SIEMENS

Data sheet 6AG1431-0HH00-4AB0

SIPLUS S7-400 SM 431 16AI for medial exposure based on 6ES7431-0HH00-0AB0

Figure similar

Supply voltage	
Load voltage L+	
• Rated value (DC)	24 V; Only required for supplying 2-wire transmitters
• Reverse polarity protection	Yes
Input current	
from load voltage L+ (without load), max.	400 mA; for 16 connected, fully controlled 2-wire transmitters
from backplane bus 5 V DC, max.	100 mA
Power loss	
Power loss, typ.	2 W
Analog inputs	
Number of analog inputs	16
• For voltage/current measurement	16
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

Constant measurement current for resistance-type transmitter, typ.	1.67 mA
Input ranges	
• Voltage	Yes
• Current	Yes
• Thermocouple	No
• Resistance thermometer	No
• Resistance	No
Input ranges (rated values), voltages	
• 1 V to 5 V	Yes
— Input resistance (1 V to 5 V)	100 kΩ
• -1 V to +1 V	Yes
— Input resistance (-1 V to +1 V)	10 MΩ
• -10 V to +10 V	Yes
— Input resistance (-10 V to +10 V)	100 kΩ
Input ranges (rated values), currents	
• -20 mA to +20 mA	Yes
— Input resistance (-20 mA to +20 mA)	50 Ω
• 4 mA to 20 mA	Yes
— Input resistance (4 mA to 20 mA)	50 Ω
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)	55 / 65 ms
• Integration time (ms)	50 / 60 ms
• Interference voltage suppression for interference frequency f1 in Hz	50 / 60 Hz

Encoder	
Connection of signal encoders	
• for voltage measurement	Yes; possible
• for current measurement as 4-wire transducer	Yes

Errors/accuracies	
Operational error limit in overall temperature range	
• Voltage, relative to input range, (+/-)	0.65 %; 1.0 % at 1 to 5 V; 0.65 % at ±1 V, ±10 V
• Current, relative to input range, (+/-)	0.65 %
Basic error limit (operational limit at 25 °C)	
• Voltage, relative to input range, (+/-)	0.25 %; 0.5% at 1 to 5 V; 0.25% at ±1 V, ±10 V

• Current, relative to input range, (+/-)	0.25 %; at ±20 mA, 4 to 20 mA
Interrupts/diagnostics/status information	
Diagnostics function	No
Potential separation	
Potential separation analog inputs	
• Potential separation analog inputs	No
• between the channels	No
• between the channels and backplane bus	No
• Between the channels and load voltage L+	No
Isolation	
Isolation tested with	500 V DC between bus and local ground
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C; = Tmin
• max.	60 °C; = Tmax
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	
Use in stationary industrial systems	
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
— to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
— to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
— to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *

Usage in industrial process technology	
— Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)
— Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
— Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!
Conformal coating	
• Coatings for printed circuit board assemblies acc. to EN 61086	Yes; Class 2 for high reliability
• Protection against fouling acc. to EN 60664-3	Yes; Type 1 protection
• Military testing according to MIL-I-46058C, Amendment 7	Yes; Discoloration of coating possible during service life
• Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A	Yes; Conformal coating, Class A

Dimensions	
Width	25 mm
Height	290 mm
Depth	210 mm

Weights	
Weight, approx.	500 g

last modified: 10/29/2020