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## Data sheet 6ES7650-8AK60-1AA0

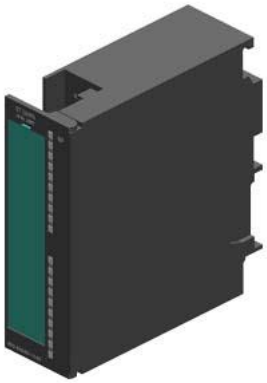


Figure similar

ET 200PA SMART, analog input 0/4 - 20 mA 8 AI,redundancy, 1 x 20-pole, IM 650-8PH required; conformal coating ISA-S71.04 severity level G1; G2; G3

| | |
|---|---|
| **General information** | |
| Product function | |
| ● Isochronous mode | No |
| **Supply voltage** | |
| Load voltage L+ | |
| ● Rated value (DC) | 24 V |
| ● Reverse polarity protection | Yes |
| **Input current** | |
| from load voltage L+ (without load), max. | 20 mA |
| from backplane bus 5 V DC, max. | 120 mA |
| **Output voltage** | |
| Power supply to the transmitters | |
| ● present | Yes |
| ● Rated value (DC) | 24 V |
| ● short-circuit proof | Yes; Short-circuit current approx. 40 mA to 60 mA |
| **Power loss** | |
| Power loss, typ. | 1.5 W |
| **Analog inputs** | |
| Number of analog inputs | 8 |
| Input ranges (rated values), currents | |
| ● 0 to 20 mA | Yes |
| — Input resistance (0 to 20 mA) | 150 Ω |
| ● -20 mA to +20 mA | Yes |
| — Input resistance (-20 mA to +20 mA) | 150 Ω |
| ● 4 mA to 20 mA | Yes |
| — Input resistance (4 mA to 20 mA) | 150 Ω |
| Cable length | |
| ● shielded, max. | 800 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; 15 bit + sign |
| ● Integration time, parameterizable | Yes |
| ● Integration time (ms) | 16.6 ms @ 60 Hz, 20 ms @ 50 Hz, 100 ms @ 10 Hz |
| ● Basic conversion time, including integration time (ms) | 55 ms @ 60 Hz, 65 ms @ 50 Hz, 305 ms @ 10 Hz |
| ● Basic execution time of the module (all channels released) | 520 ms; 440 ms @ 60 Hz, 520 ms @ 50 Hz, 2 440 ms @ 10 Hz |
| Smoothing of measured values | |


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| | |
|---|---|
| ● parameterizable | Yes; in 4 stages |
| ● Step: None | Yes; 1x cycle time |
| ● Step: low | Yes; 4x cycle time |
| ● Step: Medium | Yes; 32x cycle time |
| ● Step: High | Yes; 64x cycle time |
| **Encoder** | |
| Connection of signal encoders | |
| ● for current measurement as 2-wire transducer | Yes |
| ● for current measurement as 4-wire transducer | Yes |
| **Errors/accuracies** | |
| Linearity error (relative to input range), (+/-) | 0.01 % |
| Temperature error (relative to input range), (+/-) | 0.001 %/K |
| Crosstalk between the inputs, min. | 70 dB |
| Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) | 0.01 % |
| Operational error limit in overall temperature range | |
| ● Current, relative to input range, (+/-) | 0.15 % |
| Basic error limit (operational limit at 25 °C) | |
| ● Current, relative to input range, (+/-) | 0.1 % |
| 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 interference, min. | 100 dB |
| **Interrupts/diagnostics/status information** | |
| Status indicator | No |
| Diagnostics function | Yes; Parameterizable |
| Alarms | |
| ● Diagnostic alarm | Yes; Parameterizable |
| Diagnoses | |
| ● Diagnostic information readable | Yes |
| Diagnostics indication LED | |
| ● Group error SF (red) | Yes |
| **Potential separation** | |
| Potential separation analog inputs | |
| ● between the channels | No |
| ● between the channels and backplane bus | Yes |
| ● Between the channels and load voltage L+ | Yes; only for 4-wire transducer |
| **Permissible potential difference** | |
| between M internally and the inputs | 75 V DC/60 V AC |
| **Isolation** | |
| Isolation tested with | 500 V DC |
| **Ambient conditions** | |
| Ambient temperature during operation | |
| ● min. | 0 °C |
| ● max. | 60 °C; if the device is installed horizontally |
| **Connection method** | |
| required front connector | 20-pin |
| **Dimensions** | |
| Width | 40 mm |
| Height | 125 mm |
| Depth | 117 mm |
| **Weights** | |
| Weight, approx. | 205 g |
| **Classifications** | |

| | Version | Classification |
|---|---|---|
| eClass | 16 | 27-24-26-01 |
| eClass | 14 | 27-24-26-01 |
| eClass | 12 | 27-24-26-01 |


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| | | |
|---|---|---|
| eClass | 9.1 | 27-24-26-01 |
| eClass | 9 | 27-24-26-01 |
| eClass | 8 | 27-24-26-01 |
| eClass | 7.1 | 27-24-26-01 |
| eClass | 6 | 27-24-26-01 |
| ETIM | 10 | EC001596 |
| ETIM | 9 | EC001596 |
| ETIM | 8 | EC001596 |
| ETIM | 7 | EC001596 |
| IDEA | 4 | 3562 |
| UNSPSC | 15 | 32-15-17-05 |

## Approvals / Certificates

| General Product Approval | | | For use in hazardous locations | | |
|---|---|---|---|---|---|
| EG-Konf. | China RoHS | Manufacturer Declaration | ATEX | IECEx | CCC |

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