



SIMATIC DP, ELECTRONIC MODULE ET 200S: 2AI RTD HIGH FEATURE, 15 MM WIDTH, 15BIT + SIGN ACCURACY +/- 0.1%, FOR 2-/3-/4- WIRE SENSORS, WITH INTERNAL COMPENSATION OF THE WIRE RESISTOR, WITH LED SF (GROUP FAULT)

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 losses	
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	
• Voltage	No
• Current	No

• Thermocouple	No
• Resistance thermometer	Yes
• Resistance	Yes
Input ranges (rated values), resistance thermometer	
• Cu 10	Yes
• Input resistance (Cu 10)	10 MΩ
• Ni 100	Yes
• Input resistance (Ni 100)	10 MΩ
• Ni 1000	Yes
• Input resistance (Ni 1000)	10 MΩ
• Ni 120	Yes
• Input resistance (Ni 120)	10 MΩ
• Ni 200	Yes
• Input resistance (Ni 200)	10 MΩ
• Ni 500	Yes
• Input resistance (Ni 500)	10 MΩ
• Pt 100	Yes
• Input resistance (Pt 100)	10 MΩ
• Pt 1000	Yes
• Input resistance (Pt 1000)	10 MΩ
• Pt 200	Yes
• Input resistance (Pt 200)	10 MΩ
• Pt 500	Yes
• Input resistance (Pt 500)	10 MΩ
Input ranges (rated values), resistors	
• 0 to 150 ohms	Yes
• Input resistance (0 to 150 ohms)	10 MΩ
• 0 to 300 ohms	Yes
• Input resistance (0 to 300 ohms)	10 MΩ
• 0 to 600 ohms	Yes
• Input resistance (0 to 600 ohms)	10 MΩ
• 0 to 3000 ohms	Yes
• Input resistance (0 to 3000 ohms)	10 MΩ
Thermocouple (TC)	
Temperature compensation	
— internal temperature compensation	Yes
Characteristic linearization	
• Parameterizable	Yes; for Ptxxx, Nixxx
— for resistance thermometer	Ptxxx, Nixxx
Cable length	
• shielded, max.	200 m

Analog value creation

Measurement principle	integrating (Sigma-Delta)
Integration and conversion time/resolution per channel	
<ul style="list-style-type: none"> Resolution with overrange (bit including sign), max. 	16 bit; for Pt100, Ni100, Ni120, Pt200, Ni200, Pt 500, Ni 500, Pt1000, Ni1000, Cu10: 15 bits + sign; for 150, 300, 600, 3000 ohms: 15 bits; for PTC: 1 bits
<ul style="list-style-type: none"> Integration time (ms) 	16,7 / 20 ms
<ul style="list-style-type: none"> Conversion time (per channel) 	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
Smoothing of measured values	
<ul style="list-style-type: none"> Parameterizable 	Yes; In four stages by means of digital filtering
<ul style="list-style-type: none"> Step: None 	Yes; 1 x cycle time
<ul style="list-style-type: none"> Step: low 	Yes; 4 x cycle time
<ul style="list-style-type: none"> Step: Medium 	Yes; 32 x cycle time
<ul style="list-style-type: none"> Step: High 	Yes; 64 x cycle time

Encoder

Connection of signal encoders	
<ul style="list-style-type: none"> for resistance measurement with two-wire connection 	Yes
<ul style="list-style-type: none"> for resistance measurement with three-wire connection 	Yes; internal compensation of the line resistances
<ul style="list-style-type: none"> for resistance measurement with four-wire connection 	Yes

Errors/accuracies

Linearity error (relative to input range), (+/-)	0.01 %
Temperature error (relative to input range), (+/-)	0.0009 %/K
Crosstalk between the inputs, min.	-50 dB
Repeat accuracy in steady state at 25 °C (relative to input area), (+/-)	0.05 %
Operational limit in overall temperature range	
<ul style="list-style-type: none"> Resistance thermometer, relative to input area, (+/-) 	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
Basic error limit (operational limit at 25 °C)	
<ul style="list-style-type: none"> Resistance thermometer, relative to input area, (+/-) 	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
Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, $f_1 =$ interference frequency	
<ul style="list-style-type: none"> Series mode interference (peak value of interference < rated value of input range), min. 	70 dB

- common mode voltage (USS < 2.5 V) , min. 90 dB

Isochronous mode

Isochronous operation (application synchronized up to terminal)	No
Diagnostic messages	
• Wire break	Yes
• Group error	Yes
• Overflow/underflow	Yes
Diagnostics indication LED	
• Group error SF (red)	Yes

Parameter

Remark	7 byte
Diagnosis: wire break	Disable / enable
Measurement type/range	Deactivated/ 150 Ohm / 300 Ohm / 600 Ohm / Pt100/Pt200/Pt500/Pt1000 each standard or climate range / Ni100/Ni120/Ni200/Ni500/Ni1000 each standard or climate range / Cu10 each standard or climate range / PTC
Group diagnostics	Disable / enable
Overflow/underflow	Disable / enable

Galvanic isolation

Galvanic isolation analog inputs	
• between the channels	No
• between the channels and the backplane bus	Yes
• between the channels and the load voltage L+	Yes

Permissible potential difference

between MANA and M internally (UISO)	75V DC/60V AC
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Isolation

Isolation checked with	500 V DC
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Dimensions

Width	15 mm
Height	81 mm
Depth	52 mm

Weights

Weight, approx.	40 g
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last modified: 12.03.2015