

# Siemens 6ES7431-1KF00-0AB0 Manual

|                |              |
|----------------|--------------|
| Brand          | Siemens      |
| Product Series | Siemens      |
| Product Type   | transmitter, |

## Description

6ES7431-1KF00-0AB0

SIMATIC S7-400, analog input SM 431, isolated 8 AI, resolution 13 bit, U/IResistor

Supply voltage

Load voltage L+

- Rated value (DC) not necessary

Input current

from backplane bus 5 V DC, max. 350 mA

Power loss

Power loss, typ. 1.8 W

Analog inputs

Number of analog inputs 8

- For voltage/current measurement 8
- For resistance measurement 4

permissible input voltage for voltage input (destruction limit),  
max.

50 V

permissible input current for current input (destruction limit),  
max.

50 mA; 40 mA continuous

Constant measurement current for resistance-type transmitter,  
typ.

1.67 mA

Input ranges

- Voltage Yes
- Current Yes
- Thermocouple No
- Resistance thermometer No
- Resistance Yes

Input ranges (rated values), voltages

- 1 V to 5 V Yes

— Input resistance (1 V to 5 V) 200 k $\Omega$

- -1 V to +1 V Yes

— Input resistance (-1 V to +1 V) 200 k $\Omega$

- -10 V to +10 V Yes

— Input resistance (-10 V to +10 V) 200 k $\Omega$

Input ranges (rated values), currents

- -20 mA to +20 mA Yes

— Input resistance (-20 mA to +20 mA) 80  $\Omega$

- 4 mA to 20 mA Yes
- Input resistance (4 mA to 20 mA) 80  $\Omega$
- Input ranges (rated values), resistors
- 0 to 600 ohms Yes
- Input resistance (0 to 600 ohms) usable up to 500 ohms
- Cable length
- shielded, max. 200 m

Analog value generation for the inputs

Integration and conversion time/resolution per channel

- Resolution with overrange (bit including sign), max. 13 bit
- Integration time, parameterizable Yes
- Basic conversion time (ms) 23 / 25 ms
- Integration time (ms) 16,7 / 20 ms
- Interference voltage suppression for interference

frequency f1 in Hz

50 / 60 Hz

- Basic execution time of the module (all channels released)

200 ms; 184 / 200 ms

Encoder

Connection of signal encoders

- for voltage measurement Yes; possible
- for current measurement as 2-wire transducer Yes; with external transmitter supply
- for current measurement as 4-wire transducer Yes
- for resistance measurement with two-wire connection Yes; Line resistances are also measured
- for resistance measurement with three-wire connection Yes; Line resistances are also measured
- for resistance measurement with four-wire connection Yes

Errors/accuracies

Temperature error (relative to input range), (+/-) 0.02 %/K;  $\pm 0.02$  %/K in impedance measuring range;  $\pm 0.007$  % in all other measuring ranges

Operational error limit in overall temperature range

- Voltage, relative to input range, (+/-) 1 %;  $\pm 1.0$  % at  $\pm 1$  V;  $\pm 0.6$  % at  $\pm 10$  V;  $\pm 0.7$  % at 1 to 5 V
- Current, relative to input range, (+/-) 1 %; at  $\pm 20$  mA, 4 to 20 mA
- Resistance, relative to input range, (+/-) 1.25 %; 0 to 500 ohms (4-conductor measurement, in range of 600 ohms)

Basic error limit (operational limit at 25 °C)

- Voltage, relative to input range, (+/-) 0.7 %; 0.7% at  $\pm 1$  V; 0.4% at  $\pm 10$  V; 0.5% at 1 to 5 V
- Current, relative to input range, (+/-) 0.7 %; at  $\pm 20$  mA, 4 to 20 mA
- Resistance, relative to input range, (+/-) 0.8 %; 0 to 500 ohms (4-conductor measurement, in range of 600 ohms)

Interrupts/diagnostics/status information

Diagnostics function No

Potential separation

Potential separation analog inputs

- Potential separation analog inputs Yes; internal/external
- between the channels No
- between the channels and backplane bus Yes

Isolation

Isolation tested with 2 120 V DC between bus and analog part; 500 V DC between bus and local ground; 2 120 V DC between analog part and local ground

Dimensions

Width 25 mm

Height 290 mm

Depth 210 mm

Weights

Weight, approx. 500 g

[www.AutoDCSTech.com](http://www.AutoDCSTech.com)