

SIEMENS

Product data sheet

6ES7431-7KF00-0AB0


SIMATIC S7-400, ANALOG INPUT SM 431,
8AI;
16 BIT RESOLUTION, U/I/THERMOEL.,
OPTIC. ISOLATED W. 1 POINT PER COMMON,
DIAGN., ALARM, 20 MS MODULE UPDATE

Input current	
from load voltage L+ (without load), max.	400 mA
from backplane bus 5 V DC, max.	1200 mA
Power losses	
Power loss, typ.	4.6 W
Analog inputs	
Number of analog inputs	8
Number of analog inputs for voltage/current measurement	8
permissible input voltage for voltage input (destruction limit), max.	35 V ; 35 V continuous, 75 V for max. 1 s (mark to space ratio 1:20)
permissible input current for current input (destruction limit), max.	32 mA
Input ranges	
Voltage	Yes
Current	Yes

Thermocouple	Yes
Input ranges (rated values), voltages	
1 to 5 V	Yes
Input resistance (1 to 5 V)	> 2000 ohms
-1 V to +1 V	Yes
-10 V to +10 V	Yes
-100 mV to +100 mV	Yes
-2.5 V to +2.5 V	Yes
-20 mV to +20 mV	Yes
-250 mV to +250 mV	Yes
-5 V to +5 V	Yes
-50 mV to +50 mV	Yes
-500 mV to +500 mV	Yes
-80 mV to +80 mV	Yes
Input ranges (rated values), currents	
0 to 20 mA	Yes
-10 to +10 mA	Yes
-20 to +20 mA	Yes
-3.2 to +3.2 mA	Yes
4 to 20 mA	Yes
Input resistance (4 to 20 mA)	50 Ω
-5 to +5 mA	Yes
Input ranges (rated values), thermoelements	
Type B	Yes
Type E	Yes
Type J	Yes
Type K	Yes
Type L	Yes
Type N	Yes
Type R	Yes
Type S	Yes
Type T	Yes
Type U	Yes

Thermocouple (TC)	
for thermocouples	Type B, E, J, K, L, N, R, S, T, U
Characteristic linearization	
Parameterizable	Yes
Temperature compensation	
internal temperature compensation	Yes
external temperature compensation with compensations socket	Yes
dynamic reference temperature value	Yes
Cable length	
Cable length, shielded, max.	200 m
Analog value creation	
Integrations and conversion time/ resolution per channel	
Resolution with overrange (bit including sign), max.	16 bit
Integration time, parameterizable	Yes
Basic conversion time, ms	10 / 16.7 / 20 / 100
Integration time, ms	2.5 / 16.7 / 20 / 100 ms
Basic conversion time, including integration time, ms	
additional conversion time for wire break monitoring and resistance measurement	1 ms (module)
Interference voltage suppression for interference frequency f1 in Hz	400 / 60 / 50 / 10 Hz
Encoder	
Connection of signal encoders	
for current measurement as 4-wire transducer	Yes
for resistance measurement with 4-conductor connection	Yes
Errors/accuracies	
Operational limit in overall temperature range	
Voltage, relative to input area	+/- 0,3 %
Current, relative to input area	+/- 0,5 %
Basic error limit (operational limit at 25 °C)	
Voltage, relative to input area	+/- 0,1 %

Current, relative to input area	+/- 0,17 %
Interrupts/diagnostics/status information	
Alarms	
Diagnostic alarm	Yes ; Parameterizable
Limit value alarm	Yes
Diagnoses	
Diagnostics	Yes
Galvanic isolation	
Galvanic isolation analog inputs	
Galvanic isolation analog inputs	Yes ; internal/external
between the channels	Yes
Permissible potential difference	
between the inputs (UCM)	120 V AC
Isolation	
Isolation checked with	1500 V DC
Dimensions	
Width	25 mm
Height	290 mm
Depth	210 mm
Required slots	1
Weight	
Weight, approx.	650 g
Status	Oct 12, 2011