

Siemens  
EcoTech



Figure similar

SIMATIC S7-1500, digital output module DQ16x24 V DC/0.5A HF; 16 channels in groups of 8; 4 A per group; single-channel diagnostics; substitute value: switching cycle counter for connected actuators. the module supports the safety-oriented shutdown of load groups up to SIL2 according to EN IEC 62061:2021 and Category 3 / PL d according to EN ISO 13849-1:2015. front connector (screw terminals or push-in) to be ordered separately

| General information  |   |
|--|---|
| Product type designation   | DQ 16x24VDC/0.5A HF                                 |
| HW functional status   | From FS02   |
| Firmware version   | V1.1.0  |
| <ul style="list-style-type: none"> <li>FW update possible</li> </ul>                                     | Yes   |
| Product function   |   |
| <ul style="list-style-type: none"> <li>I&amp;M data</li> </ul>   | Yes; I&M0 to I&M3                                   |
| <ul style="list-style-type: none"> <li>Isochronous mode</li> </ul>                                       | Yes   |
| <ul style="list-style-type: none"> <li>Prioritized startup</li> </ul>                                    | Yes   |
| Engineering with   |   |
| <ul style="list-style-type: none"> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul> | V13 SP1 / -   |
| <ul style="list-style-type: none"> <li>STEP 7 configurable/integrated from version</li> </ul>            | V5.5 SP3 / -  |
| <ul style="list-style-type: none"> <li>PROFIBUS from GSD version/GSD revision</li> </ul>                 | V1.0 / V5.1   |
| <ul style="list-style-type: none"> <li>PROFINET from GSD version/GSD revision</li> </ul>                 | V2.3 / -  |
| Operating mode   |   |
| <ul style="list-style-type: none"> <li>DQ</li> </ul>   | Yes   |
| <ul style="list-style-type: none"> <li>DQ with energy-saving function</li> </ul>                         | No  |
| <ul style="list-style-type: none"> <li>PWM</li> </ul>  | No  |
| <ul style="list-style-type: none"> <li>Cam control (switching at comparison values)</li> </ul>           | No  |
| <ul style="list-style-type: none"> <li>Oversampling</li> </ul>   | No  |
| <ul style="list-style-type: none"> <li>MSO</li> </ul>  | Yes   |
| <ul style="list-style-type: none"> <li>Integrated operating cycle counter</li> </ul>                     | Yes   |
| 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; through internal protection with 7 A per group |
| Input current  |   |
| Current consumption, max.  | 30 mA   |
| Output voltage   |   |
| Rated value (DC)   | 24 V  |
| Power  |   |
| Power consumption from the backplane bus   | 1.1 W   |
| Power loss   |   |
| Power loss, typ.   | 2 W   |

| Address area                                |   |
|---|---|
| Address space per module                    |   |
| • Inputs                                    | 0 byte  |
| • Outputs                                   | 2 byte  |
| Digital outputs                             |   |
| Type of digital output                      | Transistor                                      |
| Number of digital outputs                   | 16  |
| Current-sinking                             | No  |
| Current-sourcing                            | Yes   |
| Digital outputs, parameterizable            | Yes   |
| output type acc. to IEC 61131, type 0.5     | Yes   |
| Short-circuit protection                    | Yes; Clocked electronically                     |
| • Response threshold, typ.                  | 1 A   |
| Limitation of inductive shutdown voltage to | L+ (-53 V)                                      |
| Controlling a digital input                 | Yes   |
| Digital output functions, parameterizable   |   |
| • Switching tripped by comparison values    | No  |
| • Freely usable digital output              | No  |
| • PWM output                                | No  |
| • Digital output with oversampling          | No  |
| Switching capacity of the outputs           |   |
| • with resistive load, max.                 | 0.5 A   |
| • on lamp load, max.                        | 5 W   |
| Load resistance range                       |   |
| • lower limit                               | 48 Ω  |
| • upper limit                               | 12 kΩ   |
| Output voltage                              |   |
| • for signal "1", min.                      | L+ (-0.8 V)                                     |
| Output current                              |   |
| • for signal "1" rated value                | 0.5 A   |
| • for signal "1" permissible range, max.    | 0.5 A   |
| • for signal "0" residual current, max.     | 0.5 mA  |
| Output delay with resistive load            |   |
| • "0" to "1", max.                          | 100 μs  |
| • "1" to "0", max.                          | 500 μs  |
| Parallel switching of two outputs           |   |
| • for logic links                           | Yes   |
| • for uprating                              | No  |
| • for redundant control of a load           | Yes   |
| Switching frequency                         |   |
| • with resistive load, max.                 | 100 Hz  |
| • with inductive load, max.                 | 0.5 Hz; According to IEC 60947-5-1, DC-13       |
| • on lamp load, max.                        | 10 Hz   |
| Total current of the outputs                |   |
| • Current per channel, max.                 | 0.5 A; see additional description in the manual |
| • Current per group, max.                   | 4 A; see additional description in the manual   |
| • Current per module, max.                  | 8 A; see additional description in the manual   |
| Cable length                                |   |
| • shielded, max.                            | 1 000 m   |
| • unshielded, max.                          | 600 m   |
| Isochronous mode                            |   |
| Execution and activation time (TCO), min.   | 70 μs   |
| Bus cycle time (TDP), min.                  | 250 μs  |
| Interrupts/diagnostics/status information   |   |
| Diagnostics function                        | Yes   |
| Substitute values connectable               | Yes   |
| Alarms                                      |   |
| • Diagnostic alarm                          | Yes   |
| • Maintenance interrupt                     | maintenance alarm for switching cycle counter   |

| Diagnoses   |   |
|---|---|
| • Monitoring the supply voltage   | Yes   |
| • Wire break  | Yes   |
| • Short-circuit   | Yes   |
| • Group error   | Yes   |
| Diagnostics indication LED  |   |
| • RUN LED   | Yes; green LED  |
| • ERROR LED   | Yes; red LED  |
| • MAINT LED   | Yes; Yellow LED   |
| • Monitoring of the supply voltage (PWR-LED)                                    | Yes; green LED  |
| • Channel status display  | Yes; green LED  |
| • for channel diagnostics   | Yes; red LED  |
| • for module diagnostics  | Yes; red LED  |
| Potential separation  |   |
| Potential separation channels   |   |
| • between the channels  | No  |
| • between the channels, in groups of  | 8   |
| • between the channels and backplane bus  | Yes   |
| Isolation   |   |
| Isolation tested with   | 707 V DC (type test)  |
| Standards, approvals, certificates  |   |
| Siemens Eco Profile (SEP)   | Siemens EcoTech   |
| Suitable for safety functions   | No  |
| Suitable for safety-related tripping of standard modules                        | Yes; From FS02  |
| Ecological footprint  |   |
| • environmental product declaration   | Yes   |
| Global warming potential  |   |
| — global warming potential, (total) [CO2 eq]                                    | 43.8 kg   |
| — global warming potential, (during production) [CO2 eq]                        | 9.5 kg  |
| — global warming potential, (during operation) [CO2 eq]                         | 34.5 kg   |
| — global warming potential, (after end of life cycle) [CO2 eq]                  | -0.231 kg   |
| Highest safety class achievable for safety-related tripping of standard modules |   |
| • Performance level according to ISO 13849-1                                    | PL d  |
| • Category according to ISO 13849-1   | Cat. 3  |
| • SIL acc. to IEC 62061   | SIL 2   |
| • remark on safety-oriented shutdown  | <a href="https://support.industry.siemens.com/cs/de/en/view/39198632">https://support.industry.siemens.com/cs/de/en/view/39198632</a> |
| Security  |   |
| signed firmware update  | No  |
| safely removing data  | No  |
| data integrity  | No  |
| Ambient conditions  |   |
| Ambient temperature during operation  |   |
| • horizontal installation, min.   | -30 °C; From FS03   |
| • horizontal installation, max.   | 60 °C   |
| • vertical installation, min.   | -30 °C; From FS03   |
| • vertical installation, max.   | 40 °C   |
| Altitude during operation relating to sea level                                 |   |
| • Installation altitude above sea level, max.                                   | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual  |
| Absolute humidity   |   |
| • dew point, min.   | -60 °C; suitable for dry room applications  |
| Dimensions  |   |
| Width   | 35 mm   |
| Height  | 147 mm  |
| Depth   | 129 mm  |
| Weights   |   |
| Weight, approx.   | 230 g   |

**Classifications**

|        | Version | Classification |
|--------|---------|----------------|
| eClass | 14      | 27-24-22-04    |
| eClass | 12      | 27-24-22-04    |
| eClass | 9.1     | 27-24-22-04    |
| eClass | 9       | 27-24-22-04    |
| eClass | 8       | 27-24-22-04    |
| eClass | 7.1     | 27-24-22-04    |
| eClass | 6       | 27-24-22-04    |
| ETIM   | 10      | EC001419       |
| ETIM   | 9       | EC001419       |
| ETIM   | 8       | EC001419       |
| ETIM   | 7       | EC001419       |
| IDEA   | 4       | 3566           |
| UNSPSC | 15      | 32-15-17-05    |

**Approvals / Certificates**

**General Product Approval**

[Miscellaneous](#)

[Manufacturer Declaration](#)



**General Product Approval**

**For use in hazardous locations**



[China RoHS](#)

[Manufacturer Declaration](#)

[FM](#)



**For use in hazardous locations**

[FM](#)

[CCC-Ex](#)



[Type Examination Certificate](#)

[Miscellaneous](#)

**For use in hazardous locations**

**Maritime application**

[CCC-Ex](#)



[NK / Nippon Kaiji Kyokai](#)

**Maritime application**

**Environment**



[CCS \(China Classification Society\)](#)

[KR \(Korean Register of Shipping\)](#)



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