



\*\*\* Spare part \*\*\* SIMATIC DP, Electronics module ET 200S: 2AI RTD High Feature, 15 mm width, 15 bit+sign accuracy +/-0.1%, for 2-/3-/4-wire sensors, with internal compensation of the line resistance, with SF LED (group fault)

| General information                                                   |                                                              |
|-----------------------------------------------------------------------|--------------------------------------------------------------|
| Product function                                                      |                                                              |
| • Isochronous mode                                                    | No                                                           |
| 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. | 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 (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                                                        |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Pt 200 <ul style="list-style-type: none"> <li>— Input resistance (Pt 200)</li> </ul> </li> <li>• Pt 500 <ul style="list-style-type: none"> <li>— Input resistance (Pt 500)</li> </ul> </li> </ul>                                                                                                                                                                                                                                                             | Yes<br>10 MΩ<br>Yes<br>10 MΩ                                                                                                                                                                                                                                                                                                                                                                                    |
| Input ranges (rated values), resistors                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <ul style="list-style-type: none"> <li>• 0 to 150 ohms <ul style="list-style-type: none"> <li>— Input resistance (0 to 150 ohms)</li> </ul> </li> <li>• 0 to 300 ohms <ul style="list-style-type: none"> <li>— Input resistance (0 to 300 ohms)</li> </ul> </li> <li>• 0 to 600 ohms <ul style="list-style-type: none"> <li>— Input resistance (0 to 600 ohms)</li> </ul> </li> <li>• 0 to 3000 ohms <ul style="list-style-type: none"> <li>— Input resistance (0 to 3000 ohms)</li> </ul> </li> </ul> | Yes<br>10 MΩ<br>Yes<br>10 MΩ<br>Yes<br>10 MΩ<br>Yes<br>10 MΩ                                                                                                                                                                                                                                                                                                                                                    |
| Thermocouple (TC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Temperature compensation                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <ul style="list-style-type: none"> <li>— internal temperature compensation</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                  | Yes                                                                                                                                                                                                                                                                                                                                                                                                             |
| Characteristic linearization                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <ul style="list-style-type: none"> <li>• parameterizable <ul style="list-style-type: none"> <li>— for resistance thermometer</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                    | Yes; for Ptxxx, Nixxx<br>Ptxxx, Nixxx                                                                                                                                                                                                                                                                                                                                                                           |
| Cable length                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <ul style="list-style-type: none"> <li>• shielded, max.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                     | 200 m                                                                                                                                                                                                                                                                                                                                                                                                           |
| Analog value generation for the inputs                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Measurement principle                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | integrating (Sigma-Delta)                                                                                                                                                                                                                                                                                                                                                                                       |
| Integration and conversion time/resolution per channel                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <ul style="list-style-type: none"> <li>• Resolution with overrange (bit including sign), max.</li> <li>• Integration time (ms)</li> <li>• Interference voltage suppression for interference frequency f1 in Hz</li> <li>• Conversion time (per channel)</li> </ul>                                                                                                                                                                                                                                     | 16 bit; for Pt100, Ni100, Ni120, Pt200, Ni200, Pt500, Ni500, Pt1000, Ni1000, Cu10: 15 bit + sign; for 150, 300, 600, 3 000 ohms: 15 bit; for PTC: 1 bit<br>16,7 / 20 ms<br>50 / 60 Hz<br>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"> <li>• parameterizable</li> <li>• Step: None</li> <li>• Step: low</li> <li>• Step: Medium</li> <li>• Step: High</li> </ul>                                                                                                                                                                                                                                                                                                                                           | Yes; In four stages by means of digital filtering<br>Yes; 1x cycle time<br>Yes; 4x cycle time<br>Yes; 32x cycle time<br>Yes; 64x cycle time                                                                                                                                                                                                                                                                     |
| Encoder                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Connection of signal encoders                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <ul style="list-style-type: none"> <li>• for resistance measurement with two-wire connection</li> <li>• for resistance measurement with three-wire connection</li> <li>• for resistance measurement with four-wire connection</li> </ul>                                                                                                                                                                                                                                                               | Yes<br>Yes; internal compensation of the line resistances<br>Yes                                                                                                                                                                                                                                                                                                                                                |
| Errors/accuracies                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Operational error limit in overall temperature range                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <ul style="list-style-type: none"> <li>• Resistance thermometer, relative to input range, (+/-)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                             | 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"> <li>• Resistance thermometer, relative to input range, (+/-)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                             | 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                                                                                                                                                                                                    |
| Interrupts/diagnostics/status information                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Diagnoses                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <ul style="list-style-type: none"> <li>• Wire-break</li> <li>• Group error</li> <li>• Overflow/underflow</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                    | Yes<br>Yes<br>Yes                                                                                                                                                                                                                                                                                                                                                                                               |
| Diagnostics indication LED                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <ul style="list-style-type: none"> <li>• Group error SF (red)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                               | Yes                                                                                                                                                                                                                                                                                                                                                                                                             |
| Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Remark                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 7 byte                                                                                                                                                                                                                                                                                                                                                                                                          |
| Diagnostics wire break                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Disable / enable                                                                                                                                                                                                                                                                                                                                                                                                |
| 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              |
| Isolation                                  |                  |
| Isolation tested with                      | 500 V DC         |
| Dimensions                                 |                  |
| Width                                      | 15 mm            |
| Height                                     | 81 mm            |
| Depth                                      | 52 mm            |
| Weights                                    |                  |
| Weight, approx.                            | 40 g             |

last modified:

5/22/2024 