

**Siemens**  
**EcoTech**



SIMATIC S7-1500, digital output module, DQ16xDC 24V/0.5A BA, 16 channels in groups of 8, 4 A per group; 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. delivery incl. front connector push-in



| General information                                      |                                                     |
|----------------------------------------------------------|-----------------------------------------------------|
| Product type designation                                 | DQ 16x24VDC/0.5A BA                                 |
| HW functional status                                     | from FS01                                           |
| Firmware version                                         | V1.0.0                                              |
| • 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 / V13                                           |
| • 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                         | No                                                  |
| • PWM                                                    | No                                                  |
| • Oversampling                                           | No                                                  |
| • MSO                                                    | 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 / header                                  |                                                     |
| Rated value (DC)                                         | 24 V                                                |
| Power                                                    |                                                     |
| Power consumption from the backplane bus                 | 1.15 W                                              |
| Power loss                                               |                                                     |
| Power loss, typ.                                         | 2.2 W                                               |
| Digital outputs                                          |                                                     |
| Type of digital output                                   | Transistor                                          |
| Number of digital outputs                                | 16                                                  |
| Current-sourcing                                         | Yes                                                 |

|                                              |                                                 |
|----------------------------------------------|-------------------------------------------------|
| Digital outputs, parameterizable             | No                                              |
| output type acc. to IEC 61131, type 0.5      | Yes                                             |
| Short-circuit protection                     | Yes                                             |
| • Response threshold, typ.                   | 1 A                                             |
| Limitation of inductive shutdown voltage to  | L+ (-53 V)                                      |
| Controlling a digital input                  | Yes                                             |
| Switching capacity of the outputs            |                                                 |
| • with resistive load, max.                  | 0.5 A                                           |
| • on lamp load, max.                         | 5 W                                             |
| Load resistance range                        |                                                 |
| • lower limit                                | 48 $\Omega$                                     |
| • upper limit                                | 12 k $\Omega$                                   |
| 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 $\mu$ s                                     |
| • "1" to "0", max.                           | 500 $\mu$ s                                     |
| 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                                           |
| Interrupts/diagnostics/status information    |                                                 |
| Diagnostics function                         | No                                              |
| Substitute values connectable                | No                                              |
| Alarms                                       |                                                 |
| • Diagnostic alarm                           | No                                              |
| • Maintenance interrupt                      | No                                              |
| Diagnoses                                    |                                                 |
| • Monitoring the supply voltage              | No                                              |
| • Wire-break                                 | No                                              |
| • Short-circuit                              | No                                              |
| • Group error                                | No                                              |
| Diagnostics indication LED                   |                                                 |
| • RUN LED                                    | Yes; green LED                                  |
| • ERROR LED                                  | Yes; red LED                                    |
| • Monitoring of the supply voltage (PWR-LED) | Yes; green LED                                  |
| • Channel status display                     | Yes; green LED                                  |
| • for channel diagnostics                    | No                                              |
| • for module diagnostics                     | No                                              |
| 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> |         |                |
| product functions / security / header                                           |                                                                                                                                       |         |                |
| signed firmware update                                                          | No                                                                                                                                    |         |                |
| data integrity                                                                  | No                                                                                                                                    |         |                |
| Ambient conditions                                                              |                                                                                                                                       |         |                |
| Ambient temperature during operation                                            |                                                                                                                                       |         |                |
| • horizontal installation, min.                                                 | -30 °C; from FS04                                                                                                                     |         |                |
| • horizontal installation, max.                                                 | 60 °C                                                                                                                                 |         |                |
| • vertical installation, min.                                                   | -30 °C; from FS04                                                                                                                     |         |                |
| • 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                                                                |         |                |
| Dimensions                                                                      |                                                                                                                                       |         |                |
| Width                                                                           | 25 mm                                                                                                                                 |         |                |
| Height                                                                          | 147 mm                                                                                                                                |         |                |
| Depth                                                                           | 129 mm                                                                                                                                |         |                |
| Weights                                                                         |                                                                                                                                       |         |                |
| Weight, approx.                                                                 | 230 g                                                                                                                                 |         |                |
| Other                                                                           |                                                                                                                                       |         |                |
| Note:                                                                           | Supplied incl. 40-pole push-in front connectors                                                                                       |         |                |
| 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                                                        |                                                                                                                                       |         |                |

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For use in hazardous locations

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