



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 4x24VDC/2A PM 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   |                               |
| Rated value (DC)   | 24 V                          |
| Power  |                               |
| Power consumption 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                          |

|  |   |
|--|---|
| Overload protection  | Yes   |
| • Response threshold, typ.                                     | 2.9 A   |
| Limitation of inductive shutdown voltage to                    | Typ. -2x 47 V   |
| Controlling a digital input                                    | Yes; digital output, according to IEC 61131-2, type 2       |
| <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 Ω  |
| • upper limit  | 2 000 Ω   |
| <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; See Chapter "Alarms/diagnostic messages" in the manual |
| Substitute values connectable                                  | No  |
| <b>Alarms</b>  |   |
| • Diagnostic alarm   | Yes   |
| • Hardware interrupt   | No  |
| <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>Ecological footprint</b>                                    |   |
| • environmental product declaration                            | Yes   |
| <b>Global warming potential</b>                                |   |
| — global warming potential, (total) [CO2 eq]                   | 88.3 kg   |
| — global warming potential, (during production) [CO2 eq]       | 13.1 kg   |
| — global warming potential, (during operation) [CO2 eq]        | 76.6 kg   |
| — global warming potential, (after end of life cycle) [CO2 eq] | -1.37 kg  |
| <b>Highest safety class achievable in safety mode</b>          |   |
| • Performance level according to ISO 13849-1                   | PLe   |

|  |                |
|--|----------------|
| • SIL acc. to IEC 61508  | SIL 3          |
| Probability of failure (for service life of 20 years and repair time of 100 hours) |                |
| — 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 |

**Ambient conditions**

|                                      |       |
|--------------------------------------|-------|
| Ambient temperature during operation |       |
| • horizontal installation, min.      | 0 °C  |
| • horizontal installation, max.      | 60 °C |
| • vertical installation, min.        | 0 °C  |
| • vertical installation, max.        | 50 °C |

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 |
|---|--|

**Dimensions**

|        |       |
|--------|-------|
| Width  | 15 mm |
| Height | 73 mm |
| Depth  | 58 mm |

**Weights**

|                 |      |
|-----------------|------|
| Weight, approx. | 57 g |
|-----------------|------|

**Classifications**

|        | Version | Classification |
|--------|---------|----------------|
| 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    |
| 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**

[Manufacturer Declaration](#)


[Miscellaneous](#)
[China RoHS](#)


**General Product Approval** For use in hazardous locations



[FM](#)
[CCC-Ex](#)



For use in hazardous locations      Functional Safety      Maritime application

[Type Examination Certificate](#)

[Miscellaneous](#)

[TUEV](#)

[Type Examination Certificate](#)



Maritime application



[NK / Nippon Kaiji Kyokai](#)



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