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SIMATIC ET 200SP, digital output module, DQ 4x24 V DC/2 A high feature, source output (PNP, sourcing output) packing unit: 1 unit, suitable for BU type A0, color code CC02, channel diagnostics for: short-circuit and wire break, supply voltage, channel fault LED

| General information                                      |                                                                             |
|----------------------------------------------------------|-----------------------------------------------------------------------------|
| Product type designation                                 | DQ 4x24VDC/2A HF                                                            |
| HW functional status                                     | 01                                                                          |
| Firmware version                                         | V1.0                                                                        |
| • FW update possible                                     | Yes                                                                         |
| usable BaseUnits                                         | BU type A0                                                                  |
| Color code for module-specific color-coded label         | CC02                                                                        |
| Product function                                         |                                                                             |
| • I&M data                                               | Yes; I&M0 to I&M3                                                           |
| • Isochronous mode                                       | Yes; 250 µs                                                                 |
| Engineering with                                         |                                                                             |
| • STEP 7 TIA Portal configurable/integrated from version | as of TIA Portal V19 with HSP0426 / integrated as of TIA Portal V20         |
| • STEP 7 configurable/integrated from version            | as of STEP 7 V5.5 SP3 with HSP0230 V11.0 / integrated as of STEP 7 V5.7 SP3 |
| • PROFIBUS from GSD version/GSD revision                 | GSD Revision 5                                                              |
| • PROFINET from GSD version/GSD revision                 | GSDML V2.43                                                                 |
| 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                                                                         |
| Input current                                            |                                                                             |
| Current consumption, max.                                | 20 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.                         | 4 byte; 2 channels per submodule + QI information                           |

|                                                      |                                                                                                                          |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Hardware configuration</b>                        |                                                                                                                          |
| Automatic encoding                                   | Yes                                                                                                                      |
| • Mechanical coding element                          | Yes                                                                                                                      |
| • Type of mechanical coding element                  | Type A                                                                                                                   |
| <b>Submodules</b>                                    |                                                                                                                          |
| • Number of configurable submodules, max.            | 2                                                                                                                        |
| <b>Selection of BaseUnit for connection variants</b> |                                                                                                                          |
| • 1-wire connection                                  | BU type A0                                                                                                               |
| • 2-wire connection                                  | BU type A0                                                                                                               |
| • 3-wire connection                                  | BU type A0 with AUX terminals or potential distributor module                                                            |
| <b>Digital outputs</b>                               |                                                                                                                          |
| Type of digital output                               | Source output (PNP, current-sourcing)                                                                                    |
| Number of digital outputs                            | 4                                                                                                                        |
| Current-sinking                                      | No                                                                                                                       |
| Current-sourcing                                     | Yes                                                                                                                      |
| Digital outputs, parameterizable                     | Yes                                                                                                                      |
| output type acc. to IEC 61131, type 2                | Yes                                                                                                                      |
| Short-circuit protection                             | Yes; Electronic                                                                                                          |
| • Response threshold, typ.                           | 2.8 to 5.2 A                                                                                                             |
| Open-circuit detection                               | Yes                                                                                                                      |
| Limitation of inductive shutdown voltage to          | Typ. L+ (-50 V)                                                                                                          |
| Controlling a digital input                          | Yes                                                                                                                      |
| <b>Switching capacity of the outputs</b>             |                                                                                                                          |
| • with resistive load, max.                          | 2 A                                                                                                                      |
| • with inductive load, max.                          | 2 A                                                                                                                      |
| • on lamp load, max.                                 | 10 W                                                                                                                     |
| <b>Load resistance range</b>                         |                                                                                                                          |
| • lower limit                                        | 12 Ω                                                                                                                     |
| • upper limit                                        | 3 400 Ω                                                                                                                  |
| <b>Output current</b>                                |                                                                                                                          |
| • for signal "1" rated value                         | 2 A                                                                                                                      |
| • for signal "1" permissible range, max.             | 2 A                                                                                                                      |
| • for signal "0" residual current, max.              | 0.1 mA                                                                                                                   |
| <b>Output delay with resistive load</b>              |                                                                                                                          |
| • "0" to "1", typ.                                   | 50 μs                                                                                                                    |
| • "1" to "0", typ.                                   | 100 μs                                                                                                                   |
| <b>Parallel switching of two outputs</b>             |                                                                                                                          |
| • for uprating                                       | No                                                                                                                       |
| • for redundant control of a load                    | Yes                                                                                                                      |
| <b>Switching frequency</b>                           |                                                                                                                          |
| • with resistive load, max.                          | 100 Hz                                                                                                                   |
| • with inductive load, max.                          | 0.1 Hz; higher frequencies are possible, see Equipment Manual "Maximum permitted switching frequency of inductive loads" |
| • on lamp load, max.                                 | 10 Hz                                                                                                                    |
| <b>Total current of the outputs</b>                  |                                                                                                                          |
| • Current per channel, max.                          | 2 A                                                                                                                      |
| • Current per module, max.                           | 8 A; see Equipment Manual "Derating curve"                                                                               |
| <b>Total current of the outputs (per module)</b>     |                                                                                                                          |
| horizontal installation                              |                                                                                                                          |
| — up to 30 °C, max.                                  | 8 A                                                                                                                      |
| — 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                                                                                                                      |
| <b>Cable length</b>                                  |                                                                                                                          |
| • shielded, max.                                     | 1 000 m                                                                                                                  |

|                                                                                        |                                                                                                                                       |
|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| • unshielded, max.                                                                     | 600 m                                                                                                                                 |
| <b>Isochronous mode</b>                                                                |                                                                                                                                       |
| Execution and activation time (TCO), min.                                              | 75 µs                                                                                                                                 |
| Bus cycle time (TDP), min.                                                             | 500 µs                                                                                                                                |
| Jitter, max.                                                                           | 8 µs                                                                                                                                  |
| <b>Interrupts/diagnostics/status information</b>                                       |                                                                                                                                       |
| Diagnostics function                                                                   | Yes                                                                                                                                   |
| Substitute values connectable                                                          | Yes                                                                                                                                   |
| <b>Alarms</b>                                                                          |                                                                                                                                       |
| • Diagnostic alarm                                                                     | Yes                                                                                                                                   |
| <b>Diagnoses</b>                                                                       |                                                                                                                                       |
| • Monitoring the supply voltage                                                        | Yes                                                                                                                                   |
| — Parameterizable                                                                      | Yes                                                                                                                                   |
| • Wire break                                                                           | Yes; channel by channel                                                                                                               |
| • Short-circuit to ground                                                              | Yes; channel by channel                                                                                                               |
| • Short-circuit to L+                                                                  | Yes; channel by channel                                                                                                               |
| • Group error                                                                          | Yes                                                                                                                                   |
| <b>Diagnostics indication LED</b>                                                      |                                                                                                                                       |
| • Monitoring of the supply voltage (PWR-LED)                                           | Yes; green PWR LED                                                                                                                    |
| • Channel status display                                                               | Yes; green LED                                                                                                                        |
| • for channel diagnostics                                                              | Yes; red LED                                                                                                                          |
| • for module diagnostics                                                               | Yes; green/red DIAG LED                                                                                                               |
| <b>Potential separation</b>                                                            |                                                                                                                                       |
| <b>Potential separation channels</b>                                                   |                                                                                                                                       |
| • between the channels                                                                 | No                                                                                                                                    |
| • between the channels and backplane bus                                               | Yes                                                                                                                                   |
| • Between the channels and load voltage L+                                             | No                                                                                                                                    |
| <b>Isolation</b>                                                                       |                                                                                                                                       |
| Isolation tested with                                                                  | 707 V DC (type test)                                                                                                                  |
| <b>Standards, approvals, certificates</b>                                              |                                                                                                                                       |
| Suitable for safety functions                                                          | No                                                                                                                                    |
| Suitable for safety-related tripping of standard modules                               | Yes; see FAQ Entry ID: 39198632                                                                                                       |
| <b>Ecological footprint</b>                                                            |                                                                                                                                       |
| • environmental product declaration                                                    | Yes                                                                                                                                   |
| <b>Global warming potential</b>                                                        |                                                                                                                                       |
| — 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                                                                                                                             |
| <b>Highest safety class achievable for safety-related tripping of standard modules</b> |                                                                                                                                       |
| • Performance level according to ISO 13849-1                                           | PL d                                                                                                                                  |
| • Category according to ISO 13849-1                                                    | Cat. 3                                                                                                                                |
| • SIL acc. to IEC 62061                                                                | SIL 2                                                                                                                                 |
| • remark on safety-oriented shutdown                                                   | <a href="https://support.industry.siemens.com/cs/de/en/view/39198632">https://support.industry.siemens.com/cs/de/en/view/39198632</a> |
| <b>Ambient conditions</b>                                                              |                                                                                                                                       |
| <b>Ambient temperature during operation</b>                                            |                                                                                                                                       |
| • horizontal installation, min.                                                        | -30 °C                                                                                                                                |
| • horizontal installation, max.                                                        | 60 °C                                                                                                                                 |
| • vertical installation, min.                                                          | -30 °C                                                                                                                                |
| • vertical installation, max.                                                          | 50 °C                                                                                                                                 |
| <b>Altitude during operation relating to sea level</b>                                 |                                                                                                                                       |
| • Installation altitude above sea level, max.                                          | 5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200SP system manual                                                |
| <b>Absolute humidity</b>                                                               |                                                                                                                                       |
| • dew point, min.                                                                      | -60 °C; suitable for dry room applications                                                                                            |
| <b>Dimensions</b>                                                                      |                                                                                                                                       |
| Width                                                                                  | 15 mm                                                                                                                                 |

|                        |       |
|------------------------|-------|
| Height                 | 73 mm |
| Depth                  | 58 mm |
| <b>Weights</b>         |       |
| Weight, approx.        | 30 g  |
| <b>Classifications</b> |       |

|        | Version | Classification |
|--------|---------|----------------|
| eClass | 16      | 27-24-26-04    |
| 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   | 10      | EC001599       |
| ETIM   | 9       | EC001599       |
| ETIM   | 8       | EC001599       |
| ETIM   | 7       | EC001599       |

#### Approvals / Certificates

##### General Product Approval

[Manufacturer Declaration](#)



[Miscellaneous](#)



##### General Product Approval

EMV

For use in hazardous locations



[China RoHS](#)



##### For use in hazardous locations

[FM](#)

[CCC-Ex](#)



[Type Examination Certificate](#)



[Miscellaneous](#)

For use in hazardous locations

Maritime application

[CCC-Ex](#)



[NK / Nippon Kaiji Kyokai](#)

Maritime application

Environment



[CCS \(China Classification Society\)](#)

[KR \(Korean Register of Shipping\)](#)



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Environment

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