

SIPLUS S7-300 SM 321 -25...+70 °C with conformal coating  
 Conformity with EN 50155 T1 Kat 1 KI A/B based on 6ES7321-1CH20-0AA0 . Digital input Isolated 16 DI, 48-125 V DC, 1x 20-pole

### Supply voltage

#### Load voltage L+

- |                                       |       |
|---------------------------------------|-------|
| • Rated value (DC)                    | 48 V  |
| • permissible range, lower limit (DC) | 48 V  |
| • permissible range, upper limit (DC) | 125 V |

### Input current

from backplane bus 5 V DC, max.	40 mA
---------------------------------	-------

### Power loss

Power loss, typ.	4.3 W
------------------	-------

### Digital inputs

Number of digital inputs	16
--------------------------	----

Input characteristic curve in accordance with IEC 61131, type 1	Yes
---	-----

#### Number of simultaneously controllable inputs

##### all mounting positions

- |                     |                 |
|---------------------|-----------------|
| — up to 60 °C, max. | 8; 6 @ Ue 146 V |
| — up to 70 °C, max. | 6; 4 @ Ue 146 V |

##### horizontal installation

- |                     |                  |
|---------------------|------------------|
| — up to 50 °C, max. | 8                |
| — up to 60 °C, max. | 8; 6 to Ue 146 V |

### Input voltage

- |                         |                           |
|-------------------------|---------------------------|
| • Type of input voltage | DC                        |
| • Rated value (DC)      | 48 V; 48 V DC to 125 V DC |
| • for signal "0"        | -146 V DC to +15 V DC     |
| • for signal "1"        | 30 V DC to 146 V DC       |

### Input current

- |                        |        |
|------------------------|--------|
| • for signal "1", typ. | 3.5 mA |
|------------------------|--------|

### Input delay (for rated value of input voltage)

#### for standard inputs

- |                       |        |
|-----------------------|--------|
| — parameterizable     | No     |
| — at "0" to "1", min. | 0.1 ms |
| — at "0" to "1", max. | 3.5 ms |
| — at "1" to "0", min. | 0.7 ms |

— at "1" to "0", max.	3 ms
<b>Cable length</b>	
• shielded, max.	1 000 m
• unshielded, max.	600 m
<b>Encoder</b>	
<b>Connectable encoders</b>	
• 2-wire sensor	Yes
— permissible quiescent current (2-wire sensor), max.	1 mA
<b>Isochronous mode</b>	
Isochronous operation (application synchronized up to terminal)	No
<b>Interrupts/diagnostics/status information</b>	
Diagnostic functions	No
<b>Alarms</b>	
• Diagnostic alarm	No
• Hardware interrupt	No
<b>Diagnostics indication LED</b>	
• Group error SF (red)	No
• Status indicator digital input (green)	Yes
<b>Potential separation</b>	
<b>Potential separation digital inputs</b>	
• between the channels	No
• between the channels, in groups of	8
• between the channels and backplane bus	Yes; Optocoupler
<b>Permissible potential difference</b>	
between different circuits	146 V DC/132 V AC
<b>Isolation</b>	
Isolation tested with	1500 V DC
<b>Standards, approvals, certificates</b>	
CE mark	Yes
UL approval	Yes; File E239877
FM approval	No
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
<b>Railway application</b>	
• EN 50155	Yes; Sections 4, 5 and 12; no further agreements apply; T1, Category 1, Class A/B, EN 50155:2007
<b>Use in hazardous areas</b>	

- ATEX

No

## Ambient conditions

Ambient temperature during operation	
<ul style="list-style-type: none"> <li>• min.</li> <li>• max.</li> </ul>	<p>-25 °C</p> <p>70 °C; = Tmax; for use on railway vehicles according to EN50155, the rated temperature range -25 ... +55 °C (T1) or 60 °C @ UL/ULhaz/ATEX/FM use applies</p>
Ambient temperature during storage/transportation	
<ul style="list-style-type: none"> <li>• min.</li> <li>• max.</li> </ul>	<p>-40 °C</p> <p>70 °C</p>
Altitude during operation relating to sea level	
<ul style="list-style-type: none"> <li>• Installation altitude above sea level, max.</li> <li>• Ambient air temperature-barometric pressure-altitude</li> </ul>	<p>2 000 m</p> <p>Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)</p>
Relative humidity	
<ul style="list-style-type: none"> <li>• With condensation, tested in accordance with IEC 60068-2-38, max.</li> </ul>	<p>100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation</p>
Resistance	
Use in stationary industrial systems	
<ul style="list-style-type: none"> <li>— to biologically active substances according to EN 60721-3-3</li> <li>— to chemically active substances according to EN 60721-3-3</li> <li>— to mechanically active substances according to EN 60721-3-3</li> </ul>	<p>Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request</p> <p>Yes; Class 3C4 (RH &lt; 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *</p> <p>Yes; Class 3S4 incl. sand, dust, *</p>
Use on land craft, rail vehicles and special-purpose vehicles	
<ul style="list-style-type: none"> <li>— to biologically active substances according to EN 60721-3-5</li> <li>— to chemically active substances according to EN 60721-3-5</li> <li>— to mechanically active substances according to EN 60721-3-5</li> </ul>	<p>Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request</p> <p>Yes; Class 5C3 (RH &lt; 75 %) incl. salt spray acc. to EN 50155 (ST2); *</p> <p>Yes; Class 5S3 incl. sand, dust; *</p>
Use on ships/at sea	
<ul style="list-style-type: none"> <li>— to biologically active substances according to EN 60721-3-6</li> <li>— to chemically active substances according to EN 60721-3-6</li> <li>— to mechanically active substances according to EN 60721-3-6</li> </ul>	<p>Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request</p> <p>Yes; Class 6C3 (RH &lt; 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *</p> <p>Yes; Class 6S3 incl. sand, dust; *</p>
from supply voltage 1L+	
<ul style="list-style-type: none"> <li>— Note regarding classification of environmental conditions acc. to EN 60721</li> </ul>	<p>* The supplied plug covers must remain in place over the unused interfaces during operation!</p>

## Connection method

required front connector	20-pin
<b>Dimensions</b>	
Width	40 mm
Height	125 mm
Depth	120 mm
<b>Weights</b>	
Weight, approx.	200 g
<b>last modified:</b>	05/16/2018