




SIMATIC ET 200AL, DIQ 4+DQ 4x 24 V DC/0.5 A, 8XM8, Degree of protection IP67

| General information   |  |
|---|--|
| Product type designation  | DIQ 4+DQ 4x24VDC/0.5A  |
| HW functional status  | E01  |
| Firmware version  | V1.0.x   |
| Product function  |  |
| • I&M data  | Yes; I&M0 to I&M3  |
| Engineering with  |  |
| • STEP 7 TIA Portal configurable/integrated from version        | STEP 7 V13 SP1 or higher   |
| • STEP 7 configurable/integrated from version                   | From V5.5 SP4 Hotfix 3   |
| • PROFIBUS from GSD version/GSD revision                        | GSD as of Revision 5   |
| • PROFINET from GSD version/GSD revision                        | GSDML V2.3.1   |
| Supply voltage  |  |
| 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; load increasing  |
| Input current   |  |
| Current consumption (rated value)                               | 40 mA; 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   | 4  |
| 24 V encoder supply   |  |
| • Short-circuit protection                                      | Yes; per module, electronic  |
| • Output current, max.  | 0.7 A; Total current of all encoders   |
| Power loss  |  |
| Power loss, typ.  | 2.5 W  |
| Digital inputs  |  |
| Number of digital inputs  | 4; Parameterizable as DIQ  |
| Input characteristic curve in accordance with IEC 61131, type 3 | Yes  |
| Number of simultaneously controllable inputs                    |  |
| all mounting positions  |  |
| — up to 55 °C, max.   | 4  |

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| 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.   | 3.2 mA   |
| Input delay (for rated value of input voltage)                 |  |
| for standard inputs  |  |
| — at "0" to "1", min.  | 1.2 ms   |
| — at "0" to "1", max.  | 4.8 ms   |
| — at "1" to "0", min.  | 1.2 ms   |
| — at "1" to "0", max.  | 4.8 ms   |
| Cable length   |  |
| • unshielded, max.   | 30 m   |
| Digital outputs  |  |
| Number of digital outputs                                      | 8; 4 DQ fixed, 4 DIQ parameterizable   |
| • in groups of   | 4; 2 load groups for 4 outputs each  |
| Short-circuit protection                                       | Yes; per channel, electronic   |
| • Response threshold, typ.                                     | 0.7 A  |
| Limitation of inductive shutdown voltage to                    | 2L+ (-47 V)  |
| 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.                                      | 2 A  |
| 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                           | 4; DIQ channels are isolated from DQ channels  |
| • between the channels and backplane bus                       | Yes  |
| • between the channels and the power supply of the electronics | No; DIQ channels are non-isolated and DQ channels are isolated from supply voltage 1L+ |
| Isolation  |  |
| Isolation tested with  | 707 V DC (type test)   |

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| <b>Degree and class of protection</b>  |   |
| IP degree of protection  | IP65/67   |
| <b>Standards, approvals, certificates</b>  |   |
| Suitable for safety-related tripping of standard modules                                       | Yes; From FS01  |
| <b>Highest safety class achievable for safety-related tripping of standard modules</b>         |   |
| <ul style="list-style-type: none"> <li>• Performance level according to ISO 13849-1</li> </ul> | PL d  |
| <ul style="list-style-type: none"> <li>• Category according to ISO 13849-1</li> </ul>          | Cat. 3  |
| <ul style="list-style-type: none"> <li>• SIL acc. to IEC 62061</li> </ul>                      | SIL 2   |
| <ul style="list-style-type: none"> <li>• remark on safety-oriented shutdown</li> </ul>         | <a href="https://support.industry.siemens.com/cs/de/en/view/39198632">https://support.industry.siemens.com/cs/de/en/view/39198632</a> |
| <b>Ambient conditions</b>  |   |
| <b>Ambient temperature during operation</b>  |   |
| <ul style="list-style-type: none"> <li>• min.</li> </ul>                                       | -30 °C  |
| <ul style="list-style-type: none"> <li>• max.</li> </ul>                                       | 55 °C   |
| <b>connection method</b>   |   |
| Design of electrical connection for the inputs and outputs                                     | M8, 3-pole  |
| Design of electrical connection for supply voltage   | M8, 4-pole  |
| <b>ET-Connection</b>   |   |
| <ul style="list-style-type: none"> <li>• ET-Connection</li> </ul>                              | M8, 4-pin, shielded   |
| <b>Dimensions</b>  |   |
| Width  | 30 mm   |
| Height   | 159 mm  |
| Depth  | 40 mm   |
| <b>Weights</b>   |   |
| Weight, approx.  | 145 g   |
| <b>last modified:</b>  |   |
| 5/22/2024     |   |