



SIMATIC DP, Electronics module ET 200S: 2AI RTD High Feature, 15 mm width, 15 bit+sign accuracy  $\pm 0.1\%$ , for 2-/3-/4-wire sensors, with internal compensation of the line resistance, with SF LED (group fault)

General information	
Product function	
• Isochronous mode	No
Supply voltage	
Load voltage L+	
• Rated value (DC)	24 V; From power module
• Reverse polarity protection	Yes
Input current	
from load voltage L+ (without load), max.	30 mA
from backplane bus 3.3 V DC, max.	10 mA
Power loss	
Power loss, typ.	0.6 W
Address area	
Address space per module	
• Address space per module, max.	4 byte
Analog inputs	
Number of analog inputs	2
permissible input voltage for voltage input (destruction limit), max.	9 V
Constant measurement current for resistance-type transmitter, typ.	1.25 mA
Cycle time (all channels) max.	Number of active channels per module x basic conversion time
Technical unit for temperature measurement adjustable	Yes
Input ranges (rated values), resistance thermometer	
• Cu 10	Yes
— Input resistance (Cu 10)	10 M $\Omega$
• Ni 100	Yes
— Input resistance (Ni 100)	10 M $\Omega$
• Ni 1000	Yes
— Input resistance (Ni 1000)	10 M $\Omega$
• Ni 120	Yes
— Input resistance (Ni 120)	10 M $\Omega$
• Ni 200	Yes
— Input resistance (Ni 200)	10 M $\Omega$
• Ni 500	Yes
— Input resistance (Ni 500)	10 M $\Omega$
• Pt 100	Yes
— Input resistance (Pt 100)	10 M $\Omega$
• Pt 1000	Yes
— Input resistance (Pt 1000)	10 M $\Omega$

<ul style="list-style-type: none"> <li>• Pt 200 <ul style="list-style-type: none"> <li>— Input resistance (Pt 200)</li> </ul> </li> </ul>	Yes 10 MΩ
<ul style="list-style-type: none"> <li>• Pt 500 <ul style="list-style-type: none"> <li>— Input resistance (Pt 500)</li> </ul> </li> </ul>	Yes 10 MΩ
<b>Input ranges (rated values), resistors</b>	
<ul style="list-style-type: none"> <li>• 0 to 150 ohms <ul style="list-style-type: none"> <li>— Input resistance (0 to 150 ohms)</li> </ul> </li> </ul>	Yes 10 MΩ
<ul style="list-style-type: none"> <li>• 0 to 300 ohms <ul style="list-style-type: none"> <li>— Input resistance (0 to 300 ohms)</li> </ul> </li> </ul>	Yes 10 MΩ
<ul style="list-style-type: none"> <li>• 0 to 600 ohms <ul style="list-style-type: none"> <li>— Input resistance (0 to 600 ohms)</li> </ul> </li> </ul>	Yes 10 MΩ
<ul style="list-style-type: none"> <li>• 0 to 3000 ohms <ul style="list-style-type: none"> <li>— Input resistance (0 to 3000 ohms)</li> </ul> </li> </ul>	Yes 10 MΩ
<b>Thermocouple (TC)</b>	
<b>Temperature compensation</b>	
<ul style="list-style-type: none"> <li>— internal temperature compensation</li> </ul>	Yes
<b>Characteristic linearization</b>	
<ul style="list-style-type: none"> <li>• parameterizable <ul style="list-style-type: none"> <li>— for resistance thermometer</li> </ul> </li> </ul>	Yes; for Ptxxx, Nixxx Ptxxx, Nixxx
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>• shielded, max.</li> </ul>	200 m
<b>Analog value generation for the inputs</b>	
Measurement principle	integrating (Sigma-Delta)
<b>Integration and conversion time/resolution per channel</b>	
<ul style="list-style-type: none"> <li>• Resolution with overrange (bit including sign), max.</li> </ul>	16 bit; for Pt100, Ni100, Ni120, Pt200, Ni200, Pt500, Ni500, Pt1000, Ni1000, Cu10: 15 bit + sign; for 150, 300, 600, 3 000 ohms: 15 bit; for PTC: 1 bit
<ul style="list-style-type: none"> <li>• Integration time (ms)</li> </ul>	16,7 / 20 ms
<ul style="list-style-type: none"> <li>• Interference voltage suppression for interference frequency f1 in Hz</li> </ul>	50 / 60 Hz
<ul style="list-style-type: none"> <li>• Conversion time (per channel)</li> </ul>	Basic conversion time incl. integration time: 50 / 60 ms; additional conversion time for diagnostics of wire break test: 5 / 5 ms; additional conversion time for line compensation with 3-wire connection: 50 / 60 ms
<b>Smoothing of measured values</b>	
<ul style="list-style-type: none"> <li>• parameterizable</li> </ul>	Yes; In four stages by means of digital filtering
<ul style="list-style-type: none"> <li>• Step: None</li> </ul>	Yes; 1x cycle time
<ul style="list-style-type: none"> <li>• Step: low</li> </ul>	Yes; 4x cycle time
<ul style="list-style-type: none"> <li>• Step: Medium</li> </ul>	Yes; 32x cycle time
<ul style="list-style-type: none"> <li>• Step: High</li> </ul>	Yes; 64x cycle time
<b>Encoder</b>	
<b>Connection of signal encoders</b>	
<ul style="list-style-type: none"> <li>• for resistance measurement with two-wire connection</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• for resistance measurement with three-wire connection</li> </ul>	Yes; internal compensation of the line resistances
<ul style="list-style-type: none"> <li>• for resistance measurement with four-wire connection</li> </ul>	Yes
<b>Errors/accuracies</b>	
<b>Operational error limit in overall temperature range</b>	
<ul style="list-style-type: none"> <li>• Resistance thermometer, relative to input range, (+/-)</li> </ul>	Resistance-type transmitter: ±0.1 %; Pt100, Pt200, Pt500, Pt1000 standard: ±1.0 K; Pt100, Pt200, Pt500, Pt1000 climate: ±0.25 K; Ni100, Ni120, Ni200, Ni500, Ni1000 standard and climate: ±0.4 K; Cu10 ±1.5 K
<b>Basic error limit (operational limit at 25 °C)</b>	
<ul style="list-style-type: none"> <li>• Resistance thermometer, relative to input range, (+/-)</li> </ul>	Resistance-type transmitter: ±0.05 %; Pt100, Pt200, Pt500, Pt1000 standard: ±0.6 K; Pt100, Pt200, Pt500, Pt1000 climate: ±0.13 K; Ni100, Ni120, Ni200, Ni500, Ni1000 standard and climate: ±0.2 K; Cu10 ±1 K
<b>Interrupts/diagnostics/status information</b>	
<b>Diagnoses</b>	
<ul style="list-style-type: none"> <li>• Wire-break</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Group error</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Overflow/underflow</li> </ul>	Yes
<b>Diagnostics indication LED</b>	
<ul style="list-style-type: none"> <li>• Group error SF (red)</li> </ul>	Yes
<b>Parameter</b>	
Remark	7 byte
Diagnostics wire break	Disable / enable
Group diagnostics	Disable / enable

Overflow/underflow	Disable / enable
<b>Potential separation</b>	
Potential separation analog inputs	
• between the channels	No
• between the channels and backplane bus	Yes
• Between the channels and load voltage L+	Yes
<b>Isolation</b>	
Isolation tested with	500 V DC
<b>Dimensions</b>	
Width	15 mm
Height	81 mm
Depth	52 mm
<b>Weights</b>	
Weight, approx.	40 g

**last modified:** 8/16/2023 