

SIEMENS

Product data sheet

6ES7331-7HF01-0AB0


SIMATIC S7-300, ANALOG INPUT SM 331,
GALVANICALLY ISOLATED, 8 AI, 14 BIT,
0.052MS/CHANNEL, CURRENT, VOLTAGE,
INTERRUPTS, DIAGNOSTICS, 1 X 20 PIN,
FIT FOR ISOCHRON MODE IMPROVED DP-CYCLE
TIME FOR ISOCHRON MODE

Supply voltage	
Load voltage L+	
Rated value (DC)	24 V
Reverse polarity protection	Yes
Input current	
from load voltage L+ (without load), max.	50 mA
from backplane bus 5 V DC, max.	60 mA
Power losses	
Power loss, typ.	1.5 W
Analog inputs	
Number of analog inputs	8
permissible input voltage for voltage input (destruction limit), max.	20 V ; 20 V DC permanent, 75 V DC for max. 1 s (duty factor 1:20)
permissible input current for current input (destruction limit), max.	40 mA
Input ranges	

Voltage	Yes
Current	Yes
Thermocouple	No
Resistance thermometer	No
Resistance	No
Input ranges (rated values), voltages	
0 to +10 V	No
1 to 5 V	Yes
Input resistance (1 to 5 V)	100 k Ω
1 to 10 V	Yes
Input resistance (1 to 10 V)	100 k Ω
-1 V to +1 V	Yes
Input resistance (-1 V to +1 V)	10 M Ω
-10 V to +10 V	Yes
Input resistance (-10 V to +10 V)	100 k Ω
-2.5 V to +2.5 V	No
-250 mV to +250 mV	No
-5 V to +5 V	Yes
Input resistance (-5 V to +5 V)	100 k Ω
-50 mV to +50 mV	No
-500 mV to +500 mV	Yes
-80 mV to +80 mV	Yes
Input ranges (rated values), currents	
0 to 20 mA	Yes
Input resistance (0 to 20 mA)	50 Ω
-10 to +10 mA	No
-20 to +20 mA	Yes
Input resistance (-20 to +20 mA)	50 Ω
-3.2 to +3.2 mA	No
4 to 20 mA	Yes
Input resistance (4 to 20 mA)	50 Ω
Input ranges (rated values), thermoelements	
Type B	No

Type E	No
Type J	No
Type K	No
Type L	No
Type N	No
Type R	No
Type S	No
Type T	No
Type U	No
Type TXK/TXK(L) to GOST	No
Input ranges (rated values), resistance thermometers	
Cu 10	No
Ni 100	No
Ni 1000	No
LG-Ni 1000	No
Ni 120	No
Ni 200	No
Ni 500	No
Pt 100	No
Pt 1000	No
Pt 200	No
Pt 500	No
Input ranges (rated values), resistors	
0 to 150 ohms	No
0 to 300 ohms	No
0 to 600 ohms	No
0 to 6000 ohms	No
Thermocouple (TC)	
for thermocouples	No
Temperature compensation	
Parameterizable	No
internal temperature compensation	No
external temperature compensation with compensations socket	No

Resistance thermometer (RTD)	
Characteristic linearization	
for resistance thermometer	No
Characteristic linearization	
Parameterizable	No
Cable length	
Cable length, shielded, max.	200 m
Analog value creation	
Measurement principle	Actual value encryption
Integrations and conversion time/ resolution per channel	
Resolution with overrange (bit including sign), max.	14 bit ; Unipolar: 14 bits; bipolar: 13 bits + sign
Integration time, parameterizable	Yes
Basic conversion time, ms	52 µs per channel
Interference voltage suppression for interference frequency f1 in Hz	400 / 60 / 50 / 10 Hz
Encoder	
Connection of signal encoders	
for current measurement as 2-wire transducer	Yes
for current measurement as 4-wire transducer	Yes
for resistance measurement with 2-conductor connection	No
for resistance measurement with 3-conductor connection	No
for resistance measurement with 4-conductor connection	No
Errors/accuracies	
Operational limit in overall temperature range	
Voltage, relative to input area	+/- 0,4 %
Current, relative to input area	+/- 0,3 %
Basic error limit (operational limit at 25 °C)	
Voltage, relative to input area	+/- 0,25 %
Current, relative to input area	+/- 0,2 %
Isochronous mode	

Isochronous operation (application synchronized up to terminal)	Yes
Interrupts/diagnostics/status information	
Alarms	
Diagnostic alarm	Yes ; Parameterizable
Limit value alarm	Yes ; Parameterizable, channels 0 and 2
Diagnostic messages	
Diagnostic functions	Yes
Diagnostic information readable	Yes
Diagnostics	Yes
Diagnostics indication LED	
Group error SF (red)	Yes
Galvanic isolation	
Galvanic isolation analog inputs	
between the channels	No
between the channels and the backplane bus	Yes
Isolation	
Isolation checked with	500 V DC
Connection method	
required front connector	20-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	120 mm
Weight	
Weight, approx.	200 g
Status	Jul 17, 2012