

Siemens  
EcoTech



SIMATIC S7-1500 analog input module AI 8xU/I/RTD/TC ST, 16 bit resolution, accuracy 0.3%, 8 channels in groups of 8; 4 channels for RTD measurement, common mode voltage 10 V; Diagnostics; Hardware interrupts; Delivery including infed element, shield bracket and shield terminal: Front connector (screw terminals or push-in) to be ordered separately

| General information                                      |                                                     |
|----------------------------------------------------------|-----------------------------------------------------|
| Product type designation                                 | AI 8xU/I/RTD/TC ST                                  |
| HW functional status                                     | FS04                                                |
| Firmware version                                         | V2.0.0                                              |
| • FW update possible                                     | Yes                                                 |
| Product function                                         |                                                     |
| • I&M data                                               | Yes; I&M0 to I&M3                                   |
| • Isochronous mode                                       | No                                                  |
| • Prioritized startup                                    | No                                                  |
| • Measuring range scalable                               | No                                                  |
| • Scalable measured values                               | No                                                  |
| • Adjustment of measuring range                          | No                                                  |
| Engineering with                                         |                                                     |
| • STEP 7 TIA Portal configurable/integrated from version | V12 / V12                                           |
| • STEP 7 configurable/integrated from version            | V5.5 SP3 / -                                        |
| • PROFIBUS from GSD version/GSD revision                 | V1.0 / V5.1                                         |
| • PROFINET from GSD version/GSD revision                 | V2.3 / -                                            |
| Operating mode                                           |                                                     |
| • Oversampling                                           | No                                                  |
| • MSI                                                    | Yes                                                 |
| CIR - Configuration in RUN                               |                                                     |
| Reparameterization possible in RUN                       | Yes                                                 |
| Calibration possible in RUN                              | Yes                                                 |
| Supply voltage                                           |                                                     |
| Rated value (DC)                                         | 24 V                                                |
| permissible range, lower limit (DC)                      | 19.2 V                                              |
| permissible range, upper limit (DC)                      | 28.8 V                                              |
| Reverse polarity protection                              | Yes                                                 |
| Input current                                            |                                                     |
| Current consumption, max.                                | 255 mA; with 19.2 V supply                          |
| Encoder supply                                           |                                                     |
| 24 V encoder supply                                      |                                                     |
| • Short-circuit protection                               | Yes                                                 |
| • Output current, max.                                   | 20 mA; Max. 47 mA per channel for a duration < 10 s |
| Power                                                    |                                                     |
| Power consumption from the backplane bus                 | 0.7 W                                               |

|                                                                       |                                                                                                                               |
|-----------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>Power loss</b>                                                     |                                                                                                                               |
| Power loss, typ.                                                      | 2.7 W                                                                                                                         |
| <b>Address area</b>                                                   |                                                                                                                               |
| Address space per module                                              |                                                                                                                               |
| • Inputs                                                              | 16 byte                                                                                                                       |
| • Outputs                                                             | 0 byte                                                                                                                        |
| <b>Analog inputs</b>                                                  |                                                                                                                               |
| Number of analog inputs                                               | 8                                                                                                                             |
| • For current measurement                                             | 8                                                                                                                             |
| • For voltage measurement                                             | 8                                                                                                                             |
| • For resistance/resistance thermometer measurement                   | 4                                                                                                                             |
| • For thermocouple measurement                                        | 8                                                                                                                             |
| permissible input voltage for voltage input (destruction limit), max. | 28.8 V                                                                                                                        |
| permissible input current for current input (destruction limit), max. | 40 mA                                                                                                                         |
| Constant measurement current for resistance-type transmitter, typ.    | 150 Ohm, 300 Ohm, 600 Ohm, Pt100, Pt200, Ni100: 1.25 mA; 6 000 Ohm, Pt500, Pt1000, Ni1000, LG-Ni1000: 0.625 mA; PTC: 0.472 mA |
| Technical unit for temperature measurement adjustable                 | Yes; °C/°F/K                                                                                                                  |
| Analog input with oversampling                                        | No                                                                                                                            |
| Standardization of measured values                                    | No                                                                                                                            |
| <b>Input ranges (rated values), voltages</b>                          |                                                                                                                               |
| • 0 to +5 V                                                           | No                                                                                                                            |
| • 0 to +10 V                                                          | No                                                                                                                            |
| • 1 V to 5 V                                                          | Yes                                                                                                                           |
| — Input resistance (1 V to 5 V)                                       | 100 kΩ                                                                                                                        |
| • -1 V to +1 V                                                        | Yes                                                                                                                           |
| — Input resistance (-1 V to +1 V)                                     | 10 MΩ                                                                                                                         |
| • -10 V to +10 V                                                      | Yes                                                                                                                           |
| — Input resistance (-10 V to +10 V)                                   | 100 kΩ                                                                                                                        |
| • -2.5 V to +2.5 V                                                    | Yes                                                                                                                           |
| — Input resistance (-2.5 V to +2.5 V)                                 | 10 MΩ                                                                                                                         |
| • -25 mV to +25 mV                                                    | No                                                                                                                            |
| • -250 mV to +250 mV                                                  | Yes                                                                                                                           |
| — Input resistance (-250 mV to +250 mV)                               | 10 MΩ                                                                                                                         |
| • -5 V to +5 V                                                        | Yes                                                                                                                           |
| — Input resistance (-5 V to +5 V)                                     | 100 kΩ                                                                                                                        |
| • -50 mV to +50 mV                                                    | Yes                                                                                                                           |
| — Input resistance (-50 mV to +50 mV)                                 | 10 MΩ                                                                                                                         |
| • -500 mV to +500 mV                                                  | Yes                                                                                                                           |
| — Input resistance (-500 mV to +500 mV)                               | 10 MΩ                                                                                                                         |
| • -80 mV to +80 mV                                                    | Yes                                                                                                                           |
| — Input resistance (-80 mV to +80 mV)                                 | 10 MΩ                                                                                                                         |
| <b>Input ranges (rated values), currents</b>                          |                                                                                                                               |
| • 0 to 20 mA                                                          | Yes                                                                                                                           |
| — Input resistance (0 to 20 mA)                                       | 25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC                                                                  |
| • -20 mA to +20 mA                                                    | Yes                                                                                                                           |
| — Input resistance (-20 mA to +20 mA)                                 | 25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC                                                                  |
| • 4 mA to 20 mA                                                       | Yes                                                                                                                           |
| — Input resistance (4 mA to 20 mA)                                    | 25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC                                                                  |
| <b>Input ranges (rated values), thermocouples</b>                     |                                                                                                                               |
| • type B                                                              | Yes                                                                                                                           |
| — Input resistance (Type B)                                           | 10 MΩ                                                                                                                         |
| • type C                                                              | No                                                                                                                            |
| • Type E                                                              | Yes                                                                                                                           |
| — Input resistance (Type E)                                           | 10 MΩ                                                                                                                         |
| • Type J                                                              | Yes                                                                                                                           |
| — Input resistance (type J)                                           | 10 MΩ                                                                                                                         |
| • Type K                                                              | Yes                                                                                                                           |
| — Input resistance (Type K)                                           | 10 MΩ                                                                                                                         |

|                                                     |                       |
|-----------------------------------------------------|-----------------------|
| • Type L                                            | No                    |
| • Type N                                            | Yes                   |
| — Input resistance (Type N)                         | 10 MΩ                 |
| • Type R                                            | Yes                   |
| — Input resistance (Type R)                         | 10 MΩ                 |
| • Type S                                            | Yes                   |
| — Input resistance (Type S)                         | 10 MΩ                 |
| • Type T                                            | Yes                   |
| — Input resistance (Type T)                         | 10 MΩ                 |
| • Type TXK/TXK(L) to GOST                           | No                    |
| Input ranges (rated values), resistance thermometer |                       |
| • Cu 10                                             | No                    |
| • Cu 10 according to GOST                           | No                    |
| • Cu 50                                             | No                    |
| • Cu 50 according to GOST                           | No                    |
| • Cu 100                                            | No                    |
| • Cu 100 according to GOST                          | No                    |
| • Ni 10                                             | No                    |
| • Ni 10 according to GOST                           | No                    |
| • Ni 100                                            | Yes; Standard/climate |
| — Input resistance (Ni 100)                         | 10 MΩ                 |
| • Ni 100 according to GOST                          | No                    |
| • Ni 1000                                           | Yes; Standard/climate |
| — Input resistance (Ni 1000)                        | 10 MΩ                 |
| • Ni 1000 according to GOST                         | No                    |
| • LG-Ni 1000                                        | Yes; Standard/climate |
| — Input resistance (LG-Ni 1000)                     | 10 MΩ                 |
| • Ni 120                                            | No                    |
| • Ni 120 according to GOST                          | No                    |
| • Ni 200 according to GOST                          | No                    |
| • Ni 500                                            | No                    |
| • Ni 500 according to GOST                          | No                    |
| • Pt 10                                             | No                    |
| • Pt 10 according to GOST                           | No                    |
| • Pt 50                                             | No                    |
| • Pt 50 according to GOST                           | No                    |
| • Pt 100                                            | Yes; Standard/climate |
| — Input resistance (Pt 100)                         | 10 MΩ                 |
| • Pt 100 according to GOST                          | No                    |
| • Pt 1000                                           | Yes; Standard/climate |
| — Input resistance (Pt 1000)                        | 10 MΩ                 |
| • Pt 1000 according to GOST                         | No                    |
| • Pt 200                                            | Yes; Standard/climate |
| — Input resistance (Pt 200)                         | 10 MΩ                 |
| • Pt 200 according to GOST                          | No                    |
| • Pt 500                                            | Yes; Standard/climate |
| — Input resistance (Pt 500)                         | 10 MΩ                 |
| • Pt 500 according to GOST                          | No                    |
| Input ranges (rated values), resistors              |                       |
| • 0 to 150 ohms                                     | Yes                   |
| — Input resistance (0 to 150 ohms)                  | 10 MΩ                 |
| • 0 to 300 ohms                                     | Yes                   |
| — Input resistance (0 to 300 ohms)                  | 10 MΩ                 |
| • 0 to 600 ohms                                     | Yes                   |
| — Input resistance (0 to 600 ohms)                  | 10 MΩ                 |
| • 0 to 3000 ohms                                    | No                    |
| • 0 to 6000 ohms                                    | Yes                   |
| — Input resistance (0 to 6000 ohms)                 | 10 MΩ                 |
| • PTC                                               | Yes                   |

|                                                                           |                                                                                                                                                                                                         |
|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| — Input resistance (PTC)                                                  | 10 MΩ                                                                                                                                                                                                   |
| <b>Thermocouple (TC)</b>                                                  |                                                                                                                                                                                                         |
| Temperature compensation                                                  |                                                                                                                                                                                                         |
| — Parameterizable                                                         | Yes                                                                                                                                                                                                     |
| — internal temperature compensation                                       | Yes                                                                                                                                                                                                     |
| — external temperature compensation via RTD                               | Yes                                                                                                                                                                                                     |
| — Compensation for 0 °C reference point temperature                       | Yes; fixed value can be set                                                                                                                                                                             |
| — Reference channel of the module                                         | Yes                                                                                                                                                                                                     |
| <b>Cable length</b>                                                       |                                                                                                                                                                                                         |
| • shielded, max.                                                          | 800 m; for U/I, 200 m for R/RTD, 50 m for TC                                                                                                                                                            |
| <b>Analog value generation for the inputs</b>                             |                                                                                                                                                                                                         |
| Measurement principle                                                     | integrating                                                                                                                                                                                             |
| Integration and conversion time/resolution per channel                    |                                                                                                                                                                                                         |
| • Resolution with overrange (bit including sign), max.                    | 16 bit                                                                                                                                                                                                  |
| • Integration time, parameterizable                                       | Yes                                                                                                                                                                                                     |
| • Integration time (ms)                                                   | 2,5 / 16,67 / 20 / 100 ms                                                                                                                                                                               |
| • Basic conversion time, including integration time (ms)                  | 9 / 23 / 27 / 107 ms                                                                                                                                                                                    |
| — additional conversion time for wire-break monitoring                    | 9 ms (to be considered in R/RTD/TC measurement)                                                                                                                                                         |
| — additional conversion time for resistance measurement                   | 150 ohm, 300 ohm, 600 ohm, Pt100, Pt200, Ni100: 2 ms, 6000 ohm, Pt500, Pt1000, Ni1000, LG-Ni1000, PTC: 4 ms                                                                                             |
| • Interference voltage suppression for interference frequency f1 in Hz    | 400 / 60 / 50 / 10 Hz                                                                                                                                                                                   |
| • Time for offset calibration (per module)                                | Basic conversion time of the slowest channel                                                                                                                                                            |
| <b>Smoothing of measured values</b>                                       |                                                                                                                                                                                                         |
| • Number of smoothing levels                                              | 4                                                                                                                                                                                                       |
| • parameterizable                                                         | Yes                                                                                                                                                                                                     |
| • Step: None                                                              | Yes                                                                                                                                                                                                     |
| • Step: low                                                               | Yes                                                                                                                                                                                                     |
| • Step: Medium                                                            | Yes                                                                                                                                                                                                     |
| • Step: High                                                              | Yes                                                                                                                                                                                                     |
| <b>Encoder</b>                                                            |                                                                                                                                                                                                         |
| Connection of signal encoders                                             |                                                                                                                                                                                                         |
| • for voltage measurement                                                 | Yes                                                                                                                                                                                                     |
| • for current measurement as 2-wire transducer                            | Yes                                                                                                                                                                                                     |
| — Burden of 2-wire transmitter, max.                                      | 820 Ω                                                                                                                                                                                                   |
| • for current measurement as 4-wire transducer                            | Yes                                                                                                                                                                                                     |
| • for resistance measurement with two-wire connection                     | Yes; Only for PTC                                                                                                                                                                                       |
| • for resistance measurement with three-wire connection                   | Yes; All measuring ranges except PTC; internal compensation of the cable resistances                                                                                                                    |
| • for resistance measurement with four-wire connection                    | Yes; All measuring ranges except PTC                                                                                                                                                                    |
| <b>Errors/accuracies</b>                                                  |                                                                                                                                                                                                         |
| Linearity error (relative to input range), (+/-)                          | 0.02 %                                                                                                                                                                                                  |
| Temperature error (relative to input range), (+/-)                        | 0.005 %/K; With TC type T 0.02 ± % / K                                                                                                                                                                  |
| Crosstalk between the inputs, max.                                        | -80 dB                                                                                                                                                                                                  |
| Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) | 0.02 %                                                                                                                                                                                                  |
| Temperature error of internal compensation                                | ±6 °C                                                                                                                                                                                                   |
| <b>Operational error limit in overall temperature range</b>               |                                                                                                                                                                                                         |
| • Voltage, relative to input range, (+/-)                                 | 0.3 %                                                                                                                                                                                                   |
| • Current, relative to input range, (+/-)                                 | 0.3 %                                                                                                                                                                                                   |
| • Resistance, relative to input range, (+/-)                              | 0.3 %                                                                                                                                                                                                   |
| • Resistance thermometer, relative to input range, (+/-)                  | Ptxxx standard: ±1.5 K, Ptxxx climate: ±0.5 K, Nixxx standard: ±0.5 K, Nixxx climate: ±0.3 K                                                                                                            |
| • Thermocouple, relative to input range, (+/-)                            | Type B: > 600 °C ±4.6 K, type E: > -200 °C ±1.5 K, type J: > -210 °C ±1.9 K, type K: > -200 °C ±2.4 K, type N: > -200 °C ±2.9 K, type R: > 0 °C ±4.7 K, type S: > 0 °C ±4.6 K, type T: > -200 °C ±2.4 K |
| <b>Basic error limit (operational limit at 25 °C)</b>                     |                                                                                                                                                                                                         |
| • Voltage, relative to input range, (+/-)                                 | 0.1 %                                                                                                                                                                                                   |
| • Current, relative to input range, (+/-)                                 | 0.1 %                                                                                                                                                                                                   |
| • Resistance, relative to input range, (+/-)                              | 0.1 %                                                                                                                                                                                                   |
| • Resistance thermometer, relative to input range, (+/-)                  | Ptxxx standard: ±0.7 K, Ptxxx climate: ±0.2 K, Nixxx standard: ±0.3 K, Nixxx                                                                                                                            |

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| <ul style="list-style-type: none"> <li>• Thermocouple, relative to input range, (+/-)</li> </ul>                                                | climate: $\pm 0.15\text{ K}$<br>Type B: $> 600\text{ }^{\circ}\text{C} \pm 1.7\text{ K}$ , type E: $> -200\text{ }^{\circ}\text{C} \pm 0.7\text{ K}$ , type J: $> -210\text{ }^{\circ}\text{C} \pm 0.8\text{ K}$ ,<br>type K: $> -200\text{ }^{\circ}\text{C} \pm 1.2\text{ K}$ , type N: $> -200\text{ }^{\circ}\text{C} \pm 1.2\text{ K}$ , type R: $> 0\text{ }^{\circ}\text{C} \pm 1.9\text{ K}$ , type<br>S: $> 0\text{ }^{\circ}\text{C} \pm 1.9\text{ K}$ , type T: $> -200\text{ }^{\circ}\text{C} \pm 0.8\text{ K}$ |
| <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> | 40 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <ul style="list-style-type: none"> <li>• Common mode voltage, max.</li> </ul>                                                                   | 10 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>• Common mode interference, min.</li> </ul>                                                              | 60 dB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Interrupts/diagnostics/status information</b>                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Diagnostics function                                                                                                                            | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Alarms</b>                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <ul style="list-style-type: none"> <li>• Diagnostic alarm</li> </ul>                                                                            | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <ul style="list-style-type: none"> <li>• Limit value alarm</li> </ul>                                                                           | Yes; two upper and two lower limit values in each case                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Diagnoses</b>                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <ul style="list-style-type: none"> <li>• Monitoring the supply voltage</li> </ul>                                                               | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <ul style="list-style-type: none"> <li>• Wire break</li> </ul>                                                                                  | Yes; Only for 1 to 5 V, 4 to 20 mA, TC, R, and RTD                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>• Short-circuit</li> </ul>                                                                               | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>• Group error</li> </ul>                                                                                 | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>• Overflow/Underflow</li> </ul>                                                                          | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Diagnostics indication LED</b>                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <ul style="list-style-type: none"> <li>• RUN LED</li> </ul>                                                                                     | Yes; green LED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <ul style="list-style-type: none"> <li>• ERROR LED</li> </ul>                                                                                   | Yes; red LED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <ul style="list-style-type: none"> <li>• MAINT LED</li> </ul>                                                                                   | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>• Monitoring of the supply voltage (PWR-LED)</li> </ul>                                                  | Yes; green LED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <ul style="list-style-type: none"> <li>• Channel status display</li> </ul>                                                                      | Yes; green LED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <ul style="list-style-type: none"> <li>• for channel diagnostics</li> </ul>                                                                     | Yes; red LED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <ul style="list-style-type: none"> <li>• for module diagnostics</li> </ul>                                                                      | Yes; red LED                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Potential separation</b>                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Potential separation channels</b>                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <ul style="list-style-type: none"> <li>• between the channels</li> </ul>                                                                        | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>• between the channels, in groups of</li> </ul>                                                          | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <ul style="list-style-type: none"> <li>• between the channels and backplane bus</li> </ul>                                                      | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <ul style="list-style-type: none"> <li>• between the channels and the power supply of the electronics</li> </ul>                                | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Permissible potential difference</b>                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| between the inputs (UCM)                                                                                                                        | 20 V DC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Between the inputs and MANA (UCM)                                                                                                               | 10 V DC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Isolation</b>                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Isolation tested with                                                                                                                           | 707 V DC (type test)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Standards, approvals, certificates</b>                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Siemens Eco Profile (SEP)                                                                                                                       | Siemens EcoTech                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Suitable for applications according to AMS 2750                                                                                                 | Yes; Declaration of Conformity, see online support entry 109757262                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Suitable for applications according to CQI-9                                                                                                    | Yes; Based on AMS 2750 E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Ecological footprint</b>                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <ul style="list-style-type: none"> <li>• environmental product declaration</li> </ul>                                                           | Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Global warming potential</b>                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| — global warming potential, (total) [CO <sub>2</sub> eq]                                                                                        | 38.6 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| — global warming potential, (during production) [CO <sub>2</sub> eq]                                                                            | 14.4 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| — global warming potential, (during operation) [CO <sub>2</sub> eq]                                                                             | 24.6 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| — global warming potential, (after end of life cycle) [CO <sub>2</sub> eq]                                                                      | -0.44 kg                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Security</b>                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| signed firmware update                                                                                                                          | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| safely removing data                                                                                                                            | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| data integrity                                                                                                                                  | No                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Ambient conditions</b>                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Ambient temperature during operation</b>                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <ul style="list-style-type: none"> <li>• horizontal installation, min.</li> </ul>                                                               | -25 °C; From FS08                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| <ul style="list-style-type: none"><li>• horizontal installation, max.</li><li>• vertical installation, min.</li><li>• vertical installation, max.</li></ul>                                                                                                                                                                                                         | 60 °C<br>-25 °C; From FS08<br>40 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|----------------|--------|----|-------------|--------|----|-------------|--------|----|-------------|--------|-----|-------------|--------|---|-------------|--------|---|-------------|--------|-----|-------------|--------|---|-------------|------|----|----------|------|---|----------|------|---|----------|------|---|----------|------|---|------|--------|----|-------------|
| Altitude during operation relating to sea level                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| <ul style="list-style-type: none"><li>• Installation altitude above sea level, max.</li></ul>                                                                                                                                                                                                                                                                       | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| Absolute humidity                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| <ul style="list-style-type: none"><li>• dew point, min.</li></ul>                                                                                                                                                                                                                                                                                                   | -60 °C; suitable for dry room applications                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| Dimensions                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| Width                                                                                                                                                                                                                                                                                                                                                               | 35 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| Height                                                                                                                                                                                                                                                                                                                                                              | 147 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| Depth                                                                                                                                                                                                                                                                                                                                                               | 129 mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| Weights                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| Weight, approx.                                                                                                                                                                                                                                                                                                                                                     | 310 g                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| Classifications                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
|                                                                                                                                                                                                                                                                                                                                                                     | <table><tr><th></th><th>Version</th><th>Classification</th></tr><tr><td>eClass</td><td>16</td><td>27-24-22-01</td></tr><tr><td>eClass</td><td>14</td><td>27-24-22-01</td></tr><tr><td>eClass</td><td>12</td><td>27-24-22-01</td></tr><tr><td>eClass</td><td>9.1</td><td>27-24-22-01</td></tr><tr><td>eClass</td><td>9</td><td>27-24-22-01</td></tr><tr><td>eClass</td><td>8</td><td>27-24-22-01</td></tr><tr><td>eClass</td><td>7.1</td><td>27-24-22-01</td></tr><tr><td>eClass</td><td>6</td><td>27-24-22-01</td></tr><tr><td>ETIM</td><td>10</td><td>EC001420</td></tr><tr><td>ETIM</td><td>9</td><td>EC001420</td></tr><tr><td>ETIM</td><td>8</td><td>EC001420</td></tr><tr><td>ETIM</td><td>7</td><td>EC001420</td></tr><tr><td>IDEA</td><td>4</td><td>3562</td></tr><tr><td>UNSPSC</td><td>15</td><td>32-15-17-05</td></tr></table> |                | Version | Classification | eClass | 16 | 27-24-22-01 | eClass | 14 | 27-24-22-01 | eClass | 12 | 27-24-22-01 | eClass | 9.1 | 27-24-22-01 | eClass | 9 | 27-24-22-01 | eClass | 8 | 27-24-22-01 | eClass | 7.1 | 27-24-22-01 | eClass | 6 | 27-24-22-01 | ETIM | 10 | EC001420 | ETIM | 9 | EC001420 | ETIM | 8 | EC001420 | ETIM | 7 | EC001420 | IDEA | 4 | 3562 | UNSPSC | 15 | 32-15-17-05 |
|                                                                                                                                                                                                                                                                                                                                                                     | Version                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Classification |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| eClass                                                                                                                                                                                                                                                                                                                                                              | 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 27-24-22-01    |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| eClass                                                                                                                                                                                                                                                                                                                                                              | 14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 27-24-22-01    |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| eClass                                                                                                                                                                                                                                                                                                                                                              | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 27-24-22-01    |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| eClass                                                                                                                                                                                                                                                                                                                                                              | 9.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 27-24-22-01    |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| eClass                                                                                                                                                                                                                                                                                                                                                              | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 27-24-22-01    |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| eClass                                                                                                                                                                                                                                                                                                                                                              | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 27-24-22-01    |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| eClass                                                                                                                                                                                                                                                                                                                                                              | 7.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 27-24-22-01    |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| eClass                                                                                                                                                                                                                                                                                                                                                              | 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 27-24-22-01    |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| ETIM                                                                                                                                                                                                                                                                                                                                                                | 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | EC001420       |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| ETIM                                                                                                                                                                                                                                                                                                                                                                | 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | EC001420       |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| ETIM                                                                                                                                                                                                                                                                                                                                                                | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | EC001420       |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| ETIM                                                                                                                                                                                                                                                                                                                                                                | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | EC001420       |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| IDEA                                                                                                                                                                                                                                                                                                                                                                | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3562           |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| UNSPSC                                                                                                                                                                                                                                                                                                                                                              | 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 32-15-17-05    |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| Approvals / Certificates                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| General Product Approval                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| <br>EG-Konf.                                                                                                                                                                                                                                                                     | <br><a href="#">Manufacturer Declaration</a><br><a href="#">Miscellaneous</a><br><a href="#">Declaration of Conformity</a><br><br>UL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| General Product Approval                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| <a href="#">Metrological Approval</a><br><br><br>RCM<br>                                                   | <a href="#">China RoHS</a><br><a href="#">Manufacturer Declaration</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| For use in hazardous locations                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| <br>IECEEx<br><a href="#">FM</a><br><br>UL<br><a href="#">FM</a><br><a href="#">CCC-Ex</a><br><br>IECEEx |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |
| For use in hazardous locations                                                                                                                                                                                                                                                                                                                                      | Maritime application                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |         |                |        |    |             |        |    |             |        |    |             |        |     |             |        |   |             |        |   |             |        |     |             |        |   |             |      |    |          |      |   |          |      |   |          |      |   |          |      |   |      |        |    |             |



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[Miscellaneous](#)

[CCC-Ex](#)



Maritime application



[NK / Nippon Kaiji Kyokai](#)



[CCS \(China Classification Society\)](#)

Maritime application

Environment

[KR \(Korean Register of Shipping\)](#)



Siemens  
EcoTech



last modified:

5/8/2026