



SIPLUS S7-300 SM331 2AI HART -25 ... +70 DEGREES C
WITH CONFORMAL COATING BASED ON 6ES7331-7TB00
-0AB0

Supply voltage

Load voltage L+

Rated value (DC)	24 V
Reverse polarity protection	Yes

Input current

from backplane bus 5 V DC, max.	100 mA
from supply voltage L+, max.	180 mA

Output voltage

Power supply to the transmitters

present	Yes
Rated value (DC)	15 V ; at 22 mA
short-circuit proof	Yes ; approx. 30 mA
No-load voltage (DC)	29.6 V

Power loss

Power loss, typ.	4.5 W
------------------	-------

Analog inputs

Number of analog inputs	2
permissible input current for current input (destruction limit), max.	40 mA

Input ranges	
Current	Yes
Input ranges (rated values), currents	
0 to 20 mA	Yes
Input resistance (0 to 20 mA)	50 Ω
4 to 20 mA	Yes
Input resistance (4 to 20 mA)	50 Ω
Cable length	
Cable length, shielded, max.	400 m
Analog value generation	
Measurement principle	Sigma Delta
Integration and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	16 bit ; 10 to 15 bits + sign
Integration time, parameterizable	Yes
Integration time, ms	2,5 / 16,67 / 20 / 100 ms
Basic conversion time, including integration time, ms	2.5 / 16.67 / 20 / 100 (1 channel enabled); 7.5 / 50 / 60 / 300 (2 channels enabled)
Interference voltage suppression for interference frequency f1 in Hz	10 / 50 / 60 / 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	
Linearity error (relative to input range), (+/-)	0.01 %
Temperature error (relative to input range), (+/-)	0.01 %/K
Crosstalk between the inputs, min.	130 dB
Repeat accuracy in steady state at 25 °C (relative to input area), (+/-)	0.05 %
Operational error limit in overall temperature range	
Current, relative to input area, (+/-)	0.55 % ; From 0/4 to 20 mA
Basic error limit (operational limit at 25 °C)	
Current, relative to input area, (+/-)	0.1 % ; From 0/4 to 20 mA
Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, f_1 = interference frequency	
Series mode interference (peak value of interference < rated value of input range), min.	60 dB
Common mode interference, min.	130 dB
Interrupts/diagnostics/status information	
Alarms	

Diagnostic alarm	Yes ; Parameterizable
Limit value alarm	Yes ; Parameterizable, channels 0 and 1
Diagnostic messages	
Diagnostic functions	Yes ; can be set in parameters, red LED, alarm message
Diagnostic information readable	Yes
Overrange	Yes ; Red LED, signal
Wire-break in signal transmitter cable	Yes ; Red LED, signal
Short-circuit of the signal encoder cable	Yes ; Red LED, signal
HART communication active	Yes ; green LED (H)
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 of input circuits (per channel)	
Co (permissible external capacity), max.	62 nF
Io (short-circuit current), max.	96.1 mA
Lo (permissible external inductivity), max.	3 mH
Po (power of load), max.	511 mW
Uo (output no-load voltage), max.	26 V
Um (fault voltage), max.	250 V ; DC
Ta (permissible ambient temperature), max.	0.6 °C
Galvanic isolation	
between the channels and backplane bus	Yes
Galvanic isolation analog inputs	
Galvanic isolation analog inputs	Yes
Galvanic isolation analog outputs	
between the channels	Yes
between the channels and the load voltage L+	Yes
Permissible potential difference	
between the inputs (UCM)	60V DC/30V AC
Isolation	
tested with	
Channels against backplane bus and load voltage L+	1500 V AC
Channels between each other	1500 V AC
Load voltage L+ against backplane bus	500 V DC
Standards, approvals, certificates	
CE mark	Yes

KC approval	Yes
UL approval	Yes ; File E239877
RCM (former C-TICK)	Yes
FM approval	Yes ; CofC 3028431
EAC (former Gost-R)	Yes
Use in hazardous areas	
Test number KEMA	KEMA 09 ATEX 0082X
Ambient conditions	
Operating temperature	
min.	-25 °C ; = Tmin
max.	70 °C ; = Tmax; 60 °C @ UL/cUL, ATEX and FM use
Extended ambient conditions	
relative to ambient temperature-atmospheric pressure-installation altitude	Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m) // Tmin ... (Tmax - 10K) at 795 hPa ... 658 hPa (+2000 m ... +3500 m) // Tmin ... (Tmax - 20K) at 658 hPa ... 540 hPa (+3500 m ... +5000 m)
Relative humidity	
with condensation, tested in accordance with IEC 60068-2-38, maximum	100 % ; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	
to biologically active substances/conformity with EN 60721-3-3	Yes ; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!
to chemically active substances/conformity with 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/conformity with EN 60721-3-3	Yes ; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!
Dimensions	
Width	40 mm
Height	125 mm
Depth	120 mm
Weights	
Weight, approx.	260 g
Status	Jul 23, 2014