SIEMENS

## Data sheet 6ES7531-7MH00-0AB0

SIMATIC S7-1500, analog input module AI 16xI BA, 16-bit resolution accuracy 0.5%, 16 channels in groups of 16, common mode voltage 4 V DC, diagnostics, hardware interrupts; delivery including infeed element, shield bracket and shield terminal: front connector (screw terminals or push-in) to be ordered separately

| | |
|---|---|
| **General information** | |
| Product type designation | AI 16xI BA |
| HW functional status | From FS01 |
| Firmware version | V1.0.0 |
| ● 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 | V16 with HSP 312 / V17 |
| ● 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 | No |
| **Power** | |
| Power available from the backplane bus | 0.85 W |
| **Power loss** | |
| Power loss, typ. | 1.2 W |
| **Analog inputs** | |
| Number of analog inputs | 16 |
| ● For current measurement | 16 |
| permissible input current for current input (destruction limit), max. | 40 mA |
| Input ranges (rated values), currents | |
| ● 0 to 10 mA | No |
| ● 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 |

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|---|---|
| ● 4 mA to 20 mA | Yes |
| — Input resistance (4 mA to 20 mA) | 25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC |
| Cable length | |
| ● shielded, max. | 800 m |
| **Analog value generation for the inputs** | |
| 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) | 10 / 24 / 27 / 107 ms |
| ● Interference voltage suppression for interference frequency f1 in Hz | 400 / 60 / 50 / 10 Hz |
| Smoothing of measured values | |
| ● parameterizable | Yes |
| ● Step: None | Yes |
| ● Step: low | Yes |
| ● Step: Medium | Yes |
| ● Step: High | Yes |
| **Encoder** | |
| Connection of signal encoders | |
| ● for voltage measurement | No |
| ● for current measurement as 2-wire transducer | Yes; with external supply |
| ● for current measurement as 4-wire transducer | Yes |
| ● for resistance measurement with two-wire connection | No |
| ● for resistance measurement with three-wire connection | No |
| ● for resistance measurement with four-wire connection | No |
| **Errors/accuracies** | |
| Linearity error (relative to input range), (+/-) | 0.1 % |
| Temperature error (relative to input range), (+/-) | 0.006 %/K |
| Crosstalk between the inputs, max. | -50 dB |
| Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) | 0.1 % |
| Operational error limit in overall temperature range | |
| ● Current, relative to input range, (+/-) | 0.5 % |
| Basic error limit (operational limit at 25 °C) | |
| ● Current, relative to input range, (+/-) | 0.3 % |
| 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. | 4 V |
| ● Common mode interference, min. | 60 dB |
| **Interrupts/diagnostics/status information** | |
| Diagnostics function | Yes |
| Alarms | |
| ● Diagnostic alarm | Yes |
| ● Limit value alarm | Yes; two upper and two lower limit values in each case |
| Diagnoses | |
| ● Monitoring the supply voltage | No |
| ● Wire-break | Yes; Only for 4 ... 20 mA |
| ● Short-circuit | No |
| ● Group error | No |
| ● Overflow/underflow | Yes |
| Diagnostics indication LED | |
| ● RUN LED | Yes; green LED |
| ● ERROR LED | Yes; red LED |
| ● MAINT LED | No |

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| ● Monitoring of the supply voltage (PWR-LED) | No |
| ● Channel status display | Yes; green LED |
| ● for channel diagnostics | Yes; red LED |
| ● for module diagnostics | Yes; red LED |
| **Potential separation** | |
| Potential separation channels | |
| ● between the channels | No |
| ● between the channels, in groups of | 16 |
| ● between the channels and backplane bus | Yes |
| **Permissible potential difference** | |
| between the inputs (UCM) | 8 V DC |
| Between the inputs and MANA (UCM) | 4 V DC |
| **Isolation** | |
| Isolation tested with | 707 V DC (type test) |
| **Ambient conditions** | |
| Ambient temperature during operation | |
| ● horizontal installation, min. | -30 °C |
| ● horizontal installation, max. | 60 °C |
| ● vertical installation, min. | -30 °C |
| ● vertical installation, max. | 40 °C |
| Altitude during operation relating to sea level | |
| ● Installation altitude above sea level, max. | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual |
| **Dimensions** | |
| Width | 35 mm |
| Height | 147 mm |
| Depth | 129 mm |
| **Weights** | |
| Weight, approx. | 250 g |

**last modified:** 1/19/2021