




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  |
| <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>                                       | No  |
| <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 / V13   |
| <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>Oversampling</li> </ul>   | No  |
| <ul style="list-style-type: none"> <li>MSO</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 / 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   |
| <b>Switching capacity of the outputs</b>         |   |
| • with resistive load, max.                      | 0.5 A   |
| • on lamp load, max.                             | 5 W   |
| <b>Load resistance range</b>                     |   |
| • lower limit                                    | 48 Ω  |
| • upper limit                                    | 12 kΩ   |
| <b>Output voltage</b>                            |   |
| • for signal "1", min.                           | L+ (-0.8 V)                                     |
| <b>Output current</b>                            |   |
| • 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  |
| <b>Output delay with resistive load</b>          |   |
| • "0" to "1", max.                               | 100 μs  |
| • "1" to "0", max.                               | 500 μs  |
| <b>Parallel switching of two outputs</b>         |   |
| • for logic links                                | Yes   |
| • for uprating                                   | No  |
| • for redundant control of a load                | Yes   |
| <b>Switching frequency</b>                       |   |
| • 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   |
| <b>Total current of the outputs</b>              |   |
| • 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   |
| <b>Cable length</b>                              |   |
| • shielded, max.                                 | 1 000 m   |
| • unshielded, max.                               | 600 m   |
| <b>Interrupts/diagnostics/status information</b> |   |
| Diagnostics function                             | No  |
| Substitute values connectable                    | No  |
| <b>Alarms</b>                                    |   |
| • Diagnostic alarm                               | No  |
| • Maintenance interrupt                          | No  |
| <b>Diagnoses</b>                                 |   |
| • Monitoring the supply voltage                  | No  |
| • Wire-break                                     | No  |
| • Short-circuit                                  | No  |
| • Group error                                    | No  |
| <b>Diagnostics indication LED</b>                |   |
| • RUN LED  | Yes; green LED                                  |
| • ERROR LED                                      | Yes; red LED                                    |
| • Monitoring of the supply voltage (PWR-LED)     | Yes; green LED                                  |
| • Channel status display                         | Yes; green LED                                  |
| • for channel diagnostics                        | No  |
| • for module diagnostics                         | No  |
| <b>Potential separation</b>                      |   |
| <b>Potential separation channels</b>             |   |
| • between the channels                           | No  |
| • between the channels, in groups of             | 8   |
| • between the channels and backplane bus         | Yes   |
| <b>Isolation</b>                                 |   |
| 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> </ul>  | PL d   |
| <ul style="list-style-type: none"> <li>Category according to ISO 13849-1</li> </ul>           | Cat. 3   |
| <ul style="list-style-type: none"> <li>SIL acc. to IEC 62061</li> </ul>                       | SIL 2  |
| Ambient conditions  |  |
| Ambient temperature during operation  |  |
| <ul style="list-style-type: none"> <li>horizontal installation, min.</li> </ul>               | -30 °C; from FS04  |
| <ul style="list-style-type: none"> <li>horizontal installation, max.</li> </ul>               | 60 °C  |
| <ul style="list-style-type: none"> <li>vertical installation, min.</li> </ul>                 | -30 °C; from FS04  |
| <ul style="list-style-type: none"> <li>vertical installation, max.</li> </ul>                 | 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:  | 3/3/2022  |