



Figure similar

spare part SIPLUS S7-300 SM 331 40-pole based on 6ES7331-7NF00-0AB0 with conformal coating, -25...+70 °C, analog input isolated 8 AI; +/-5/10V, 1-5 V, +/-20 mA, 0/4 to 20 mA, 16 bit (55 ms), single-point grounding (50 V common)

General information	
based on	6ES7331-7NF00-0AB0
Product function	
• Isochronous mode	No
Input current	
from backplane bus 5 V DC, max.	130 mA
Power loss	
Power loss, typ.	0.6 W
Analog inputs	
Number of analog inputs	8
permissible input voltage for voltage input (destruction limit), max.	50 V; Permanent
permissible input current for current input (destruction limit), max.	32 mA
Input ranges	
• Voltage	Yes
• Current	Yes
• Thermocouple	No
• Resistance thermometer	No
• Resistance	No
Input ranges (rated values), voltages	
• 0 to +10 V	No
• 1 V to 5 V	Yes
— Input resistance (1 V to 5 V)	2 MΩ
• 1 V to 10 V	No
• -1 V to +1 V	No
• -10 V to +10 V	Yes
— Input resistance (-10 V to +10 V)	2 MΩ
• -2.5 V to +2.5 V	No
• -250 mV to +250 mV	No
• -5 V to +5 V	Yes
— Input resistance (-5 V to +5 V)	2 MΩ
• -50 mV to +50 mV	No
• -500 mV to +500 mV	No
• -80 mV to +80 mV	No
Input ranges (rated values), currents	
• 0 to 20 mA	Yes
— Input resistance (0 to 20 mA)	250 Ω

<ul style="list-style-type: none"> • -20 mA to +20 mA — Input resistance (-20 mA to +20 mA) • -3.2 mA to +3.2 mA • 4 mA to 20 mA — Input resistance (4 mA to 20 mA) 	Yes 250 Ω No Yes 250 Ω
Input ranges (rated values), thermocouples	
<ul style="list-style-type: none"> • type B • type C • Type E • Type J • Type K • Type L • Type N • Type R • Type S • Type T • Type U • Type TXK/TXK(L) to GOST 	No No No No No No No No No No No No
Input ranges (rated values), resistance thermometer	
<ul style="list-style-type: none"> • Cu 10 • Ni 100 • Ni 1000 • LG-Ni 1000 • Ni 120 • Ni 200 • Ni 500 • Pt 100 • Pt 1000 • Pt 200 • Pt 500 	No No No No No No No No No No No No
Input ranges (rated values), resistors	
<ul style="list-style-type: none"> • 0 to 150 ohms • 0 to 300 ohms • 0 to 600 ohms • 0 to 6000 ohms 	No No No No
Cable length	
<ul style="list-style-type: none"> • shielded, max. 	200 m
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
<ul style="list-style-type: none"> • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Interference voltage suppression for interference frequency f_1 in Hz 	16 bit; Unipolar: 15/15/15/15 bit; bipolar: 15 bit + sign/15 bit + sign/15 bit + sign/15 bit + sign Yes; 10/ 16.67/ 20/ 100 ms 400 / 60 / 50 / 10 Hz
Encoder	
Connection of signal encoders	
<ul style="list-style-type: none"> • for voltage measurement • for current measurement as 2-wire transducer • for current measurement as 4-wire transducer 	Yes Yes; with external transmitter; possible with separate supply for transmitter Yes
Errors/accuracies	
Operational error limit in overall temperature range	
<ul style="list-style-type: none"> • Voltage, relative to input range, (+/-) • Current, relative to input range, (+/-) 	0.1 %; @ $U_{cm} = 0\text{ V}$; @ $U_{cm} = \pm 50\text{ V}$: $\pm 0.7\%$ - @ $0 \dots +60\text{ }^\circ\text{C}$; $\pm 0.5\%$ @ $U_{cm} = 0\text{ V}$; @ $U_{cm} = \pm 50\text{ V}$: $\pm 0.9\%$ - @ $-25 \dots +70\text{ }^\circ\text{C}$; 0.3 %; @ $U_{cm} = 0\text{ V}$; @ $U_{cm} = \pm 50\text{ V}$: $\pm 0.4\%$ @ $0 \dots +60\text{ }^\circ\text{C}$; $\pm 0.5\%$ @ $U_{cm} = 0\text{ V}$; @ $U_{cm} = \pm 50\text{ V}$: $\pm 0.6\%$ @ $-25 \dots +70\text{ }^\circ\text{C}$
Basic error limit (operational limit at $25\text{ }^\circ\text{C}$)	
<ul style="list-style-type: none"> • Voltage, relative to input range, (+/-) • Current, relative to input range, (+/-) 	0.05 % 0.05 %
Interrupts/diagnostics/status information	
Diagnostics function	Yes; Parameterizable

Alarms	
• Diagnostic alarm	Yes; Parameterizable
• Limit value alarm	Yes; Parameterizable, channels 0 and 2
Diagnoses	
• Diagnostic information readable	Yes
Diagnostics indication LED	
• Group error SF (red)	Yes
Potential separation	
Potential separation analog inputs	
• between the channels	No
• between the channels, in groups of	2
• between the channels and backplane bus	Yes
Isolation	
Isolation tested with	500 V DC
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes; File E239877
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
Railway application	
• EN 50155	Yes; Sections 4, 5 and 12; no further agreements apply; T1, Category 1, Class A/B, EN 50155:2007 (see SIOS entry 109755985)
Ambient conditions	
Ambient temperature during operation	
• min.	-25 °C; = Tmin
• max.	70 °C; = Tmax; for use on railway vehicles according to EN 50155, the rated temperature range -25 ... +55 °C (T1) or 60 °C @ UL/UL hazardous use applies
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 land craft, rail vehicles and special-purpose vehicles	
— to biologically active substances according to EN 60721-3-5	Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request
— to chemically active substances according to EN 60721-3-5	Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *
— to mechanically active substances according to EN 60721-3-5	Yes; Class 5S3 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	Yes; Class 3 (excluding trichlorethylene)

60654-4

— 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!

Connection method

required front connector 40-pin

Dimensions

Width 40 mm
Height 125 mm
Depth 117 mm

Weights

Weight, approx. 272 g

Classifications

	Version	Classification
eClass	16	27-24-22-01
eClass	14	27-24-22-01
eClass	12	27-24-22-01
eClass	9.1	27-24-22-01
eClass	9	27-24-22-01
eClass	8	27-24-22-01
eClass	7.1	27-24-22-01
eClass	6	27-24-22-01
ETIM	10	EC001420
ETIM	9	EC001420
ETIM	8	EC001420
ETIM	7	EC001420
IDEA	4	3562
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval



[China RoHS](#)

[Manufacturer Declaration](#)

[Declaration of Conformity](#)



General Product Approval

EMV

For use in hazardous locations



[CCC-Ex](#)

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