




SIMATIC ET 200SP, Digital output module, DQ 16x 24V DC/0.5A Standard, Source output (PNP,P-switching) Packing unit: 1 piece, fits to BU-type A0, Colour Code CC00, substitute value output, module diagnostics for: short-circuit to L+ and ground, wire break, supply voltage

| General information | |
|---|--|
| Product type designation | DQ 16x24VDC/0.5A ST |
| HW functional status | From FS03 |
| Firmware version | V0.0 |
| • FW update possible | No |
| usable BaseUnits | BU type A0 |
| Color code for module-specific color identification plate | CC00 |
| Product function | |
| • I&M data | Yes; I&M0 to I&M3 |
| • Isochronous mode | No |
| Engineering with | |
| • STEP 7 TIA Portal configurable/integrated from version | V14 |
| • STEP 7 configurable/integrated from version | V5.5 SP3 |
| • PCS 7 configurable/integrated from version | V8.1 SP1 |
| • PROFIBUS from GSD version/GSD revision | One GSD file each, Revision 3 and 5 and higher |
| • PROFINET from GSD version/GSD revision | GSDML V2.3 |
| Operating mode | |
| • DQ | Yes |
| • DQ with energy-saving function | No |
| • PWM | No |
| • Oversampling | No |
| • MSO | No |
| 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. | 60 mA; without load |
| Output voltage | |
| Rated value (DC) | 24 V |
| Power loss | |
| Power loss, typ. | 1 W |
| Address area | |
| Address space per module | |
| • Address space per module, max. | 2 byte; + 2 bytes for QI information |

| Hardware configuration | |
|---|---|
| Automatic encoding | Yes |
| • Mechanical coding element | Yes |
| • Type of mechanical coding element | Type A |
| Selection of BaseUnit for connection variants | |
| • 1-wire connection | BU type A0 |
| • 2-wire connection | BU type A0 + Potential distributor module |
| • 3-wire connection | BU type A0 + Potential distributor module |
| • 4-wire connection | BU type A0 + Potential distributor module |
| Digital outputs | |
| Type of digital output | Source output (PNP, current-sourcing) |
| Number of digital outputs | 16 |
| Current-sinking | No |
| Current-sourcing | Yes |
| Digital outputs, parameterizable | Yes |
| Short-circuit protection | Yes |
| • Response threshold, typ. | 1 A; 0.7 to 1.3 A |
| Open-circuit detection | Yes |
| Limitation of inductive shutdown voltage to | Typ. L+ (-50 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 k Ω |
| Output current | |
| • for signal "1" rated value | 0.5 A |
| • for signal "0" residual current, max. | 0.1 mA |
| Output delay with resistive load | |
| • "0" to "1", typ. | 50 μ s |
| • "1" to "0", typ. | 100 μ s |
| Parallel switching of two outputs | |
| • for uprating | No |
| • for redundant control of a load | Yes |
| Switching frequency | |
| • with resistive load, max. | 100 Hz |
| • with inductive load, max. | 2 Hz |
| • on lamp load, max. | 10 Hz |
| Total current of the outputs | |
| • Current per channel, max. | 0.5 A |
| • Current per module, max. | 8 A |
| Total current of the outputs (per module) | |
| horizontal installation | |
| — up to 40 °C, max. | 8 A |
| — up to 50 °C, max. | 6 A |
| — up to 60 °C, max. | 4 A |
| vertical installation | |
| — up to 30 °C, max. | 8 A |
| — up to 40 °C, max. | 6 A |
| — up to 50 °C, max. | 4 A |
| 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 |
| Diagnoses | |
| • Monitoring the supply voltage | Yes |
| • Wire-break | Yes; Module-wise |
| • Short-circuit to M | Yes; Module-wise |
| • Short-circuit to L+ | Yes; Module-wise |
| • Group error | Yes |
| Diagnostics indication LED | |
| • Monitoring of the supply voltage (PWR-LED) | Yes; green PWR LED |
| • Channel status display | Yes; green LED |
| • for channel diagnostics | No |
| • for module diagnostics | Yes; green/red DIAG LED |
| Potential separation | |
| Potential separation channels | |
| • between the channels | No |
| • 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 |
| Highest safety class achievable in safety mode | |
| • Performance level according to ISO 13849-1 | PL d |
| • SIL acc. to IEC 61508 | SIL 2 |
| Ambient conditions | |
| Ambient temperature during operation | |
| • horizontal installation, min. | -30 °C; < 0 °C as of FS03 |
| • horizontal installation, max. | 60 °C |
| • vertical installation, min. | -30 °C; < 0 °C as of FS03 |
| • vertical installation, max. | 50 °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 | 15 mm |
| Height | 73 mm |
| Depth | 58 mm |
| Weights | |
| Weight, approx. | 30 g |
| last modified: | 2/6/2021  |