



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 available 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                                                  |
| 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 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                                           |
| 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                       |                                                 |
| Suitable for safety functions                            | No                                              |
| Suitable for safety-related tripping of standard modules | Yes; From FS02                                  |

|                                                                                                                                                                                                                            |                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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> | PL d<br>Cat. 3<br>SIL 2<br><a href="https://support.industry.siemens.com/cs/de/de/view/39198632">https://support.industry.siemens.com/cs/de/de/view/39198632</a> |
| product functions / security / header                                                                                                                                                                                      |                                                                                                                                                                  |
| 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>                   | -30 °C; from FS04<br>60 °C<br>-30 °C; from FS04<br>40 °C                                                                                                         |
| 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                                                                                                                                                                                                                      | 25 mm                                                                                                                                                            |
| Height                                                                                                                                                                                                                     | 147 mm                                                                                                                                                           |
| Depth                                                                                                                                                                                                                      | 129 mm                                                                                                                                                           |
| Weights                                                                                                                                                                                                                    |                                                                                                                                                                  |
| Weight, approx.                                                                                                                                                                                                            | 230 g                                                                                                                                                            |
| Other                                                                                                                                                                                                                      |                                                                                                                                                                  |
| Note:                                                                                                                                                                                                                      | Supplied incl. 40-pole push-in front connectors                                                                                                                  |
| last modified:                                                                                                                                                                                                             | 12/20/2023                                                                      |