

Siemens  
EcoTech



Figure similar



SIMATIC S7-1500, digital output module DQ 8x24 V DC/2A HF; 8 channels in groups of 8; 8 A per group; diagnostics; substitute value: 2 channels can be used for pulse width modulation(PWM) . 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 8x24VDC/2A HF                                     |
| HW functional status                                     | From FS03                                            |
| Firmware version                                         | V2.2.0                                               |
| • FW update possible                                     | Yes                                                  |
| Product function                                         |                                                      |
| • I&M data                                               | Yes; I&M0 to I&M3                                    |
| • Isochronous mode                                       | No                                                   |
| • Prioritized startup                                    | Yes                                                  |
| Engineering with                                         |                                                      |
| • STEP 7 TIA Portal configurable/integrated from version | V13 SP1 / -                                          |
| • STEP 7 configurable/integrated from version            | V5.5 SP3 / -                                         |
| • PROFIBUS from GSD version/GSD revision                 | V1.0 / V5.1                                          |
| • PROFINET from GSD version/GSD revision                 | V2.3 / -                                             |
| Operating mode                                           |                                                      |
| • DQ                                                     | Yes                                                  |
| • DQ with energy-saving function                         | Yes; with an application                             |
| • PWM                                                    | Yes                                                  |
| • Cam control (switching at comparison values)           | No                                                   |
| • Oversampling                                           | No                                                   |
| • MSO                                                    | Yes                                                  |
| • Integrated operating cycle counter                     | 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 10 A per group |
| Input current                                            |                                                      |
| Current consumption, max.                                | 40 mA; 20 mA per group, no output is activated.      |
| output voltage / header                                  |                                                      |
| Rated value (DC)                                         | 24 V                                                 |
| Power                                                    |                                                      |
| Power consumption from the backplane bus                 | 0.9 W                                                |
| Power loss                                               |                                                      |
| Power loss, typ.                                         | 5.6 W; 6.8 W for PWM operation                       |
| Digital outputs                                          |                                                      |

|                                             |                                                                                                                                                |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Type of digital output                      | Transistor                                                                                                                                     |
| Number of digital outputs                   | 8                                                                                                                                              |
| Current-sourcing                            | Yes                                                                                                                                            |
| Digital outputs, parameterizable            | Yes                                                                                                                                            |
| output type acc. to IEC 61131, type 2       | Yes                                                                                                                                            |
| Short-circuit protection                    | Yes                                                                                                                                            |
| • Response threshold, typ.                  | 3 A                                                                                                                                            |
| Limitation of inductive shutdown voltage to | -17 V                                                                                                                                          |
| Controlling a digital input                 | Yes                                                                                                                                            |
| Digital output functions, parameterizable   |                                                                                                                                                |
| • Freely usable digital output              | Yes                                                                                                                                            |
| • PWM output                                | Yes; FS02 and FW V2.1.0 or higher                                                                                                              |
| — Number, max.                              | 2                                                                                                                                              |
| — Cycle duration, parameterizable           | Yes; 2 ... 100 ms continuous                                                                                                                   |
| — ON period, min.                           | 0 %                                                                                                                                            |
| — ON period, max.                           | 100 %                                                                                                                                          |
| — Resolution of the duty cycle              | 0.1 %                                                                                                                                          |
| — Minimum pulse duration                    | 300 µs                                                                                                                                         |
| Switching capacity of the outputs           |                                                                                                                                                |
| • on lamp load, max.                        | 10 W                                                                                                                                           |
| Load resistance range                       |                                                                                                                                                |
| • lower limit                               | 12 Ω                                                                                                                                           |
| • upper limit                               | 4 kΩ                                                                                                                                           |
| Output voltage                              |                                                                                                                                                |
| • for signal "1", min.                      | L+ (-0.8 V)                                                                                                                                    |
| Output current                              |                                                                                                                                                |
| • for signal "1" rated value                | 2 A                                                                                                                                            |
| • for signal "1" permissible range, max.    | 2.4 A; note derating specification for PWM operation                                                                                           |
| • for signal "0" residual current, max.     | 0.5 mA                                                                                                                                         |
| Output delay with resistive load            |                                                                                                                                                |
| • "0" to "1", typ.                          | 80 µs                                                                                                                                          |
| • "0" to "1", max.                          | 100 µs                                                                                                                                         |
| • "1" to "0", typ.                          | 300 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 PWM operation: 500 Hz                                                                                                             |
| • with inductive load, max.                 | 0.5 Hz; According to IEC 60947-5-1, DC-13; max. 500 Hz with PWM operation only with external circuit; see additional description in the manual |
| • on lamp load, max.                        | 10 Hz                                                                                                                                          |
| Total current of the outputs                |                                                                                                                                                |
| • Current per channel, max.                 | 2 A; see additional description in the manual                                                                                                  |
| • Current per group, max.                   | 8 A; see additional description in the manual                                                                                                  |
| • Current per module, max.                  | 16 A; see additional description in the manual                                                                                                 |
| Cable length                                |                                                                                                                                                |
| • shielded, max.                            | 1 000 m                                                                                                                                        |
| • unshielded, max.                          | 600 m                                                                                                                                          |
| Interrupts/diagnostics/status information   |                                                                                                                                                |
| Diagnostics function                        | Yes                                                                                                                                            |
| Substitute values connectable               | Yes                                                                                                                                            |
| Alarms                                      |                                                                                                                                                |
| • Diagnostic alarm                          | Yes                                                                                                                                            |
| • Maintenance interrupt                     | Yes                                                                                                                                            |
| Diagnoses                                   |                                                                                                                                                |
| • Monitoring the supply voltage             | Yes                                                                                                                                            |
| • Wire-break                                | No                                                                                                                                             |
| • Short-circuit                             | Yes                                                                                                                                            |
| • Group error                               | Yes                                                                                                                                            |

|                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                     |         |                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------|
| Diagnostics indication LED                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                     |         |                |
| <ul style="list-style-type: none"><li>• RUN LED</li><li>• ERROR LED</li><li>• MAINT LED</li><li>• Monitoring of the supply voltage (PWR-LED)</li><li>• Channel status display</li><li>• for channel diagnostics</li><li>• for module diagnostics</li></ul>                                           | <div>Yes; green LED</div> <div>Yes; red LED</div> <div>Yes; Yellow LED</div> <div>Yes; green LED</div> <div>Yes; green LED</div> <div>Yes; red LED</div> <div>Yes; red LED</div>                    |         |                |
| Potential separation                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                     |         |                |
| Potential separation channels                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                     |         |                |
| <ul style="list-style-type: none"><li>• between the channels</li><li>• between the channels, in groups of</li><li>• between the channels and backplane bus</li></ul>                                                                                                                                 | <div>No</div> <div>4</div> <div>Yes</div>                                                                                                                                                           |         |                |
| 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 FS03                                                                                                                                                                                      |         |                |
| Ecological footprint                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                     |         |                |
| <ul style="list-style-type: none"><li>• environmental product declaration</li></ul>                                                                                                                                                                                                                  | Yes                                                                                                                                                                                                 |         |                |
| Global warming potential                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                     |         |                |
| <ul style="list-style-type: none"><li>— global warming potential, (total) [CO2 eq]</li><li>— global warming potential, (during production) [CO2 eq]</li><li>— global warming potential, (during operation) [CO2 eq]</li><li>— global warming potential, (after end of life cycle) [CO2 eq]</li></ul> | <div>43.8 kg</div> <div>9.5 kg</div> <div>34.5 kg</div> <div>-0.231 kg</div>                                                                                                                        |         |                |
| Highest safety class achievable for safety-related tripping of standard modules                                                                                                                                                                                                                      |                                                                                                                                                                                                     |         |                |
| <ul style="list-style-type: none"><li>• Performance level according to ISO 13849-1</li><li>• Category according to ISO 13849-1</li><li>• SIL acc. to IEC 62061</li><li>• remark on safety-oriented shutdown</li></ul>                                                                                | <div>PL d</div> <div>Cat. 3</div> <div>SIL 2</div> <div><a href="https://support.industry.siemens.com/cs/de/en/view/39198632">https://support.industry.siemens.com/cs/de/en/view/39198632</a></div> |         |                |
| product functions / security / header                                                                                                                                                                                                                                                                |                                                                                                                                                                                                     |         |                |
| signed firmware update                                                                                                                                                                                                                                                                               | No                                                                                                                                                                                                  |         |                |
| data integrity                                                                                                                                                                                                                                                                                       | No                                                                                                                                                                                                  |         |                |
| Ambient conditions                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                     |         |                |
| Ambient temperature during operation                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                     |         |                |
| <ul style="list-style-type: none"><li>• horizontal installation, min.</li><li>• horizontal installation, max.</li><li>• vertical installation, min.</li><li>• vertical installation, max.</li></ul>                                                                                                  | <div>-30 °C; From FS06</div> <div>60 °C</div> <div>-30 °C; From FS06</div> <div>40 °C</div>                                                                                                         |         |                |
| Altitude during operation relating to sea level                                                                                                                                                                                                                                                      |                                                                                                                                                                                                     |         |                |
| <ul style="list-style-type: none"><li>• Installation altitude above sea level, max.</li></ul>                                                                                                                                                                                                        | 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual                                                                                                                              |         |                |
| Dimensions                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                     |         |                |
| Width                                                                                                                                                                                                                                                                                                | 35 mm                                                                                                                                                                                               |         |                |
| Height                                                                                                                                                                                                                                                                                               | 147 mm                                                                                                                                                                                              |         |                |
| Depth                                                                                                                                                                                                                                                                                                | 129 mm                                                                                                                                                                                              |         |                |
| Weights                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                     |         |                |
| Weight, approx.                                                                                                                                                                                                                                                                                      | 240 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   | 9  | EC001419    |
| ETIM   | 8  | EC001419    |
| ETIM   | 7  | EC001419    |
| IDEA   | 4  | 3566        |
| UNSPSC | 15 | 32-15-17-05 |

### Approvals / Certificates

#### General Product Approval

[Manufacturer Declaration](#)



[KC](#)



#### For use in hazardous locations



[FM](#)



[FM](#)

[CCC-Ex](#)



#### For use in hazardous locations

#### Marine / Shipping

[Type Examination Certificate](#)



[Miscellaneous](#)



#### Marine / Shipping



[NK / Nippon Kaiji Kyokai](#)



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



#### Environment



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