



SIPLUS S7-300 SM 331 4AI based on 6ES7331-7RD00-0AB0 with conformal coating, -25...+70 °C, (70° only 4-wire),

Figure similar

General information	
based on	6ES7331-7RD00-0AB0
Supply voltage	
Load voltage L+	
<ul style="list-style-type: none"> Rated value (DC) 	24 V
<ul style="list-style-type: none"> Reverse polarity protection 	Yes
Input current	
from load voltage L+ (without load), max.	250 mA
from backplane bus 5 V DC, max.	60 mA
Output voltage	
Power supply to the transmitters	
<ul style="list-style-type: none"> Rated value (DC) 	13 V; at 22 mA
Power loss	
Power loss, typ.	3 W
Analog inputs	
Number of analog inputs	4
permissible input current for current input (destruction limit), max.	40 mA
Input ranges	
<ul style="list-style-type: none"> Voltage 	No
<ul style="list-style-type: none"> Current 	Yes
<ul style="list-style-type: none"> Thermocouple 	No
<ul style="list-style-type: none"> Resistance thermometer 	No
<ul style="list-style-type: none"> Resistance 	No
Input ranges (rated values), currents	
<ul style="list-style-type: none"> 0 to 20 mA 	Yes
<ul style="list-style-type: none"> — Input resistance (0 to 20 mA) 	50 Ω
<ul style="list-style-type: none"> 4 mA to 20 mA 	Yes
<ul style="list-style-type: none"> — Input resistance (4 mA to 20 mA) 	50 Ω
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. 	16 bit; 10 bit to 15 bit + sign
<ul style="list-style-type: none"> Integration time, parameterizable 	Yes; 2.5 to 100 ms
<ul style="list-style-type: none"> Interference voltage suppression for interference frequency f_1 in Hz 	10 to 400 Hz
Encoder	

Connection of signal encoders	
• for current measurement as 2-wire transducer	Yes
• for current measurement as 4-wire transducer	Yes
Errors/accuracies	
Operational error limit in overall temperature range	
• Current, relative to input range, (+/-)	0.45 %
Basic error limit (operational limit at 25 °C)	
• Current, relative to input range, (+/-)	0.1 %
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Diagnoses	
• Diagnostic information readable	Yes
• Overrange	Yes
• Wire-break in signal transmitter cable	Yes
• Short-circuit of the signal encoder cable	Yes
Diagnostics indication LED	
• Group error SF (red)	Yes
• Channel fault indicator F (red)	Yes
Ex(i) characteristics	
Module for Ex(i) protection	Yes
maximum values for connecting terminals for gas group IIC	
• U _o (no-load voltage), max.	25.2 V
• I _o (short-circuit current), max.	68.5 mA
• P _o (power output), max.	431 mW
• C _o (permissible external capacity), max.	90 nF
• L _o (permissible external inductivity), max.	7.5 mH
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes; File E239877
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
Use in hazardous areas	
• ATEX marking	ATEX II 3 G (2) GD Ex nA [ib Gb] [ib IIIC Db] IIC T4 Gc
• FM marking	Class I, Division 2, Group A, B, C, D T4
• Test number PTB	Ex-96.D.2092X
Railway application	
• EN 50121-4	No
• EN 50155	No
Ambient conditions	
Ambient temperature during operation	
• min.	-25 °C; = T _{min}
• max.	60 °C; = T _{max} ; 60 °C @ UL/cUL, ATEX and FM use, 70 °C only 4 wire
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	T _{min} ... T _{max} at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // T _{min} ... (T _{max} - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // T _{min} ... (T _{max} -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!

Connection method

required front connector	20-pin
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Dimensions

Width	40 mm
Height	125 mm
Depth	120 mm

Weights

Weight, approx.	290 g
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Classifications

	Version	Classification
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	EMV
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[Manufacturer Declaration](#)

[China RoHS](#)



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