## SIEMENS

## Data sheet

## 6ES7332-5HB01-0AB0



SIMATIC S7-300, Analog output SM 332, isolated, 2 AO, U/I; resolution 11/12 bits, 20-pole, Removing/inserting with active backplane bus possible

Supply voltage           Load voltage L+           • Rated value (DC)         24 V           • Rated value (DC)         24 V           • Reverse polarity protection         Yes           Input current         135 mA           from load voltage L+ (without load), max.         135 mA           from backplane bus 5 V DC, max.         60 mA           Power loss, typ.         3 W           Analog outputs         2           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           • 1 V to 5 V         Yes           • 10 V to 10 V         Yes           • 0 to 10 V         Yes           • 0 to 10 V         Yes           • 0 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)         Yes           Load impedance (in rated range of output)         thC	*	
• Rated value (DC)     24 V       • Reverse polarity protection     Yes       Input current     135 mA       from backplane bus 5 V DC, max.     60 mA       Power loss     60 mA       Power loss, typ.     3 W       Analog outputs     2       Voltage output, short-circuit protection     Yes       Voltage output, short-circuit protection     Yes       Output ranges, voltage     18 V       Output ranges, voltage     18 V       Output ranges, voltage, max.     18 V       Output ranges, voltage     Yes       • 0 to 10 V     Yes       • 10 V to 5 V     Yes       • 0 to 20 mA     Yes       • 0 to 20 mA     Yes       • 4 m to 20 mA     Yes       • 4 m to 20 mA     Yes       • 4 m to 20 mA     Yes       • with voltage outputs, capacitive load, max.     1 μF       • with voltage outputs, min.     1 kQ       • with current outputs, inductive load, max.     10 mH	Supply voltage	
• Reverse polarity protection Yes input current from load voltage L+ (without load), max. 135 mA from backplane bus 5 V DC, max. 60 mA Power loss Power loss Power loss Power loss Power loss, typ. 3 W Analog outputs Analog outputs Number of analog outputs 2 Voltage output, short-circuit protection Yes Voltage output, short-circuit current, max. 25 mA Current output, no-load voltage, max. 88 V Output ranges, voltage • 0 to 10 V Yes • 10 V to 5V Yes • 10 V to 5V Yes • 10 V to 10 V Yes Output ranges, current • 0 to 20 mA Yes • 20 mA 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, max. 500 Ω • with current outputs, max. 10 mH Cable length	Load voltage L+	
Input current       135 mA         from load voltage L+ (without load), max.       135 mA         from backplane bus 5 V DC, max.       60 mA         Power loss       9         Power loss, typ.       3 W         Analog outputs       2         Number of analog outputs       2         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 V to 5 V       Yes         • 0 to 20 mA       Yes         • 20 mA to +20 mA       Yes         Load impedance (in rated range of output)       -         • with voltage outputs, min.       1 kΩ         • with voltage outputs, max.       500 Ω         • with voltage outputs, max.       500 Ω         • with current outputs, max.       500 Ω         • with current outputs, max.       500 Ω         • with current outputs, max.       500 Ω         <	Rated value (DC)	24 V
from load voltage L+ (without load), max.       135 mA         from backplane bus 5 V DC, max.       60 mA         Power loss       9         Power loss, typ.       3 W         Analog outputs       2         Number of analog outputs       2         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 +10 V       Yes         • 0 to 20 mA       Yes         • 10 V to +10 V       Yes         • 0 to 20 mA       Yes         • 10 v to +10 V       Yes         Output ranges, current       -         • 0 to 20 mA       Yes         Load impedance (in rated range of output)       Yes         • with voltage outputs, capacitive load, max.       1 μF         • with voltage outputs, max.       500 Ω         • with current outputs, max.       500 Ω         • with current outputs, max.       10 mH	<ul> <li>Reverse polarity protection</li> </ul>	Yes
from backplane bus 5 V DC, max.       60 mA         Power loss       3 W         Analog outputs       3 W         Number of analog outputs       2         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 10 V       Yes         • 10 to 10 V       Yes         • 0 to 20 mA       Yes         • 10 to 20 mA       Yes         • 10 to 20 mA       Yes         Load impedance (in rated range of output)	Input current	
Power loss         Power loss, typ.       3 W         Analog outputs       2         Number of analog outputs       2         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         • 1 V to 5 V       Yes         • -10 V to +10 V       Yes         Output ranges, current       -0 to 20 mA         • 0 to 20 mA       Yes         • -20 mA to +20 mA       Yes         • 4 mA to 20 mA       Yes         • with voltage outputs, capacitive load, max.       1 µF         • with voltage outputs, min.       1 kΩ         • with voltage outputs, max.       500 Ω         • with current outputs, inductive load, max.       10 mH	from load voltage L+ (without load), max.	135 mA
Power loss, typ.       3 W         Analog outputs       2         Number of analog outputs, 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         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.       500 Ω         • with current outputs, inductive load, max.       10 mH         Cable length       -	from backplane bus 5 V DC, max.	60 mA
Analog outputs       2         Number of analog outputs       2         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 V to 5 V       Yes         • 10 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         • with voltage outputs, min.       1 kΩ         • with voltage outputs, min.       1 kΩ         • with voltage outputs, max.       500 Ω         • with current outputs, max.       500 Ω         • with current outputs, inductive load, max.       10 mH	Power loss	
Number of analog outputs       2         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         • 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         • 20 mA to +20 mA       Yes         • 4 mA to 20 mA       Yes         • with voltage outputs, min.       1 k $\Omega$ • with voltage outputs, max.       500 $\Omega$ • with current outputs, max.       500 $\Omega$ • with current outputs, inductive load, max.       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, voltage18 V• 0 to 10 VYes• 1 V to 5 VYes• -10 V to +10 VYesOutput ranges, currentYes• 0 to 20 mAYes• 20 mA to +20 mAYes• 4 mA to 20 mAYes• with voltage outputs, min.1 k $\Omega$ • with voltage outputs, max.500 $\Omega$ • with current outputs, max.500 $\Omega$ • with current outputs, inductive load, max.10 mHCable lengthImage: Corrent outputs, max	Analog outputs	
Voltage output, short-circuit current, max.25 mACurrent output, no-load voltage, max.18 VOutput ranges, voltage $18 V$ • 0 to 10 VYes• 1 V to 5 VYes• -10 V to +10 VYesOutput ranges, currentYes• 0 to 20 mAYes• -20 mA to +20 mAYes• 4 mA to 20 mAYesLoad impedance (in rated range of output)1 k $\Omega$ • with voltage outputs, min.1 k $\Omega$ • with voltage outputs, max.500 $\Omega$ • with current outputs, max.10 mHCable length10 mH	Number of analog outputs	2
Current output, no-load voltage, max.       18 V         Output ranges, voltage       Yes         • 0 to 10 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)       1 kΩ         • with voltage outputs, min.       1 kΩ         • with voltage outputs, max.       500 Ω         • with current outputs, inductive load, max.       10 mH         Cable length       Ion M	Voltage output, short-circuit protection	Yes
Output ranges, voltage     Yes       • 0 to 10 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)     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     10 mH	Voltage output, short-circuit current, max.	25 mA
• 0 to 10 VYes• 1 V to 5 VYes• -10 V to +10 VYesOutput ranges, currentYes• 0 to 20 mAYes• -20 mA to +20 mAYes• 4 mA to 20 mAYesLoad 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 mHCable length	Current output, no-load voltage, max.	18 V
• 1 V to 5 VYes• -10 V to +10 VYesOutput ranges, currentYes• 0 to 20 mAYes• -20 mA to +20 mAYes• 4 mA to 20 mAYesLoad 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 mHCable length	Output ranges, voltage	
• -10 V to +10 VYesOutput ranges, currentYes• 0 to 20 mAYes• -20 mA to +20 mAYes• 4 mA to 20 mAYes• 4 mA to 20 mAYesLoad 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	• 0 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)       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	• 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	• -10 V to +10 V	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	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	• 0 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 current outputs, max.       500 Ω         • with current outputs, inductive load, max.       10 mH         Cable length	• -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	• 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	Load impedance (in rated range of output)	
<ul> <li>with current outputs, max.</li> <li>with current outputs, inductive load, max.</li> <li>Cable length</li> </ul>	<ul> <li>with voltage outputs, min.</li> </ul>	1 kΩ
with current outputs, inductive load, max.     10 mH Cable length	<ul> <li>with voltage outputs, capacitive load, max.</li> </ul>	1 µF
Cable length	<ul> <li>with current outputs, max.</li> </ul>	500 Ω
•	<ul> <li>with current outputs, inductive load, max.</li> </ul>	10 mH
• shielded max 200 m	Cable length	
	• shielded, max.	200 m
Analog value generation for the outputs	Analog value generation for the outputs	
Integration and conversion time/resolution per channel	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	<ul> <li>Resolution with overrange (bit including sign), max.</li> </ul>	
Conversion time (per channel)     0.8 ms	Conversion time (per channel)	0.8 ms
Settling time	Settling time	
• for resistive load 0.2 ms	<ul> <li>for resistive load</li> </ul>	0.2 ms
• for capacitive load 3.3 ms	<ul> <li>for capacitive load</li> </ul>	3.3 ms
• for inductive load 0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH)	<ul> <li>for inductive load</li> </ul>	0.5 ms; 0.5 ms (1 mH); 3.3 ms (10 mH)
Errors/accuracies	Errors/accuracies	

Operational error limit in overall temperature range	
<ul> <li>Voltage, relative to output range, (+/-)</li> </ul>	0.5 %
<ul> <li>Current, relative to output range, (+/-)</li> </ul>	0.6 %
Basic error limit (operational limit at 25 °C)	
<ul> <li>Voltage, relative to output range, (+/-)</li> </ul>	0.4 %
<ul> <li>Current, relative to output range, (+/-)</li> </ul>	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
<ul> <li>between the channels and backplane bus</li> </ul>	Yes
<ul> <li>Between the channels and load voltage L+</li> </ul>	Yes
<ul> <li>between the channels and the power supply of the electronics</li> </ul>	Yes
Isolation	
Isolation tested with	500 V DC
connection method	
required front connector	20-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	117 mm
Weights	
Weight, approx.	220 g

last modified:

1/17/2021 🖸