SIEMENS

Data sheet

6AG1531-7MH00-7AB0



SIPLUS S7-1500 AI 16xI BA based on 6ES7531-7MH00-0AB0 with conformal coating -40...+70 °C . analog input module, AI 16xI BA, 16-bit resolution accuracy 0.5%, 16 channels in groups of 16, common mode voltage 4 V DC, diagnostics, hardware interrupts; delivery including infeed element, shielding bracket and shield terminal: front connector (screw terminals or push-in) to be ordered separately

Figure similar

Product type designation Firmware version For version For duptate possible For our product function For our product function for function function function function function for function functio		
Firmware version FW update possible Product function IAM data Isochronous mode Prioritized startup No Measuring range scalable Scalable measured values Adjustment of measuring range No Oversampling MSI Ves CIR - Configuration in RUN Reparameterization possible in RUN Power available from the backplane bus Power available from the backplane bus Power loss Power loss Power loss, typ. 1.2 W Analog values (rated values), currents 16 Por unent measurement Input resistance (20 mA to +20 mA) Input resistance (-20 mA to +20 mA) Possible length • shelded, max. Measurement principle Integrating Mo Separaw. Bush oto 18M3 Yes CIR - Configuration in RUN Yes CIR - Configuration in RUN No Power loss Power loss in RUN No Power available from the backplane bus O.85 W Power loss, typ. 1.2 W Analog value (-20 mA to +20 mA) — Input resistance (-20 mA to +20 mA) — Input resis	General information	
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Product function NaM data	FW update possible	Yes
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Analog inputs 16 • For current measurement 16 permissible input current for current input (destruction limit), max. 40 mA Input ranges (rated values), currents • 0 to 20 mA • 0 to 20 mA Yes — Input resistance (0 to 20 mA) 25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC • -20 mA to +20 mA Yes — Input resistance (-20 mA to +20 mA) 25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC • 4 mA to 20 mA Yes — Input resistance (4 mA to 20 mA) 25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC Cable length 800 m Analog value generation for the inputs Measurement principle integrating	Power loss	
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 — Input resistance (0 to 20 mA) 25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC • -20 mA to +20 mA — Input resistance (-20 mA to +20 mA) • 4 mA to 20 mA — Input resistance (4 mA to 20 mA) 25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC Cable length • shielded, max. 800 m Analog value generation for the inputs Measurement principle integrating 	Input ranges (rated values), currents	
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— Input resistance (-20 mA to +20 mA) • 4 mA to 20 mA — Input resistance (4 mA to 20 mA) Yes — Input resistance (4 mA to 20 mA) Cable length • shielded, max. Analog value generation for the inputs Measurement principle 25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC 800 m Integrating	— Input resistance (0 to 20 mA)	$25~\Omega$; Plus approx. 42 ohms for overvoltage protection by PTC
 4 mA to 20 mA — Input resistance (4 mA to 20 mA) 25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC Cable length shielded, max. 800 m Analog value generation for the inputs integrating 	• -20 mA to +20 mA	Yes
— Input resistance (4 mA to 20 mA) Cable length • shielded, max. Analog value generation for the inputs Measurement principle 25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC 800 m Integrating	— Input resistance (-20 mA to +20 mA)	25 Ω ; Plus approx. 42 ohms for overvoltage protection by PTC
Cable length	• 4 mA to 20 mA	Yes
shielded, max. Analog value generation for the inputs Measurement principle integrating	 Input resistance (4 mA to 20 mA) 	25 Ω ; Plus approx. 42 ohms for overvoltage protection by PTC
shielded, max. Analog value generation for the inputs Measurement principle integrating	Cable length	
Measurement principle integrating		800 m
Measurement principle integrating	Analog value generation for the inputs	
		integrating
	Integration and conversion time/resolution per channel	

 Resolution with overrange (bit including sign), max. 	16 bit
 Integration time, parameterizable 	Yes
Integration time (ms)	2,5 / 16,67 / 20 / 100 ms
 Basic conversion time, including integration time (ms) 	10 / 24 / 27 / 107 ms
 Interference voltage suppression for interference frequency f1 in Hz 	400 / 60 / 50 / 10 Hz
Smoothing of measured values	
parameterizable	Yes
• Step: None	Yes
• Step: low	Yes
• Step: Medium	Yes
• Step: High	Yes
Encoder	
Connection of signal encoders	
for voltage measurement	No
for current measurement as 2-wire transducer	Yes; with external supply
 for current measurement as 4-wire transducer 	Yes
 for resistance measurement with two-wire connection 	No
• for resistance measurement with three-wire connection	No
• for resistance measurement with four-wire connection	No
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.1 %
Temperature error (relative to input range), (+/-)	0.008 %/K
Crosstalk between the inputs, max.	-50 dB
Repeat accuracy in steady state at 25 °C (relative to input	0.1 %
range), (+/-) Operational error limit in overall temperature range	
Current, relative to input range, (+/-)	0.5 %
Basic error limit (operational limit at 25 °C)	0.0 //
Current, relative to input range, (+/-)	0.3 %
Interference voltage suppression for $f = n \times (f1 + /- 1 \%)$, $f1 = interference$	
Series mode interference (peak value of interference <	40 dB
rated value of input range), min.	
 Common mode voltage, max. 	4 V
Common mode interference, min.	60 dB
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
Diagnostic alarm	Yes
Limit value alarm	Yes; two upper and two lower limit values in each case
Diagnoses	Yes; two upper and two lower limit values in each case
Diagnoses • Monitoring the supply voltage	Yes; two upper and two lower limit values in each case No
Diagnoses • Monitoring the supply voltage • Wire-break	Yes; two upper and two lower limit values in each case No Yes; Only for 4 20 mA
Diagnoses • Monitoring the supply voltage • Wire-break • Short-circuit	Yes; two upper and two lower limit values in each case No Yes; Only for 4 20 mA No
Diagnoses • Monitoring the supply voltage • Wire-break • Short-circuit • Group error	Yes; two upper and two lower limit values in each case No Yes; Only for 4 20 mA No No
Diagnoses • Monitoring the supply voltage • Wire-break • Short-circuit • Group error • Overflow/underflow	Yes; two upper and two lower limit values in each case No Yes; Only for 4 20 mA No
Diagnoses • Monitoring the supply voltage • Wire-break • Short-circuit • Group error • Overflow/underflow Diagnostics indication LED	Yes; two upper and two lower limit values in each case No Yes; Only for 4 20 mA No No Yes
Diagnoses • Monitoring the supply voltage • Wire-break • Short-circuit • Group error • Overflow/underflow Diagnostics indication LED • RUN LED	Yes; two upper and two lower limit values in each case No Yes; Only for 4 20 mA No No Yes Yes; green LED
Diagnoses • Monitoring the supply voltage • Wire-break • Short-circuit • Group error • Overflow/underflow Diagnostics indication LED • RUN LED • ERROR LED	Yes; two upper and two lower limit values in each case No Yes; Only for 4 20 mA No No Yes Yes; green LED Yes; red LED
Diagnoses • Monitoring the supply voltage • Wire-break • Short-circuit • Group error • Overflow/underflow Diagnostics indication LED • RUN LED • ERROR LED • MAINT LED	Yes; two upper and two lower limit values in each case No Yes; Only for 4 20 mA No No Yes Yes; green LED Yes; red LED No
Diagnoses • Monitoring the supply voltage • Wire-break • Short-circuit • Group error • Overflow/underflow Diagnostics indication LED • RUN LED • ERROR LED • MAINT LED • Monitoring of the supply voltage (PWR-LED)	Yes; two upper and two lower limit values in each case No Yes; Only for 4 20 mA No No Yes Yes; green LED Yes; red LED No No
Diagnoses • Monitoring the supply voltage • Wire-break • Short-circuit • Group error • Overflow/underflow Diagnostics indication LED • RUN LED • ERROR LED • MAINT LED • Monitoring of the supply voltage (PWR-LED) • Channel status display	Yes; two upper and two lower limit values in each case No Yes; Only for 4 20 mA No No Yes Yes; green LED Yes; red LED No No Yes; green LED
Diagnoses Monitoring the supply voltage Wire-break Short-circuit Group error Overflow/underflow Diagnostics indication LED RUN LED ERROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Channel status display for channel diagnostics	Yes; two upper and two lower limit values in each case No Yes; Only for 4 20 mA No No Yes Yes; green LED Yes; red LED No No Yes; green LED Yes; green LED Yes; green LED Yes; green LED
Diagnoses • Monitoring the supply voltage • Wire-break • Short-circuit • Group error • Overflow/underflow Diagnostics indication LED • RUN LED • ERROR LED • MAINT LED • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics • for module diagnostics	Yes; two upper and two lower limit values in each case No Yes; Only for 4 20 mA No No Yes Yes; green LED Yes; red LED No No Yes; green LED
Diagnoses • Monitoring the supply voltage • Wire-break • Short-circuit • Group error • Overflow/underflow Diagnostics indication LED • RUN LED • ERROR LED • MAINT LED • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics • for module diagnostics	Yes; two upper and two lower limit values in each case No Yes; Only for 4 20 mA No No Yes Yes; green LED Yes; red LED No No Yes; green LED Yes; green LED Yes; green LED Yes; green LED
Diagnoses • Monitoring the supply voltage • Wire-break • Short-circuit • Group error • Overflow/underflow Diagnostics indication LED • RUN LED • ERROR LED • MAINT LED • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics • for module diagnostics	Yes; two upper and two lower limit values in each case No Yes; Only for 4 20 mA No No Yes Yes; green LED Yes; red LED No No Yes; green LED Yes; green LED Yes; green LED Yes; green LED
Diagnoses Monitoring the supply voltage Wire-break Short-circuit Group error Overflow/underflow Diagnostics indication LED RUN LED ERROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Channel status display for channel diagnostics for module diagnostics Potential separation Potential separation channels between the channels	Yes; two upper and two lower limit values in each case No Yes; Only for 4 20 mA No No Yes Yes; green LED Yes; red LED No No Yes; green LED Yes; green LED Yes; green LED Yes; green LED Yes; red LED Yes; red LED
Monitoring the supply voltage Wire-break Short-circuit Group error Overflow/underflow Diagnostics indication LED RUN LED ERROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Channel status display for channel diagnostics for module diagnostics Potential separation Potential separation channels	Yes; two upper and two lower limit values in each case No Yes; Only for 4 20 mA No No Yes Yes; green LED Yes; red LED No No Yes; green LED Yes; green LED Yes; red LED Yes; red LED Yes; red LED Yes; red LED
Diagnoses Monitoring the supply voltage Wire-break Short-circuit Group error Overflow/underflow Diagnostics indication LED RUN LED ERROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Channel status display for channel diagnostics for module diagnostics for module diagnostics Potential separation Potential separation channels between the channels, in groups of	Yes; two upper and two lower limit values in each case No Yes; Only for 4 20 mA No No Yes Yes; green LED Yes; red LED No No Yes; green LED Yes; green LED Yes; red LED Yes; red LED Yes; red LED
Diagnoses Monitoring the supply voltage Wire-break Short-circuit Group error Overflow/underflow Diagnostics indication LED RUN LED RUN LED REROR LED MAINT LED Monitoring of the supply voltage (PWR-LED) Channel status display for channel diagnostics for module diagnostics for module diagnostics Potential separation Potential separation channels between the channels, in groups of between the channels and backplane bus	Yes; two upper and two lower limit values in each case No Yes; Only for 4 20 mA No No Yes Yes; green LED Yes; red LED No No Yes; green LED Yes; green LED Yes; red LED Yes; red LED Yes; red LED

Between the inputs and MANA (UCM)	4 V DC
solation	707.1100 (1 . 1 . 1)
Isolation tested with	707 V DC (type test)
Ambient conditions	
Ambient temperature during operation	40 °C: = Train (incl. condensation/front)
horizontal installation, min. horizontal installation, may	-40 °C; = Tmin (incl. condensation/frost)
horizontal installation, max. vertical installation, min.	70 °C; = Tmax -40 °C; = Tmin (incl. condensation/frost)
vertical installation, min.vertical installation, max.	40 °C; = Tmax
Altitude during operation relating to sea level	40 C, - IIIIax
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 (Tma - 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 in bedewed state), horizontal installation
Resistance	
Coolants and lubricants	
 Resistant to commercially available coolants and lubricants 	Yes; Incl. diesel and oil droplets in the air
Use in stationary industrial systems	V 01 000 11 (
— 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 according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!
 to mechanically active substances according to EN 60721-3-3 	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain o the unused interfaces during operation!
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
imensions	
Width	35 mm
Height	147 mm
Depth Weights	129 mm
Veights Weight, approx.	250 g

last modified: