SIEMENS

## Data sheet 6ES7143-5AH00-0BA0



SIMATIC ET 200AL, DIQ 16x24 V DC/0.5 A, 8xM12, Degree of protection IP67

| | |
|---|---|
| **General information** | |
| Product type designation | DIQ 16x24VDC/0.5A |
| HW functional status | FS06 |
| Firmware version | V2.0.x |
| Product function | |
| ● I&M data | Yes; I&M0 to I&M3 |
| Engineering with | |
| ● STEP 7 TIA Portal configurable/integrated from version | STEP 7 V14 or higher |
| ● STEP 7 configurable/integrated from version | V5.5 SP4 Hotfix 7 or higher |
| ● PROFIBUS from GSD version/GSD revision | GSD as of Revision 5 |
| ● PROFINET from GSD version/GSD revision | GSDML V2.3.1 |
| Operating mode | |
| ● DI | Yes |
| ● Counter | Yes |
| ● DQ | Yes |
| **Supply voltage** | |
| power supply according to NEC Class 2 required | No |
| Load voltage 1L+ | |
| ● Rated value (DC) | 24 V |
| ● permissible range, lower limit (DC) | 20.4 V |
| ● permissible range, upper limit (DC) | 28.8 V |
| ● Reverse polarity protection | Yes; Against destruction; encoder power supply outputs applied with reversed polarity, loads pick up |
| Load voltage 2L+ | |
| ● Rated value (DC) | 24 V |
| ● permissible range, lower limit (DC) | 20.4 V |
| ● permissible range, upper limit (DC) | 28.8 V |
| ● Reverse polarity protection | Yes; Against destruction; encoder power supply outputs applied with reversed polarity, loads pick up |
| **Input current** | |
| Current consumption (rated value) | 60 mA; 60 mA (1L+) / 40 mA (2L+); without load |
| from load voltage 1L+ (unswitched voltage) | 4 A; Maximum value |
| from load voltage 2L+, max. | 4 A; Maximum value |
| **Encoder supply** | |
| Number of outputs | 8 |
| 24 V encoder supply | |
| ● Short-circuit protection | Yes; Per load voltage, electronic |
| ● Output current, max. | 1.4 A; Total current of all encoders, max. 0.7 A per load voltage |
| **Power loss** | |


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|---|---|
| Power loss, typ. | 4 W |
| **Digital inputs** | |
| Number of digital inputs | 16; Parameterizable as DIQ |
| Sourcing/sinking input | P-reading |
| Input characteristic curve in accordance with IEC 61131, type 3 | Yes |
| Number of simultaneously controllable inputs | |
| all mounting positions | |
| — up to 55 °C, max. | 16 |
| Digital input functions, parameterizable | |
| ● Freely usable digital input | Yes |
| ● Counter | Yes |
| — Number, max. | 4 |
| — Counting frequency, max. | 2 kHz |
| — Counting width | 32 bit; Incl. sign |
| — Counting direction up/down | Yes |
| Input voltage | |
| ● Rated value (DC) | 24 V |
| ● for signal "0" | -3 to +5V |
| ● for signal "1" | +11 to +30V |
| Input current | |
| ● for signal "1", typ. | 3 mA |
| Input delay (for rated value of input voltage) | |
| for standard inputs | |
| — parameterizable | Yes |
| — at "0" to "1", min. | 0.05 ms; 1.6 ms for channels 8 through 15 |
| — at "0" to "1", max. | 20 ms |
| — at "1" to "0", min. | 0.05 ms; 1.6 ms for channels 8 through 15 |
| — at "1" to "0", max. | 20 ms |
| for technological functions | |
| — Parameterizable | Yes |
| Cable length | |
| ● unshielded, max. | 30 m |
| **Digital outputs** | |
| Number of digital outputs | 16; Parameterizable as DIQ |
| ● in groups of | 8; 2 load groups for 8 outputs each |
| Current-sourcing | Yes |
| output type acc. to IEC 61131, type 0.5 | Yes |
| Short-circuit protection | Yes; per channel, electronic |
| ● Response threshold, typ. | 0.7 A |
| Limitation of inductive shutdown voltage to | L+ (-53 V) |
| Digital output functions, parameterizable | |
| ● Switching tripped by comparison values | Yes |
| ● Freely usable digital output | Yes |
| Switching capacity of the outputs | |
| ● on lamp load, max. | 5 W |
| Load resistance range | |
| ● lower limit | 48 Ω |
| ● upper limit | 4 kΩ |
| Output voltage | |
| ● for signal "1", min. | L+ (-0.8 V) |
| Output current | |
| ● for signal "1" rated value | 0.5 A |
| ● for signal "0" residual current, max. | 0.5 mA |
| Switching frequency | |
| ● with resistive load, max. | 100 Hz |
| ● with inductive load, max. | 0.5 Hz |
| ● on lamp load, max. | 1 Hz |
| Total current of the outputs | |
| ● Current per group, max. | 4 A |


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| | |
|---|---|
| Cable length | |
| ● unshielded, max. | 30 m |
| **Encoder** | |
| Connectable encoders | |
| ● 2-wire sensor | Yes |
| — permissible quiescent current (2-wire sensor), max. | 1.5 mA |
| **Interrupts/diagnostics/status information** | |
| Substitute values connectable | Yes; channel by channel, parameterizable |
| Alarms | |
| ● Diagnostic alarm | Yes; Parameterizable |
| Diagnoses | |
| ● short-circuit | Yes; Outputs to M; encoder supply to M; module by module |
| Diagnostics indication LED | |
| ● Channel status display | Yes; green LED |
| ● for module diagnostics | Yes; green/red LED |
| ● For load voltage monitoring | Yes; green LED |
| **Potential separation** | |
| between the load voltages | Yes |
| Potential separation channels | |
| ● between the channels, in groups of | 8 |
| ● between the channels and backplane bus | Yes |
| ● between the channels and the power supply of the electronics | No; 8 channels are non-isolated and 8 channels are isolated from supply voltage 1L+ |
| **Isolation** | |
| Isolation tested with | 707 V DC (type test) |
| **Degree and class of protection** | |
| IP degree of protection | IP65/67 |
| **Standards, approvals, certificates** | |
| Suitable for safety-related tripping of standard modules | No |
| **Security** | |
| signed firmware update | Yes |
| data integrity | Yes |
| **Ambient conditions** | |
| Ambient temperature during operation | |
| ● min. | -30 °C |
| ● max. | 55 °C |
| Altitude during operation relating to sea level | |
| ● Ambient air temperature-barometric pressure-altitude | Up to max. 5 000 m, at installation height > 2 000 m additional restrictions |
| **Connection method** | |
| Design of electrical connection for the inputs and outputs | M12, 5-pole |
| Design of electrical connection for supply voltage | M8, 4-pole |
| ET-Connection | |
| ● ET-Connection | M8, 4-pin, shielded |
| **Dimensions** | |
| Width | 45 mm |
| Height | 159 mm |
| Depth | 40 mm |
| **Weights** | |
| Weight, approx. | 195 g |
| **Classifications** | |

| | Version | Classification |
|---|---|---|
| eClass | 16 | 27-24-26-04 |
| eClass | 14 | 27-24-26-04 |
| eClass | 12 | 27-24-26-04 |
| eClass | 9.1 | 27-24-26-04 |
| eClass | 9 | 27-24-26-04 |
| eClass | 8 | 27-24-26-04 |


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| | | |
|---|---|---|
| eClass | 7.1 | 27-24-26-04 |
| eClass | 6 | 27-24-26-04 |
| ETIM | 10 | EC001599 |
| ETIM | 9 | EC001599 |
| ETIM | 8 | EC001599 |
| ETIM | 7 | EC001599 |
| IDEA | 4 | 3566 |
| UNSPSC | 15 | 32-15-17-05 |

## Approvals / Certificates

### General Product Approval

Miscellaneous

Manufacturer Declaration













### General Product Approval | Functional Saftey | Maritime application









China RoHS

TUEV




### Maritime application










NK / Nippon Kaiji Kyokai




CCS (China Classification Society)

### Maritime application | other

KR (Korean Register of Shipping)



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