



SIMATIC DP, ELECTRONIC MODULE FOR ET 200S, 2 AI TC STANDARD, 15 MM WIDE, 15 BIT + SIGN +/-80MV; CHARACTERISTICS LINEARIZATION FOR THERMOELEMENTS OF: B, E, J, K, L, N, R, S, T TYPES, CYCLE TIME 65 MS/CHANNEL 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 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.	10 V; Permanent
Cycle time (all channels) max.	Number of active channels per module x basic conversion time

Technical unit for temperature measurement adjustable	No; Celsius
Input ranges	
• Voltage	Yes
• Current	No
• Thermocouple	Yes
• Resistance thermometer	No
• Resistance	No
Input ranges (rated values), voltages	
• -80 mV to +80 mV	Yes
• Input resistance (-80 mV to +80 mV)	1 MΩ
Input ranges (rated values), thermocouples	
• Type B	Yes
• Input resistance (Type B)	1 MΩ
• Type E	Yes
• Input resistance (Type E)	1 MΩ
• Type J	Yes
• Input resistance (type J)	1 MΩ
• Type K	Yes
• Input resistance (Type K)	1 MΩ
• Type L	Yes
• Input resistance (Type L)	1 MΩ
• Type N	Yes
• Input resistance (Type N)	1 MΩ
• Type R	Yes
• Input resistance (Type R)	1 MΩ
• Type S	Yes
• Input resistance (Type S)	1 MΩ
• Type T	Yes
• Input resistance (Type T)	1 MΩ
Thermocouple (TC)	
Temperature compensation	
— internal temperature compensation	Not possible
— external temperature compensation with compensations socket	Yes; possible, one external compensating box per channel
Characteristic linearization	
• parameterizable	Yes; Type B, E, J, K, L, N, R, S, T to IEC 584
Cable length	
• shielded, max.	50 m
Analog value generation for the inputs	
Measurement principle	integrating
Integration and conversion time/resolution per channel	

• Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Integration time (ms) • Interference voltage suppression for interference frequency f1 in Hz • Conversion time (per channel)	16 bit; 15 bit + sign Yes 16,7 / 20 ms 50 / 60 Hz 65 s; 55 / 65 ms (additional 20 ms on activated wire-break test)
Smoothing of measured values	
• parameterizable • Step: None • Step: low • Step: Medium • Step: High	Yes; In four stages by means of digital filtering Yes; 1 x cycle time Yes; 4 x cycle time Yes; 32 x cycle time Yes; 64 x cycle time
Encoder	
Connection of signal encoders	
• for voltage measurement	Yes
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.01 %
Temperature error (relative to input range), (+/-)	0.005 %/K
Crosstalk between the inputs, min.	-50 dB
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.05 %
Operational error limit in overall temperature range	
• Voltage, relative to input range, (+/-)	0.6 %
Basic error limit (operational limit at 25 °C)	
• Voltage, relative to input range, (+/-)	0.4 %
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. • Common mode interference (USS < 2.5 V), min.	70 dB 90 dB
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	No
Interrupts/diagnostics/status information	
Diagnostic messages	
• Diagnostic information readable • Wire-break • Group error • Overflow/underflow	Yes Yes; A break in the wire is only detected for thermocouples Yes Yes
Diagnostics indication LED	

- Group error SF (red)

Yes

Parameter

Remark	4 byte
Diagnostics wire break	Disable / enable (wire break is detected only in thermocouples)
Measurement type/range	Deactivated/ +/- 80 mV/ TC-EL Type T (Cu-CuNi)/ TC-EL Type K (NiCr-Ni)/ TC-EL Type B (PtRh-PtRh)/ TC-EL Type c (Wer-Wer) TC-EL Type N (NiCrSi-NiSi)/ TC-EL Type E (NiCr-CuNi)/ TC-EL Type R (PtRh-Pt)/ TC-EL Type S (PtRh-Pt)/ TC-EL Type J (Fe-Cu-Ni)/ TC
Group diagnostics	Disable / enable
Overflow/underflow	Disable / enable
Comparison point	none / RTD
Comparison point number	None / 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8

Potential separation

Potential separation analog inputs	
• between the channels	No
• between the channels and backplane bus	Yes
• Between the channels and load voltage L+	Yes

Permissible potential difference

Between the inputs and MANA (UCM)	2 V AC PP
between MANA and M internally (UISO)	75 V DC/60 V AC

Isolation

Isolation tested 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: 08/12/2017