



Figure similar

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

Supply voltage	
Load voltage L+	
• Rated value (DC)	24 V
• 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 / header	
supply voltage of the transmitters / header	
• supply voltage / of the transmitters / at DC / rated value	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	
• Voltage	No
• Current	Yes
• Thermocouple	No
• Resistance thermometer	No
• Resistance	No
Input ranges (rated values), currents	
• 0 to 20 mA	Yes
— Input resistance (0 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.	16 bit; 10 bit to 15 bit + sign
• Integration time, parameterizable	Yes; 2.5 to 100 ms
• Interference voltage suppression for interference frequency f1 in Hz	10 to 400 Hz
Encoder	
Connection of signal encoders	

<ul style="list-style-type: none"> <li>• for current measurement as 2-wire transducer</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• for current measurement as 4-wire transducer</li> </ul>	Yes
<b>Errors/accuracies</b>	
Operational error limit in overall temperature range	
<ul style="list-style-type: none"> <li>• Current, relative to input range, (+/-)</li> </ul>	0.45 %
Basic error limit (operational limit at 25 °C)	
<ul style="list-style-type: none"> <li>• Current, relative to input range, (+/-)</li> </ul>	0.1 %
<b>Interrupts/diagnostics/status information</b>	
Diagnostics function	Yes
Diagnoses	
<ul style="list-style-type: none"> <li>• Diagnostic information readable</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Overrange</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Wire-break in signal transmitter cable</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Short-circuit of the signal encoder cable</li> </ul>	Yes
Diagnostics indication LED	
<ul style="list-style-type: none"> <li>• Group error SF (red)</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Channel fault indicator F (red)</li> </ul>	Yes
<b>Ex(i) characteristics</b>	
Module for Ex(i) protection	Yes
maximum values for connecting terminals for gas group IIC	
<ul style="list-style-type: none"> <li>• U<sub>o</sub> (no-load voltage), max.</li> </ul>	25.2 V
<ul style="list-style-type: none"> <li>• I<sub>o</sub> (short-circuit current), max.</li> </ul>	68.5 mA
<ul style="list-style-type: none"> <li>• P<sub>o</sub> (power output), max.</li> </ul>	431 mW
<ul style="list-style-type: none"> <li>• C<sub>o</sub> (permissible external capacity), max.</li> </ul>	90 nF
<ul style="list-style-type: none"> <li>• L<sub>o</sub> (permissible external inductivity), max.</li> </ul>	7.5 mH
<b>Standards, approvals, certificates</b>	
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	
<ul style="list-style-type: none"> <li>• ATEX marking</li> <li>• FM marking</li> <li>• Test number PTB</li> </ul>	ATEX II 3 G (2) GD Ex nA [ib Gb] [ib IIIC Db] IIC T4 Gc Class I, Division 2, Group A, B, C, D T4 Ex-96.D.2092X
Railway application	
<ul style="list-style-type: none"> <li>• EN 50121-4</li> </ul>	No
<ul style="list-style-type: none"> <li>• EN 50155</li> </ul>	No
<b>Ambient conditions</b>	
Ambient temperature during operation	
<ul style="list-style-type: none"> <li>• min.</li> </ul>	-25 °C; = T <sub>min</sub>
<ul style="list-style-type: none"> <li>• max.</li> </ul>	60 °C; = T <sub>max</sub> ; 60 °C @ UL/cUL, ATEX and FM use, 70 °C only 4 wire
Ambient temperature during storage/transportation	
<ul style="list-style-type: none"> <li>• min.</li> </ul>	-40 °C
<ul style="list-style-type: none"> <li>• max.</li> </ul>	70 °C
Altitude during operation relating to sea level	
<ul style="list-style-type: none"> <li>• Installation altitude above sea level, max.</li> </ul>	5 000 m
<ul style="list-style-type: none"> <li>• Ambient air temperature-barometric pressure-altitude</li> </ul>	T <sub>min</sub> ... T <sub>max</sub> at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // T <sub>min</sub> ... (T <sub>max</sub> - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // T <sub>min</sub> ... (T <sub>max</sub> -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity	
<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)
Resistance	
Use in stationary industrial systems	
<ul style="list-style-type: none"> <li>— to biologically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
<ul style="list-style-type: none"> <li>— to chemically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
<ul style="list-style-type: none"> <li>— to mechanically active substances according to EN 60721-3-3</li> </ul>	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!
<b>connection method / header</b>	
required front connector	20-pin
<b>Dimensions</b>	
Width	40 mm
Height	125 mm
Depth	120 mm
<b>Weights</b>	
Weight, approx.	290 g
<b>last modified:</b>	4/1/2022 