

SIPLUS S7-1500 AI 8xU/I HS -40 °C ... +70°C with conformal coating based on 6ES7531-7NF10-0AB0 . Analog input module AI 8xU/I HS, 16 bit resolution, Accuracy 0.4% 8 channels in groups of 8, "Common mode voltage 10 V;" "diagnostics; hardware" "interrupts"" 8 channels in 0.125" ms incl. infeed element, Shield bracket and shield terminal



Figure similar

General information	
Product type designation	AI 8xU/I HS
Product function	
• I&M data	Yes
• Isochronous mode	Yes
Supply voltage	
Type of supply voltage	DC
Rated value (DC)	24 V
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Encoder supply	
24 V encoder supply	
• Short-circuit protection	Yes
• Output current, max.	53 mA
Power	
Power available from the backplane bus	1.2 W

## Power loss

Power loss, typ.	3.4 W
------------------	-------

## Analog inputs

Number of analog inputs	8; > +60 °C max. 4x ±20 mA or 4x ±10 V permissible
-------------------------	--

- For current measurement 8
- For voltage measurement 8

permissible input voltage for voltage input (destruction limit), max.	28.8 V
---	--------

permissible input current for current input (destruction limit), max.	40 mA
---	-------

### Input ranges (rated values), voltages

- 1 V to 5 V Yes  
— Input resistance (1 V to 5 V) 50 kΩ
- -10 V to +10 V Yes  
— Input resistance (-10 V to +10 V) 100 kΩ
- -5 V to +5 V Yes  
— Input resistance (-5 V to +5 V) 50 kΩ

### Input ranges (rated values), currents

- 0 to 20 mA Yes  
— Input resistance (0 to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC
- -20 mA to +20 mA Yes  
— Input resistance (-20 mA to +20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC
- 4 mA to 20 mA Yes  
— Input resistance (4 mA to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC

### Cable length

- shielded, max. 800 m

## Analog value generation for the inputs

### Integration and conversion time/resolution per channel

- Resolution with overrange (bit including sign), max. 16 bit

## Encoder

### Connection of signal encoders

- for voltage measurement Yes
- for current measurement as 2-wire transducer Yes  
— Burden of 2-wire transmitter, max. 820 Ω
- for current measurement as 4-wire transducer Yes

## Errors/accuracies

Linearity error (relative to input range), (+/-)	0.02 %
--	--------

Temperature error (relative to input range), (+/-)	0.005 %/K
--	-----------

Crosstalk between the inputs, min.	-60 dB
------------------------------------	--------

Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.02 %
<b>Operational error limit in overall temperature range</b>	
• Voltage, relative to input range, (+/-)	0.4 %
• Current, relative to input range, (+/-)	0.4 %
<b>Basic error limit (operational limit at 25 °C)</b>	
• Voltage, relative to input range, (+/-)	0.2 %
• Current, relative to input range, (+/-)	0.2 %
<b>Interference voltage suppression for <math>f = n \times (f_1 \pm 1 \%)</math>, <math>f_1 =</math> interference frequency</b>	
• Common mode voltage, max.	10 V
• Common mode interference, min.	60 dB; at 400 Hz: 50 dB
<b>Isochronous mode</b>	
Filtering and processing time (TCI), min.	80 $\mu$ s
Bus cycle time (TDP), min.	250 $\mu$ s
Jitter, max.	1 $\mu$ s
<b>Interrupts/diagnostics/status information</b>	
Diagnostics function	Yes
<b>Alarms</b>	
• Diagnostic alarm	Yes
• Limit value alarm	Yes; two upper and two lower limit values in each case
<b>Diagnoses</b>	
• Monitoring the supply voltage	Yes
• Wire-break	Yes; only for 1 ... 5 V and 4 ... 20 mA
• Overflow/underflow	Yes
<b>Diagnostics indication LED</b>	
• Monitoring of the supply voltage (PWR-LED)	Yes; green LED
• Channel status display	Yes; green LED
• for channel diagnostics	Yes; red LED
• for module diagnostics	Yes; red LED
<b>Potential separation</b>	
<b>Potential separation channels</b>	
• between the channels	No
• between the channels and backplane bus	Yes
• between the channels and the power supply of the electronics	Yes
<b>Permissible potential difference</b>	
between the inputs (UCM)	20 V DC
Between the inputs and MANA (UCM)	10 V DC
between M internally and the inputs	75 V DC/60 V AC
<b>Isolation</b>	

Isolation tested with	707 V DC
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
<ul style="list-style-type: none"> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> </ul>	<p>-40 °C; = Tmin (incl. condensation/frost)</p> <p>70 °C; = Tmax</p> <p>-40 °C; = Tmin</p> <p>40 °C; = Tmax</p>
<b>Altitude during operation relating to sea level</b>	
<ul style="list-style-type: none"> <li>Installation altitude above sea level, max.</li> <li>Ambient air temperature-barometric pressure-altitude</li> </ul>	<p>5 000 m</p> <p>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)</p>
<b>Relative humidity</b>	
<ul style="list-style-type: none"> <li>With condensation, tested in accordance with IEC 60068-2-38, max.</li> </ul>	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
<b>Resistance</b>	
<b>Coolants and lubricants</b>	
— Resistant to commercially available coolants and lubricants	Yes; Incl. diesel and oil droplets in the air
<b>Use in stationary industrial systems</b>	
— 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, *
<b>Use on ships/at sea</b>	
— 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; *
<b>Usage in industrial process technology</b>	
— 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)
<b>Remark</b>	
— 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	35 mm
Height	147 mm
Depth	129 mm

### Weights

Weight, approx.	200 g
<b>last modified:</b>	10/13/2020