0 to 20 mA Yes • 10 v to +20 mA Yes • 0 to 20 mA Yes • 20 mA to +20 mA Yes Load impedance (in rated range of output) - • with voltage outputs, max. 1 µF • with voltage outputs, max. 500 Ω • with current outputs, max. 500 Ω • with current outputs, max. 200 m Analog value generation for the outputs - • Shielded, max. 200 m Analog value generation for the outputs - • Shielded, max. 200 m Analog value generation intine/resolution per channel -	· · ·	040
Power loss Power loss, typ. 3 W Analog outputs 4 Number of analog outputs 4 Voltage output, short-circuit protection Yes Voltage output, short-circuit current, max. 25 mA Current output, no-load voltage, max. 18 V Output ranges, voltage • • 0 to 10 V Yes • 10 to 5 V Yes • 10 to 10 V Yes • 0 to 20 mA Yes • 20 mA to +20 mA Yes • 20 mA to 420 mA Yes • with voltage outputs, capacitive load, max. 1 µF • with voltage outputs, inductive load, max. 10 mH Cable length • • shielded, max. 200 m Analog value generation for 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, 1 V to 5 V; 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA, 1 V to 5 V; 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA, 1 Z bit • for resistive load 0.2 ms • for resistive load 0.2 ms • for ind		
Power loss, typ. 3 W Analog outputs 4 Number of analog outputs 4 Voltage output, short-circuit protection Yes Voltage output, short-circuit current, max. 25 mA Current output, no-load voltage, max. 18 V Output ranges, voltage • • 0 to 10 V Yes • 10 V to 5 V Yes • 10 V to 10 V Yes • 0 to 20 mA Yes • 0 to 20 mA Yes • 0 to 20 mA Yes • 20 mA to +20 mA Yes Load impedance (in rated range of output) • • with voltage outputs, max. 1 kΩ • with voltage outputs, max. 500 Ω • with current outputs, inductive load, max. 1 μF • with current outputs, inductive load, max. 10 mH Cable length 200 m Analog value generation for 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, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA, 1 Z bit • Conversion time (per channel) 0.8 ms Setting time 0.2 ms • for resistive load 0.2 ms <td></td> <td>60 mA</td>		60 mA
Analog outputs 4 Number of analog outputs 4 Voltage output, short-circuit protection Yes Voltage output, short-circuit current, max. 25 mA Current output, no-load voltage, max. 18 V Output ranges, voltage • • 0 to 10 V Yes • 10 V to 5 V Yes • 10 V to 10 V Yes • 10 V to 5 V Yes • 10 V to 20 mA Yes • 20 mA to +20 mA Yes • 20 mA to +20 mA Yes Load impedance (in rated range of output) • • with voltage outputs, inin. 1 kΩ • with voltage outputs, inductive load, max. 1 µF • with current outputs, inductive load, max. 1 0 mH Cable length • • shielded, max. 200 m Analog value generation for 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 • Conversion time (per channel) 0.8 ms Setting time 0.2 ms • for resistive load 0.2 ms • for capacitive load 0.2 ms • for inductive load<	Power loss	
Number of analog outputs 4 Voltage output, short-circuit protection Yes Voltage output, short-circuit current, max. 25 mA Current output, no-load voltage, max. 18 V Output ranges, voltage 0 • 0 to 10 V Yes • 10 V to 5 V Yes • -10 V to +10 V Yes • 0 to 20 mA Yes • 0 to 20 mA Yes • -20 mA to +20 mA Yes • 4 mA to 20 mA Yes Load impedance (in rated range of output) 1 kΩ • with voltage outputs, capacitive load, max. 1 μF • with current outputs, inductive load, max. 10 mH Cable length 200 m Analog value generation for 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 • Conversion time (per channel) 0.8 ms Settling time 0.2 ms • for resistive load 0.2 ms • for inductive load 0.3 ms • for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) Errors/accuracies 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH)	Power loss, typ.	3 W
Voltage output, short-circuit protectionYesVoltage output, short-circuit current, max.25 mACurrent output, no-load voltage, max.18 VOutput ranges, voltage• 0 to 10 VYes• 1 V to 5 VYes• 1 0 V to +10 VYes• 0 to 20 mAYes• 0 to 20 mAYes• 20 mA to +20 mAYes• 4 mA to 20 mAYesLoad impedance (in rated range of output)1 kQ• with voltage outputs, max.1 µF• with voltage outputs, inductive load, max.1 µF• with voltage outputs, inductive load, max.10 mHCable length200 m• shielded, max.200 mAnalog value generation for the outputs12 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 msSettling time0.2 ms• for resistive load3.3 ms• for inductive load0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH)Errors/accuracies0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH)	Analog outputs	
Voltage output, short-circuit current, max. 25 mA Current output, no-load voltage, max. 18 V Output ranges, voltage 18 V • 0 to 10 VYes• 1 V to 5 VYes• 10 V to +10 VYes• 0 to 20 mAYes• 20 mA to +20 mAYes• 4 mA to 20 mAYes• 4 mA to 20 mAYes• with voltage outputs, capacitive load, max.1 µF• with voltage outputs, capacitive load, max.1 µF• with current outputs, inductive load, max.10 mHCable length 0 to 20 mA • shielded, max.200 mAnalog value generation for the outputs $12 \text{ bit}; \pm10 \text{ V}, \pm20 \text{ mA}, 4 \text{ mA to 20 mA}, 1 \text{ V to 5 V} : 11 \text{ bit + sign; 0 V to 10 V, 0 mA to 20 mA.• Resolution with overrange (bit including sign), max.12 \text{ bit}; \pm10 \text{ V}, \pm20 \text{ mA}, 4 \text{ mA to 20 mA, 1 V to 5 V: 11 bit + sign; 0 V to 10 V, 0 mA to 20 mA: 12 \text{ bit} 0 V, $	Number of analog outputs	4
Current output, no-load voltage, max. 18 V Output ranges, voltage • • 0 to 10 V Yes • 1 V to 5 V Yes • -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 • 4 mA to 20 mA Yes • with voltage outputs, min. 1 kΩ • with voltage outputs, capacitive load, max. 1 μF • with voltage outputs, capacitive load, max. 10 mH Cable length • • shielded, max. 200 m Analog value generation for 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 • Conversion time (per channel) 0.8 ms Setting time 0.2 ms • for resistive load 0.2 ms • for capacitive load 0.3 ms • for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH)	Voltage output, short-circuit protection	Yes
Output ranges, voltage • 0 to 10 V Yes • 1 V to 5 V Yes • 1 V to 5 V Yes • 10 V to +10 V Yes Output ranges, current Yes • 0 to 20 mA Yes • 20 mA to +20 mA Yes • 4 mA to 20 mA Yes Load impedance (in rated range of output) * • with voltage outputs, capacitive load, max. 1 μF • with voltage outputs, capacitive load, max. 10 mH Cable length * • shielded, max. 200 m Analog value generation for 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 • Conversion time (per channel) 0.8 ms Settling time 0.2 ms • for repacitive load 0.3 ms • for capacitive load 0.3 ms • for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH)	Voltage output, short-circuit current, max.	25 mA
• 0 to 10 V • 1 V to 5 V • 1 V to 5 V • 20 V to +10 V • 0 to 20 mA • 20 mA to +20 mA • 20 mA to +20 mA • 20 mA to 20 mA • 12 bit • 20 mA •	Current output, no-load voltage, max.	18 V
• 1 V to 5 V Yes • -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 Load impedance (in rated range of output) - • with voltage outputs, min. 1 kΩ • with voltage outputs, capacitive load, max. 1 μF • with current outputs, max. 500 Ω • with current outputs, 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 Setting time - • for capacitive load 0.2 ms • for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) Errors/accuracies -5 ms (1 mH); 3.3 ms (10 mH)	Output ranges, voltage	
• -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 • 4 mA to 20 mA Yes Load impedance (in rated range of output) • • with voltage outputs, capacitive load, max. 1 μF • with voltage outputs, capacitive load, max. 10 mH Cable length 200 m • shielded, max. 200 m Analog value generation for 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 • Conversion time (per channel) 0.8 ms Setting time • • for resistive load 0.2 ms • for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH)	• 0 to 10 V	Yes
Output ranges, current 0 0 to 20 mA Yes - 20 mA to +20 mA Yes 4 mA to 20 mA Yes Load impedance (in rated range of output) 1 kΩ with voltage outputs, min. 1 kΩ with voltage outputs, capacitive load, max. 1 μF with voltage outputs, inductive load, max. 10 mH Cable length 500 Ω • shielded, max. 200 m Analog value generation for the outputs 200 m Analog value generation for 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 • Conversion time (per channel) 0.8 ms Setting time 0.2 ms • for resistive load 0.2 ms • for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) Errors/accuracies Errors/accuracies	• 1 V to 5 V	Yes
• 0 to 20 mA Yes • -20 mA to +20 mA Yes • 4 mA to 20 mA Yes Load impedance (in rated range of output) Yes • with voltage outputs, min. 1 kΩ • with voltage outputs, capacitive load, max. 1 μF • with current outputs, max. 500 Ω • with current outputs, inductive load, max. 10 mH Cable length 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 0.2 ms • for resistive load 0.2 ms • for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) Errors/accuracies 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH)	• -10 V to +10 V	Yes
20 mA to +20 mAYes4 mA to 20 mAYesLoad impedance (in rated range of output)• with voltage outputs, min.1 kΩ• with voltage outputs, capacitive load, max.1 μF• with current outputs, max.500 Ω• with current outputs, inductive load, max.10 mHCable length• shielded, max.200 mAnalog value generation for the outputsIntegration 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• for resistive load0.2 ms• for resistive load0.2 ms• for inductive load0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH)Errors/accuracies	Output ranges, current	
• 4 mA to 20 mA Yes Load impedance (in rated range of output) • • with voltage outputs, min. 1 kΩ • with voltage outputs, capacitive load, max. 1 μF • with current outputs, max. 500 Ω • 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 resistive load • for capacitive load 0.2 ms • for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) Errors/accuracies Errors/accuracies	• 0 to 20 mA	Yes
Load impedance (in rated range of output) 1 kΩ • with voltage outputs, capacitive load, max. 1 μF • with current outputs, max. 500 Ω • with current outputs, inductive load, max. 10 mH Cable length shielded, max. • shielded, max. 200 m Analog value generation for the outputs 200 m Analog value generation for 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 • Conversion time (per channel) 0.8 ms Settling time 0.2 ms • for resistive load 0.2 ms • for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) Errors/accuracies Errors/accuracies	 -20 mA to +20 mA 	Yes
• with voltage outputs, min. 1 kΩ • with voltage outputs, capacitive load, max. 1 μF • with current outputs, max. 500 Ω • with current outputs, inductive load, max. 10 mH Cable length shielded, max. • 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) • for resistive load • for capacitive load • for capacitive load • for inductive load	• 4 mA to 20 mA	Yes
• with voltage outputs, capacitive load, max. 1 μF • with current outputs, max. 500 Ω • 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 0.2 ms • for resistive load 0.2 ms • for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) Errors/accuracies Errors/accuracies	Load impedance (in rated range of output)	
• with current outputs, max. 500 Ω • with current outputs, inductive load, max. 10 mH Cable length • shielded, max. • shielded, max. 200 m Analog value generation for the outputs 200 m Integration and conversion time/resolution per channel 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 0.2 ms • for resistive load 0.2 ms • 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. 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 resistive load 0.2 ms for capacitive 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 200 m Analog value generation for the outputs 200 m Integration and conversion time/resolution per channel 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 0.2 ms • for resistive load 0.2 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. 200 m Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Resolution with overrange (bit including sign), max. 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 inductive load 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. 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 resistive load • for capacitive load • for inductive load	Cable length	
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 resistive load • for capacitive load • for inductive load • for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH)	 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) Settling time for resistive load for capacitive load for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) 	Analog value generation for the outputs	
• Conversion time (per channel) 0.8 ms • Settling time 0.2 ms • for resistive load 0.2 ms • for capacitive load 3.3 ms • for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH)	Integration and conversion time/resolution 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)	• Resolution with overrange (bit including sign), max.	
for resistive load 0.2 ms ofor capacitive load ofor inductive load ofor inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) Errors/accuracies	 Conversion time (per channel) 	0.8 ms
for capacitive load 3.3 ms for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH) Errors/accuracies	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 electronics 	Yes
Isolation	
Isolation tested with	500 V DC
connection method / header	
required front connector	20-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	117 mm
Weights	
Weight, approx.	220 g
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