

SIMATIC DP, Electronics module for ET 200S, 2 AI TC Standard; 15 mm width, 15 bit+sign +/-80 mV; Characteristic linearization for thermocouples of the types: B, E, J, K, L, N, R, S, T Cycle time 65 ms/channel with SF LED (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  |
| <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>          |  |
| • Resolution with overrange (bit including sign), max.                 | 16 bit; 15 bit + sign                                    |
| • Integration time, parameterizable                                    | Yes  |
| • Integration time (ms)  | 16,7 / 20 ms   |
| • Interference voltage suppression for interference frequency f1 in Hz | 50 / 60 Hz   |

|   |  |
|---|--|
| • Conversion time (per channel)   | 65 s; 55 / 65 ms (additional 20 ms on activated wire-break test) |
| <b>Smoothing of measured values</b>   |  |
| • parameterizable   | Yes; In four stages by means of digital filtering                |
| • Step: None  | Yes; 1x cycle time   |
| • Step: low   | Yes; 4x cycle time   |
| • Step: Medium  | Yes; 32x cycle time  |
| • Step: High  | Yes; 64x cycle time  |
| <b>Encoder</b>  |  |
| <b>Connection of signal encoders</b>  |  |
| • for voltage measurement   | 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>   |  |
| • Voltage, relative to input range, (+/-)   | 0.6 %  |
| <b>Basic error limit (operational limit at 25 °C)</b>   |  |
| • Voltage, relative to input range, (+/-)   | 0.4 %  |
| <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 interference (USS < 2.5 V), min.  | 90 dB  |
| <b>Isochronous mode</b>   |  |
| Isochronous operation (application synchronized up to terminal)   | No   |
| <b>Interrupts/diagnostics/status information</b>  |  |
| <b>Diagnostic messages</b>  |  |
| • Diagnostic information readable   | Yes  |
| • Wire-break  | Yes; A break in the wire is only detected for thermocouples      |
| • Group error   | Yes  |
| • Overflow/underflow  | Yes  |
| <b>Diagnostics indication LED</b>   |  |
| • Group error SF (red)  | Yes  |
| <b>Parameter</b>  |  |
| 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 |
|-----------------------|----------|

### Dimensions

|        |       |
|--------|-------|
| Width  | 15 mm |
| Height | 81 mm |
| Depth  | 52 mm |

### Weights

|                 |      |
|-----------------|------|
| Weight, approx. | 40 g |
|-----------------|------|

**last modified:** 05/04/2019