SIEMENS

## Data sheet 6ES7536-1MF00-0AB0



SIMATIC S7-1500, F-analog input module, F-AI 8xI 0(4)..20 mA PROFIsafe; 35 mm, overall width; up to PL e (ISO 13849-1)/ SIL 3 (IEC 61508)

| | |
|---|---|
| **General information** | |
| Product type designation | F-AI 8xI 0(4) ... 20 mA |
| Firmware version | |
| ● FW update possible | Yes |
| Product function | |
| ● I&M data | Yes; I&M0 to I&M3 |
| Engineering with | |
| ● STEP 7 TIA Portal configurable/integrated from version | V18 with HSP0394 (FW V1.0) / V19 with HSP0451 (FW V2.0) |
| Operating mode | |
| ● MSI | Yes; firmware V2.0 or higher |
| **CiR - Configuration in RUN** | |
| Reparameterization possible in RUN | No |
| Calibration possible in RUN | No |
| **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 (rated value) | 75 mA |
| Current consumption, max. | 2.5 A; All channels are supplied from the encoder supply |
| **Encoder supply** | |
| Number of outputs | 8 |
| Short-circuit protection | Yes |
| 24 V encoder supply | |
| ● 24 V | Yes; min. L+ (-1.5 V) |
| ● Short-circuit protection | Yes |
| ● Output current per channel, max. | 300 mA |
| **Power** | |
| Power consumption from the backplane bus | 0.5 W |
| **Power loss** | |
| Power loss, typ. | 2.5 W |
| **Address area** | |
| Address space per module | |
| ● Inputs | 23 byte |
| ● Outputs | 6 byte |
| **Hardware configuration** | |
| Automatic encoding | Yes |


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|---|---|
| **Analog inputs** | |
| Number of analog inputs | 8 |
| permissible input current for current input (destruction limit), max. | 35 mA |
| Input ranges (rated values), currents | |
| ● 0 to 20 mA | Yes |
| — Input resistance (0 to 20 mA) | 150 Ω |
| ● 4 mA to 20 mA | Yes |
| — Input resistance (4 mA to 20 mA) | 150 Ω |
| Cable length | |
| ● shielded, max. | 1 000 m |
| **Analog value generation for the inputs** | |
| Measurement principle | Sigma Delta |
| Integration and conversion time/resolution per channel | |
| ● Resolution with overrange (bit including sign), max. | 16 bit |
| ● Integration time, parameterizable | Yes |
| ● Integration time (ms) | 20 / 16,667 |
| ● Interference voltage suppression for interference frequency f1 in Hz | 50 / 60 Hz |
| Smoothing of measured values | |
| ● Number of smoothing levels | 7 |
| ● Parameterizable | Yes |
| ● Step: None | Yes; 1x conversion time |
| ● Step: low | Yes; 2x / 4x conversion cycle time |
| ● Step: Medium | Yes; 8x / 16x conversion cycle time |
| ● Step: High | Yes; 32x / 64x conversion cycle time |
| **Encoder** | |
| Connection of signal encoders | |
| ● for current measurement as 2-wire transducer | Yes |
| — Burden of 2-wire transmitter, max. | 650 Ω |
| ● for current measurement as 4-wire transducer | Yes |
| **Errors/accuracies** | |
| Linearity error (relative to input range), (+/-) | 0.05 % |
| Temperature error (relative to input range), (+/-) | 0.005 %/K |
| Crosstalk between the inputs, max. | -70 dB |
| Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) | 0.05 % |
| Operational error limit in overall temperature range | |
| ● Current, relative to input range, (+/-) | 0.3 %; without HART communication |
| Basic error limit (operational limit at 25 °C) | |
| ● Current, relative to input range, (+/-) | 0.05 %; without HART communication |
| Influence of a HART signal modulated on the input signal in relation to input range | |
| ● error occurred at interference frequency suppression: 60 Hz | 0.12 % |
| ● error occurred at interference frequency suppression: 50 Hz | 0.12 % |
| Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency | |
| ● Series mode interference (peak value of interference < rated value of input range), min. | 40 dB |
| ● Common mode voltage, max. | 60 V DC/30 V AC |
| ● Common mode interference, min. | 70 dB |
| **Interrupts/diagnostics/status information** | |
| Diagnostics function | Yes |
| Alarms | |
| ● Diagnostic alarm | Yes |
| ● Limit value alarm | No |
| Diagnoses | |
| ● Monitoring the supply voltage | Yes |
| ● Wire break | Yes |
| ● Short-circuit | Yes |


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|---|---|
| ● Overflow/Underflow | Yes |
| Diagnostics indication LED | |
| ● RUN LED | Yes; green LED |
| ● ERROR LED | Yes; red LED |
| ● Monitoring of the supply voltage (PWR-LED) | Yes; green PWR LED |
| ● Channel status display | Yes; green LED |
| ● for channel diagnostics | Yes; red LED |
| **Potential separation** | |
| Potential separation analog inputs | |
| ● between the channels | No |
| ● between the channels, in groups of | 4 |
| ● between the channels and backplane bus | Yes |
| ● between the channels and the power supply of the electronics | Yes |
| **Permissible potential difference** | |
| between the inputs (UCM) | 60 V DC/30 V AC |
| **Isolation** | |
| Isolation tested with | 707 V DC (type test) |
| **Standards, approvals, certificates** | |
| Highest safety class achievable in safety mode | |
| ● Performance level according to ISO 13849-1 | PLe |
| ● Category according to ISO 13849-1 | Cat. 4 |
| ● SIL acc. to IEC 61508 | SIL 3 |
| Probability of failure (for service life of 20 years and repair time of 100 hours) | |
| — Low demand mode: PFDavg in accordance with SIL3 | < 4.00E-05 |
| — High demand/continuous mode: PFH in accordance with SIL3 | < 1.00E-09 1/h |
| **Ambient conditions** | |
| Ambient temperature during operation | |
| ● horizontal installation, min. | 0 °C |
| ● horizontal installation, max. | 60 °C |
| ● vertical installation, min. | 0 °C |
| ● vertical installation, max. | 40 °C |
| **Dimensions** | |
| Width | 35 mm |
| Height | 147 mm |
| Depth | 129 mm |
| **Weights** | |
| Weight, approx. | 290 g |

**Classifications**

| | 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 |

**Approvals / Certificates**

**General Product Approval**


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| | | | | | |
|---|---|---|---|---|---|
| CE EG-Konf. | UKCA | Miscellaneous | UL | RCM | KC |

| General Product Approval | For use in hazardous locations | | | | |
|---|---|---|---|---|---|
| China RoHS | UL | FM | CCC-Ex | ATEX | Type Examination Certificate |

| For use in hazardous locations | | | Functional Saftey | | Maritime application |
|---|---|---|---|---|---|
| IECEx | Miscellaneous | CCC-Ex | TUEV | Type Examination Certificate | ABS |

| Maritime application | | | | | |
|---|---|---|---|---|---|
| BUREAU VERITAS | DNV | LRS | NK / Nippon Kaiji Kyokai | RINA | CCS (China Classification Society) |

| Maritime application | other |
|---|---|
| KR (Korean Register of Shipping) | PROFIsafe |

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