

SIMATIC DP, ELECTRONIC MODULE FOR ET 200S, 2/4 AI RTD STANDARD, 15 MM WIDE, 15BIT + SIGN PT100 STD; PT100 KL; NI100 STD; NI100 KL; 150 OHM; 300 OHM; 600 OHM, CYCLE TIME 110 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                   |
| Output voltage                            |                         |
| Power supply to the transmitters          |                         |
| • present                                 | Yes                     |
| • short-circuit proof                     | Yes                     |
| Power loss                                |                         |
| Power loss, typ.                          | 0.6 W                   |
| Address area                              |                         |
| Address space per module                  |                         |
| • Address space per module, max.          | 8 byte                  |
| Analog inputs                             |                         |

|                                                                        |                                                                          |
|------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Number of analog inputs                                                | 4; 2 for 3 or 4-wire connection                                          |
| permissible input voltage for voltage input (destruction limit), max.  | 9 V                                                                      |
| Constant measurement current for resistance-type transmitter, typ.     | 1.67 mA                                                                  |
| Cycle time (all channels) max.                                         | Number of active channels per module x basic conversion time             |
| Technical unit for temperature measurement adjustable                  | No                                                                       |
| <b>Input ranges</b>                                                    |                                                                          |
| • Voltage                                                              | No                                                                       |
| • Current                                                              | No                                                                       |
| • Thermocouple                                                         | No                                                                       |
| • Resistance thermometer                                               | Yes                                                                      |
| • Resistance                                                           | Yes                                                                      |
| <b>Input ranges (rated values), resistance thermometer</b>             |                                                                          |
| • Ni 100                                                               | Yes; Standard/climate                                                    |
| • Input resistance (Ni 100)                                            | 2 000 kΩ                                                                 |
| • Pt 100                                                               | Yes; Standard/climate                                                    |
| • Input resistance (Pt 100)                                            | 2 000 kΩ                                                                 |
| <b>Input ranges (rated values), resistors</b>                          |                                                                          |
| • 0 to 150 ohms                                                        | Yes                                                                      |
| • Input resistance (0 to 150 ohms)                                     | 2 000 kΩ                                                                 |
| • 0 to 300 ohms                                                        | Yes                                                                      |
| • Input resistance (0 to 300 ohms)                                     | 2 000 kΩ                                                                 |
| • 0 to 600 ohms                                                        | Yes                                                                      |
| • Input resistance (0 to 600 ohms)                                     | 2 000 kΩ                                                                 |
| <b>Characteristic linearization</b>                                    |                                                                          |
| • parameterizable                                                      | Yes; for Pt100, Ni100                                                    |
| — for resistance thermometer                                           | Pt100 (standard, climatic range), Ni100 (standard, climatic range)       |
| <b>Cable length</b>                                                    |                                                                          |
| • shielded, max.                                                       | 200 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; 150 ohms: 14 bits; 300, 600 ohms: 15 bits, Pt100, Ni100: 16 bits |
| • 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)                                        | 66 / 80 ms; additional conversion time for diagnostic wire break test    |
| <b>Smoothing of measured values</b>                                    |                                                                          |

|                   |                                                   |
|-------------------|---------------------------------------------------|
| • parameterizable | Yes; In four stages by means of digital filtering |
| • Step: None      | Yes; 1 x cycle time                               |
| • Step: low       | Yes; 4 x cycle time                               |
| • Step: Medium    | Yes; 32 x cycle time                              |
| • Step: High      | Yes; 64 x cycle time                              |

## Encoder

### Connection of signal encoders

|                                                         |     |
|---------------------------------------------------------|-----|
| • for resistance measurement with two-wire connection   | Yes |
| • for resistance measurement with three-wire connection | Yes |
| • for resistance measurement with four-wire connection  | Yes |

## Errors/accuracies

|                                                                           |           |
|---------------------------------------------------------------------------|-----------|
| Linearity error (relative to input range), (+/-)                          | 0.01 %    |
| Temperature error (relative to input range), (+/-)                        | 0.005 %/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

|                                                          |       |
|----------------------------------------------------------|-------|
| • Resistance thermometer, relative to input range, (+/-) | 0.6 % |
|----------------------------------------------------------|-------|

### Basic error limit (operational limit at 25 °C)

|                                                          |       |
|----------------------------------------------------------|-------|
| • Resistance thermometer, 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. | 70 dB |
| • Common mode interference (USS < 2.5 V), min.                                             | 90 dB |

## Isochronous mode

|                                                                 |    |
|-----------------------------------------------------------------|----|
| Isochronous operation (application synchronized up to terminal) | No |
|-----------------------------------------------------------------|----|

## Interrupts/diagnostics/status information

### Diagnostic messages

|                      |     |
|----------------------|-----|
| • Wire-break         | Yes |
| • Group error        | Yes |
| • Overflow/underflow | Yes |

### Diagnostics indication LED

|                        |     |
|------------------------|-----|
| • Group error SF (red) | Yes |
|------------------------|-----|

## Parameter

|                        |                  |
|------------------------|------------------|
| Diagnostics wire break | Disable / enable |
|------------------------|------------------|

|                        |                                                                                                                              |
|------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Measurement type/range | deactivated/150 ohms/; 300 ohms/600 ohms/ Pt100 climatic/<br>Pt100 standard; Ni100 standard / Ni100 climatic, 2, 3 or 4-wire |
| Group diagnostics      | Disable / enable                                                                                                             |
| Overflow/underflow     | Disable / enable                                                                                                             |

## 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 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:** 11/28/2017