

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)



<b>Supply voltage</b>	
Load voltage L+	
<ul style="list-style-type: none"> <li>Rated value (DC)</li> <li>Reverse polarity protection</li> </ul>	<p>24 V; From power module</p> <p>Yes</p>
<b>Input current</b>	
from load voltage L+ (without load), max.	30 mA
from backplane bus 3.3 V DC, max.	10 mA
<b>Power loss</b>	
Power loss, typ.	0.6 W
<b>Address area</b>	
Address space per module	
<ul style="list-style-type: none"> <li>Address space per module, max.</li> </ul>	4 byte
<b>Analog inputs</b>	
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
<b>Input ranges</b>	
• Voltage	Yes
• Current	No
• Thermocouple	Yes
• Resistance thermometer	No
• Resistance	No
<b>Input ranges (rated values), voltages</b>	
• -80 mV to +80 mV	Yes
• Input resistance (-80 mV to +80 mV)	1 MΩ
<b>Input ranges (rated values), thermocouples</b>	
• 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
<b>Thermocouple (TC)</b>	
<b>Temperature compensation</b>	
— internal temperature compensation	Not possible
— external temperature compensation with compensations socket	Yes; possible, one external compensating box per channel
<b>Characteristic linearization</b>	
• parameterizable	Yes; Type B, E, J, K, L, N, R, S, T to IEC 584
<b>Cable length</b>	
• shielded, max.	50 m
<b>Analog value generation for the inputs</b>	
Measurement principle	integrating
<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; 15 bit + sign
<ul style="list-style-type: none"> <li>• Integration time, parameterizable</li> </ul>	Yes
<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>	65 s; 55 / 65 ms (additional 20 ms on activated wire-break test)
<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; 1 x cycle time
<ul style="list-style-type: none"> <li>• Step: low</li> </ul>	Yes; 4 x cycle time
<ul style="list-style-type: none"> <li>• Step: Medium</li> </ul>	Yes; 32 x cycle time
<ul style="list-style-type: none"> <li>• Step: High</li> </ul>	Yes; 64 x cycle time
<b>Encoder</b>	
<b>Connection of signal encoders</b>	
<ul style="list-style-type: none"> <li>• for voltage measurement</li> </ul>	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
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.05 %
<b>Operational error limit in overall temperature range</b>	
<ul style="list-style-type: none"> <li>• Voltage, relative to input range, (+/-)</li> </ul>	0.6 %
<b>Basic error limit (operational limit at 25 °C)</b>	
<ul style="list-style-type: none"> <li>• Voltage, relative to input range, (+/-)</li> </ul>	0.4 %
<b>Interference voltage suppression for <math>f = n \times (f_1 \pm 1 \%)</math>, <math>f_1 =</math> interference frequency</b>	
<ul style="list-style-type: none"> <li>• Series mode interference (peak value of interference &lt; rated value of input range), min.</li> </ul>	70 dB
<ul style="list-style-type: none"> <li>• Common mode interference (USS &lt; 2.5 V), min.</li> </ul>	90 dB
<b>Isochronous mode</b>	
Isochronous operation (application synchronized up to terminal)	No
<b>Interrupts/diagnostics/status information</b>	
<b>Diagnostic messages</b>	
<ul style="list-style-type: none"> <li>• Diagnostic information readable</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Wire-break</li> </ul>	Yes; A break in the wire is only detected for thermocouples
<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>	

- 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
<b>last modified:</b>	03/06/2017