




SIMATIC DP, Electronics module for ET 200SP, F-DQ 4x24 V DC/2A, 15 mm width, up to PL E (ISO 13849) up to SIL 3 (IEC 61508)

| General information                                      |                               |
|--|-------------------------------|
| Product type designation                                 | F-DQ 4x24 V DC/2A HF          |
| usable BaseUnits   | BU type A0                    |
| Product function   |                               |
| • I&M data   | Yes; I&M0 to I&M3             |
| Engineering with   |                               |
| • STEP 7 TIA Portal configurable/integrated from version | V12                           |
| • STEP 7 configurable/integrated from version            | V5.5 SP3 / -                  |
| • PROFINET from GSD version/GSD revision                 | V2.31                         |
| 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                           |
| power supply according to NEC Class 2 required           | No                            |
| Input current  |                               |
| Current consumption (rated value)                        | 75 mA; without load           |
| Current consumption, max.                                | 21 mA; From the backplane bus |
| output voltage / header                                  |                               |
| Rated value (DC)   | 24 V                          |
| Power  |                               |
| Power available from the backplane bus                   | 70 mW                         |
| Power loss   |                               |
| Power loss, typ.   | 4 W                           |
| Address area   |                               |
| Address space per module                                 |                               |
| • Inputs   | 5 byte                        |
| • Outputs  | 5 byte                        |
| Hardware configuration                                   |                               |
| Automatic encoding                                       | Yes                           |
| • Electronic coding element type F                       | Yes                           |
| Digital outputs  |                               |
| Type of digital output                                   | Transistor                    |
| Number of digital outputs                                | 4                             |
| Digital outputs, parameterizable                         | Yes                           |
| Short-circuit protection                                 | Yes                           |
| • Response threshold, typ.                               | > 3.3 A                       |
| Open-circuit detection                                   | Yes                           |
| • Response threshold, typ.                               | 8 mA                          |

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| Overload protection   | Yes  |
| • Response threshold, typ.  | 2.9 A  |
| Limitation of inductive shutdown voltage to   | Typ. -2x 47 V  |
| <b>Switching capacity of the outputs</b>  |  |
| • with resistive load, max.   | 2 A  |
| • on lamp load, max.  | 10 W   |
| <b>Load resistance range</b>  |  |
| • lower limit   | 12 $\Omega$  |
| • upper limit   | 2 000 $\Omega$   |
| <b>Output voltage</b>   |  |
| • for signal "1", min.  | 24 V; L+ (-0.5 V)                                      |
| <b>Output current</b>   |  |
| • for signal "1" rated value  | 2 A  |
| • for signal "0" residual current, max.   | 0.5 mA   |
| <b>Switching frequency</b>  |  |
| • with resistive load, max.   | 30 Hz; Symmetrical                                     |
| • with inductive load, max.   | 0.1 Hz; according to IEC 60947-5-1, DC-13, symmetrical |
| • on lamp load, max.  | 10 Hz; Symmetrical                                     |
| <b>Total current of the outputs</b>   |  |
| • Current per channel, max.   | 2 A; note derating data in the manual                  |
| • Current per module, max.  | 6 A; note derating data in the manual                  |
| <b>Cable length</b>   |  |
| • shielded, max.  | 1 000 m  |
| • unshielded, max.  | 500 m  |
| <b>Interrupts/diagnostics/status information</b>  |  |
| Diagnostics function  | Yes  |
| Substitute values connectable   | No   |
| <b>Alarms</b>   |  |
| • Diagnostic alarm  | Yes  |
| <b>Diagnostics indication LED</b>   |  |
| • 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   |
| • for module diagnostics  | Yes; green/red DIAG LED                                |
| <b>Potential separation</b>   |  |
| <b>Potential separation channels</b>  |  |
| • between the channels  | No   |
| • between the channels and backplane bus  | Yes  |
| • between the channels and the power supply of the electronics                            | No   |
| <b>Isolation</b>  |  |
| Isolation tested with   | 707 V DC (type test)                                   |
| <b>Standards, approvals, certificates</b>   |  |
| Suitable for safety functions   | Yes  |
| <b>Highest safety class achievable in safety mode</b>                                     |  |
| • Performance level according to ISO 13849-1  | PLe  |
| • SIL acc. to IEC 61508   | SIL 3  |
| <b>Probability of failure (for service life of 20 years and repair time of 100 hours)</b> |  |
| — Low demand mode: PFDavg in accordance with SIL2   | < 2.00E-04   |
| — Low demand mode: PFDavg in accordance with SIL3   | < 2.00E-05   |
| — High demand/continuous mode: PFH in accordance with SIL2                                | < 1.00E-08 1/h   |
| — High demand/continuous mode: PFH in accordance with SIL3                                | < 1.00E-09 1/h   |
| <b>Ambient conditions</b>   |  |
| <b>Ambient temperature during operation</b>   |  |
| • horizontal installation, min.   | 0 °C   |
| • horizontal installation, max.   | 60 °C  |
| • vertical installation, min.   | 0 °C   |
| • vertical installation, max.   | 50 °C  |

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| Altitude during operation relating to sea level |   |
| • Installation altitude above sea level, max.   | 4 000 m; Restrictions for installation altitudes > 2 000 m, see manual                      |
| <b>Dimensions</b>                               |   |
| Width   | 15 mm   |
| Height  | 73 mm   |
| Depth   | 58 mm   |
| <b>Weights</b>                                  |   |
| Weight, approx.                                 | 57 g  |
| <b>last modified:</b>                           | 2/27/2023  |