




SIMATIC S7-1500, digital output module DQ 16x 230V AC/2A ST; relay 16 channels in groups of 2; 4 A per group; switching cycle counter for integrated relay, diagnostics; substitute value: the module supports the safety-oriented shutdown of load groups up to SIL1 according to EN IEC 62061:2021 and Category 2 / PL c according to EN ISO 13849-1:2015. front connector (screw terminals or push-in) to be ordered separately

| General information | |
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| Product type designation | DQ 16x 230 V AC/2 A ST (relay) |
| HW functional status | FS01 |
| Firmware version | V1.1.0 |
| <ul style="list-style-type: none"> FW update possible | Yes |
| Product function | |
| <ul style="list-style-type: none"> I&M data | Yes; I&M0 to I&M3 |
| <ul style="list-style-type: none"> Isochronous mode | No |
| <ul style="list-style-type: none"> Prioritized startup | Yes |
| Engineering with | |
| <ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated from version | V13 SP1 / - |
| <ul style="list-style-type: none"> STEP 7 configurable/integrated from version | V5.5 SP3 / - |
| <ul style="list-style-type: none"> PROFIBUS from GSD version/GSD revision | V1.0 / V5.1 |
| <ul style="list-style-type: none"> PROFINET from GSD version/GSD revision | V2.3 / - |
| Operating mode | |
| <ul style="list-style-type: none"> DQ | Yes |
| <ul style="list-style-type: none"> DQ with energy-saving function | No |
| <ul style="list-style-type: none"> PWM | No |
| <ul style="list-style-type: none"> Oversampling | No |
| <ul style="list-style-type: none"> MSO | Yes |
| <ul style="list-style-type: none"> Integrated operating cycle counter | Yes; FW V1.1.0 or higher |
| 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 |
| Input current | |
| Current consumption, max. | 185 mA |
| output voltage / header | |
| Rated value (AC) | 230 V; 24 V DC to 120 V DC / 24 V AC to 230 V AC |
| Power | |
| Power available from the backplane bus | 0.8 W |
| Power loss | |
| Power loss, typ. | 5 W |
| Digital outputs | |
| Type of digital output | Relays |
| Number of digital outputs | 16 |
| Current-sinking | Yes |

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| Current-sourcing | Yes |
| Digital outputs, parameterizable | Yes |
| Short-circuit protection | No |
| Controlling a digital input | Yes |
| Size of motor starters according to NEMA, max. | 5 |
| Switching capacity of the outputs | |
| • on lamp load, max. | 50 W (230 V AC), 5 W (24 V DC) |
| Output current | |
| • for signal "1" rated value | 2 A |
| • for signal "1" permissible range, min. | 10 mA; 10 V |
| • for signal "1" permissible range, max. | 2 A; thermal continuous current |
| • for signal "0" residual current, max. | 0 A |
| 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. | 1 Hz |
| • with inductive load, max. | 0.5 Hz |
| • on lamp load, max. | 1 Hz |
| Total current of the outputs | |
| • Current per channel, max. | 2 A; see additional description in the manual |
| • Current per group, max. | 4 A; see additional description in the manual |
| • Current per module, max. | 32 A; see additional description in the manual |
| Relay outputs | |
| • Number of relay outputs | 16 |
| • Rated supply voltage of relay coil L+ (DC) | 24 V |
| • Current consumption of relays (coil current of all relays), typ. | 150 mA |
| • external protection for relay outputs | Miniature circuit breaker B10 / B16 |
| • Contact connection (internal) | No |
| • Number of operating cycles, max. | see additional description in the manual |
| • Relay approved acc. to UL 508 | No |
| Switching capacity of contacts | |
| — with inductive load, max. | 2 A; see additional description in the manual |
| — with resistive load, max. | 2 A; see additional description in the manual |
| Cable length | |
| • shielded, max. | 1 000 m |
| • unshielded, max. | 600 m |
| Interrupts/diagnostics/status information | |
| Substitute values connectable | Yes |
| Alarms | |
| • Diagnostic alarm | Yes |
| • Maintenance interrupt | Yes |
| Diagnoses | |
| • Monitoring the supply voltage | Yes |
| • Wire-break | No |
| • Short-circuit | No |
| 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 | No |
| • for module diagnostics | Yes; red LED |
| Potential separation | |
| Potential separation channels | |
| • between the channels | No |
| • between the channels, in groups of | 2 |

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| <ul style="list-style-type: none"> • between the channels and backplane bus • Between the channels and load voltage L+ | <p>Yes</p> <p>Yes</p> |
| Permissible potential difference | |
| between different circuits | 250 V AC between the channels and the supply voltage L+; 250 V AC between the channels and the backplane bus; 500 V AC between the channels |
| Isolation | |
| Isolation tested with | Between channels: 3 100 V DC; between channels backplane bus: 3 100 V DC; between L+ and backplane bus: 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"> • Performance level according to ISO 13849-1 • Category according to ISO 13849-1 | <p>PL c</p> <p>Cat. 2</p> |
| Ambient conditions | |
| Ambient temperature during operation | |
| <ul style="list-style-type: none"> • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. | <p>-25 °C; From FS02</p> <p>60 °C</p> <p>-25 °C; From FS02</p> <p>40 °C</p> |
| Dimensions | |
| Width | 35 mm |
| Height | 147 mm |
| Depth | 129 mm |
| Weights | |
| Weight, approx. | 350 g |
| last modified: | 7/28/2021  |