

SIPLUS ET 200SP, 4XI 2-/4-Wire TX RAIL -40 ... +70 °C TX with 85 °C for 10 minutes with conformal coating Based on: 6ES7134-6GD00-0BA1 . Analog Input Module, AI 4xI 2-/4-Wire Standard, suitable for BU type A0, A1, Color code CC03, Module diagnostics



Figure similar

General information	
Product type designation	AI 4xI 2-/4-wire ST
Firmware version	
<ul style="list-style-type: none"> <li>FW update possible</li> </ul>	Yes
usable BaseUnits	BU type A0, A1
Color code for module-specific color identification plate	CC03
Product function	
<ul style="list-style-type: none"> <li>I&amp;M data</li> </ul>	Yes; I&M0 to I&M3
<ul style="list-style-type: none"> <li>Measuring range scalable</li> </ul>	No
Operating mode	
<ul style="list-style-type: none"> <li>Oversampling</li> </ul>	No
<ul style="list-style-type: none"> <li>MSI</li> </ul>	No
CiR – Configuration in RUN	
Reparameterization possible in RUN	Yes
Calibration possible in RUN	No

Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes

Input current	
Current consumption, max.	37 mA; without sensor supply

Encoder supply	
24 V encoder supply	
• 24 V	Yes
• Short-circuit protection	Yes
• Output current, max.	20 mA; max. 50 mA per channel for a duration < 10 s

Power loss	
Power loss, typ.	0.85 W; Without encoder supply voltage

Address area	
Address space per module	
• Address space per module, max.	8 byte; + 1 byte for QI information

Analog inputs	
Number of analog inputs	4; > 60 °C max. 1x ±20 mA permissible
permissible input current for current input (destruction limit), max.	50 mA
Cycle time (all channels), min.	Sum of the basic conversion times and additional processing times (depending on the parameterization of the active channels)

Input ranges (rated values), currents	
• 0 to 20 mA	Yes
• Input resistance (0 to 20 mA)	100 Ω; + approx. 0.7 V diode forward voltage in 2-wire operation
• -20 mA to +20 mA	Yes
• Input resistance (-20 mA to +20 mA)	100 Ω
• 4 mA to 20 mA	Yes
• Input resistance (4 mA to 20 mA)	100 Ω; + approx. 0.7 V diode forward voltage in 2-wire operation

Cable length	
• shielded, max.	1 000 m

Analog value generation for the inputs	
Measurement principle	integrating (Sigma-Delta)
Integration and conversion time/resolution per channel	
• Resolution with overrange (bit including sign), max.	16 bit
• Integration time, parameterizable	Yes
• Interference voltage suppression for interference frequency f1 in Hz	16.6 / 50 / 60 Hz

• Conversion time (per channel)	180 / 60 / 50 ms
<b>Smoothing of measured values</b>	
• Number of smoothing levels	4; None; 4/8/16 times
• parameterizable	Yes
<b>Encoder</b>	
<b>Connection of signal encoders</b>	
• for voltage measurement	No
• for current measurement as 2-wire transducer	Yes
— Burden of 2-wire transmitter, max.	650 Ω
• for current measurement as 4-wire transducer	Yes
<b>Errors/accuracies</b>	
Linearity error (relative to input range), (+/-)	0.01 %
Temperature error (relative to input range), (+/-)	0.005 %/K
Crosstalk between the inputs, min.	50 dB; Applies to up to ±5 V overvoltage in other channels
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.05 %
<b>Operational error limit in overall temperature range</b>	
• Current, relative to input range, (+/-)	0.7 %
<b>Basic error limit (operational limit at 25 °C)</b>	
• Current, relative to input range, (+/-)	0.3 %
<b>Interference voltage suppression for <math>f = n \times (f_1 \pm 1 \%)</math>, <math>f_1 =</math> interference frequency</b>	
• Series mode interference (peak value of interference < rated value of input range), min.	70 dB
• Common mode voltage, max.	10 V
• Common mode interference, min.	90 dB
<b>Isochronous mode</b>	
Isochronous operation (application synchronized up to terminal)	No
<b>Interrupts/diagnostics/status information</b>	
Diagnostics function	Yes
<b>Alarms</b>	
• Diagnostic alarm	Yes
• Limit value alarm	No
<b>Diagnostic messages</b>	
• Monitoring the supply voltage	Yes
• Wire-break	Yes; at 4 to 20 mA
• Short-circuit	Yes; 2-wire mode: Short-circuit of the encoder supply to ground or of an input to the encoder supply
• Group error	Yes
• Overflow/underflow	Yes
<b>Diagnostics indication LED</b>	

- |  |                    |
|--|--------------------|
| • Monitoring of the supply voltage (PWR-LED) | Yes; Green LED     |
| • Channel status display                     | Yes; Green LED     |
| • for channel diagnostics                    | No                 |
| • for module diagnostics                     | Yes; Green/red LED |

### Potential separation

#### Potential separation channels

- |  |   |
|--|---|
| • between the channels   | Yes; channel group-specific between 2-wire current input group and 4-wire voltage input group |
| • between the channels and backplane bus                       | Yes   |
| • between the channels and the power supply of the electronics | Yes; only for 4-wire transducer   |

### Permissible potential difference

between the inputs (UCM)	10 V DC
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### Isolation

Isolation tested with	707 V DC (type test) and according to EN 50155 (routine test)
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### Standards, approvals, certificates

#### Railway application

- |                                      |  |
|--------------------------------------|--|
| • EN 50121-3-2                       | Yes; EMC for rail vehicles   |
| • EN 50121-4                         | Yes; EMC for signal and telecommunications systems   |
| • EN 50124-1                         | Yes; Railway applications - overvoltage category OV2; pollution degree PD2; rated surge voltage UNi = 0.5 kV; UNm = 24 V DC                                  |
| • EN 50125-1                         | Yes; Rail vehicles - see ambient conditions  |
| • EN 50125-2                         | Yes; Stationary electrical equipment - see ambient conditions  |
| • EN 50125-3                         | Yes; Signal and telecommunications systems - see ambient conditions; vibrations and shocks: Application point outside of tracks (1 m to 3 m away from track) |
| • EN 50155                           | Yes; Rail vehicles - temperature class Tx, horizontal mounting position, salt spray Class ST2  |
| • EN 61373                           | Yes; Rail vehicles - vibrations and shocks: Category 1 Class A/B   |
| • Fire protection acc. to EN 45545-2 | Yes; Rail vehicles - verification on request   |

### Ambient conditions

#### Ambient temperature during operation

- |                                 |  |
|---------------------------------|--|
| • horizontal installation, min. | -40 °C; = Tmin   |
| • horizontal installation, max. | 70 °C; = Tmax; +85 °C for 10 min (Tx acc. to EN 50155) |

#### Altitude during operation relating to sea level

- |  |  |
|--|--|
| • Installation altitude above sea level, max.          | 2 000 m  |
| • Ambient air temperature-barometric pressure-altitude | Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 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	
Coolants and lubricants	
— Resistant to commercially available coolants and lubricants	Yes
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; *
from supply voltage 1L+	
— Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!
Dimensions	
Width	15 mm
Height	73 mm
Depth	58 mm
Weights	
Weight, approx.	31 g
Other	
Note:	For use in railway applications, also observe the product information "SIPLUS extreme RAIL" A5E37661960A Online Support article 109736776
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