



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 16x24 VDC/0.5 A 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 / header                                   |                                                |
| 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 |
| <b>Digital outputs</b>                           |                                           |
| 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 kΩ                                     |
| 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 μs                                     |
| • "1" to "0", typ.                               | 100 μs                                    |
| 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                                     |
| <b>Interrupts/diagnostics/status information</b> |                                           |
| 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; see FAQ Entry ID: 39198632                                        |                |
| Ecological footprint                                           |        |                                                                        |                |
| • environmental product declaration                            |        | Yes                                                                    |                |
| Global warming potential                                       |        |                                                                        |                |
| — global warming potential, (total) [CO2 eq]                   |        | 29.3 kg                                                                |                |
| — global warming potential, (during production) [CO2 eq]       |        | 3.98 kg                                                                |                |
| — global warming potential, (during operation) [CO2 eq]        |        | 25.6 kg                                                                |                |
| — global warming potential, (after end of life cycle) [CO2 eq] |        | -0.245 kg                                                              |                |
| 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                                                                   |                |
| Classifications                                                |        |                                                                        |                |
|                                                                |        | Version                                                                | Classification |
|                                                                | eClass | 14                                                                     | 27-24-26-04    |
|                                                                | eClass | 12                                                                     | 27-24-26-04    |
|                                                                | eClass | 9.1                                                                    | 27-24-26-04    |
|                                                                | eClass | 9                                                                      | 27-24-26-04    |
|                                                                | eClass | 8                                                                      | 27-24-26-04    |
|                                                                | eClass | 7.1                                                                    | 27-24-26-04    |
|                                                                | eClass | 6                                                                      | 27-24-26-04    |
|                                                                | ETIM   | 9                                                                      | EC001599       |
|                                                                | ETIM   | 8                                                                      | EC001599       |
|                                                                | ETIM   | 7                                                                      | EC001599       |
|                                                                | IDEA   | 4                                                                      | 3566           |
|                                                                | UNSPSC | 15                                                                     | 32-15-17-05    |
| Approvals / Certificates                                       |        |                                                                        |                |
| General Product Approval                                       |        |                                                                        |                |



[Manufacturer Declaration](#)



[KC](#)



For use in hazardous locations

[FM](#)

[Miscellaneous](#)



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