



SIMATIC ET 200SP, TM count 1x 24 V Counter module, 1 channel for 24 V incremental encoder or pulse encoder, 3 DI, 2 DQ Suitable for BU type A0, packing quantity: 1 unit,

| General information | |
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| Product type designation | TM Count 1x24V |
| Firmware version | V2.0 |
| <ul style="list-style-type: none"> FW update possible | Yes |
| usable BaseUnits | BU type A0 |
| Color code for module-specific color identification plate | CC00 |
| 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 | Yes |
| Engineering with | |
| <ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated from version | STEP 7 V15 SP1 or higher |
| <ul style="list-style-type: none"> STEP 7 configurable/integrated from version | V5.6 and higher |
| <ul style="list-style-type: none"> PROFIBUS from GSD version/GSD revision | One GSD file each, Revision 3 and 5 and higher |
| <ul style="list-style-type: none"> PROFINET from GSD version/GSD revision | GSDML V2.34 |
| Supply voltage | |
| Rated value (DC) | 24 V |
| Load voltage L+ | |
| <ul style="list-style-type: none"> Rated value (DC) | 24 V |
| <ul style="list-style-type: none"> permissible range, lower limit (DC) | 19.2 V |
| <ul style="list-style-type: none"> permissible range, upper limit (DC) | 28.8 V |
| <ul style="list-style-type: none"> Reverse polarity protection | Yes |
| Input current | |
| Current consumption, max. | 60 mA; without load |
| Encoder supply | |
| Number of outputs | 1 |
| 24 V encoder supply | |
| <ul style="list-style-type: none"> 24 V | Yes; L+ (-0.8 V) |
| <ul style="list-style-type: none"> Short-circuit protection | Yes; electronic/thermal |
| <ul style="list-style-type: none"> Output current, max. | 300 mA |
| Power loss | |
| Power loss, typ. | 1 W |
| Address area | |
| Address space per module | |
| <ul style="list-style-type: none"> Inputs | 16 byte; 4 bytes in Fast mode |
| <ul style="list-style-type: none"> Outputs | 12 byte; 4 bytes for Motion Control, 0 bytes for Fast mode |
| Hardware configuration | |
| Automatic encoding | Yes |
| <ul style="list-style-type: none"> Mechanical coding element | Yes |
| <ul style="list-style-type: none"> Type of mechanical coding element | type B |
| Digital inputs | |

| | |
|---|---|
| Number of digital inputs | 3 |
| Digital inputs, parameterizable | Yes |
| Input characteristic curve in accordance with IEC 61131, type 3 | Yes |
| Digital input functions, parameterizable | |
| • Gate start/stop | Yes |
| • Capture | Yes |
| • Synchronization | Yes |
| • Freely usable digital input | Yes |
| • Probe | Yes |
| Input voltage | |
| • Rated value (DC) | 24 V |
| • for signal "0" | -5 ... +5 V |
| • for signal "1" | +11 to +30V |
| • permissible voltage at input, min. | -30 V; -5 V continuous, -30 V brief reverse polarity protection |
| • permissible voltage at input, max. | 30 V |
| Input current | |
| • for signal "1", typ. | 2.5 mA |
| Input delay (for rated value of input voltage) | |
| for standard inputs | |
| — parameterizable | Yes; none / 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms |
| — at "0" to "1", min. | 6 µs; for parameterization "none" |
| — at "1" to "0", min. | 6 µs; for parameterization "none" |
| for technological functions | |
| — parameterizable | Yes |
| Cable length | |
| • shielded, max. | 1 000 m |
| • unshielded, max. | 600 m |
| Digital outputs | |
| Type of digital output | Transistor |
| Number of digital outputs | 2 |
| Digital outputs, parameterizable | Yes |
| Short-circuit protection | Yes; electronic/thermal |
| • Response threshold, typ. | 1 A |
| Limitation of inductive shutdown voltage to | L+ (-53 V) |
| Controlling a digital input | Yes |
| Digital output functions, parameterizable | |
| • Switching tripped by comparison values | Yes |
| • Freely usable digital output | Yes |
| Switching capacity of the outputs | |
| • with resistive load, max. | 0.5 A; Per digital output |
| • on lamp load, max. | 5 W |
| Load resistance range | |
| • lower limit | 48 Ω |
| • upper limit | 12 kΩ |
| Output voltage | |
| • for signal "1", min. | 23.2 V; L+ (-0.8 V) |
| Output current | |
| • for signal "1" rated value | 0.5 A; Per digital output |
| • for signal "1" permissible range, max. | 0.6 A; Per digital output |
| • for signal "1" minimum load current | 2 mA |
| • for signal "0" residual current, max. | 0.5 mA |
| Output delay with resistive load | |
| • "0" to "1", max. | 50 µs |
| • "1" to "0", max. | 50 µs |
| Switching frequency | |
| • with resistive load, max. | 10 kHz |
| • with inductive load, max. | 0.5 Hz; Acc. to IEC 60947-5-1, DC-13; observe derating curve |
| • on lamp load, max. | 10 Hz |
| Total current of the outputs | |
| • Current per module, max. | 1 A |
| Cable length | |

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| <ul style="list-style-type: none"> • shielded, max. | 1 000 m |
| <ul style="list-style-type: none"> • unshielded, max. | 600 m |
| Encoder | |
| Connectable encoders | |
| <ul style="list-style-type: none"> • 2-wire sensor | Yes |
| <ul style="list-style-type: none"> — permissible quiescent current (2-wire sensor), max. | 1.5 mA |
| Encoder signals, incremental encoder (asymmetrical) | |
| <ul style="list-style-type: none"> • Input voltage | 24 V |
| <ul style="list-style-type: none"> • Input frequency, max. | 200 kHz |
| <ul style="list-style-type: none"> • Counting frequency, max. | 800 kHz; with quadruple evaluation |
| <ul style="list-style-type: none"> • Cable length, shielded, max. | 600 m; depending on input frequency, encoder and cable quality; max. 50 m at 200 kHz |
| <ul style="list-style-type: none"> • Signal filter, parameterizable | Yes |
| <ul style="list-style-type: none"> • Incremental encoder with A/B tracks, 90° phase offset | Yes |
| <ul style="list-style-type: none"> • Incremental encoder with A/B tracks, 90° phase offset and zero track | Yes |
| <ul style="list-style-type: none"> • pulse encoder | Yes |
| <ul style="list-style-type: none"> • pulse encoder with direction | Yes |
| <ul style="list-style-type: none"> • pulse encoder with one impulse signal per count direction | Yes |
| Interface types | |
| <ul style="list-style-type: none"> • Source/sink input | Yes |
| <ul style="list-style-type: none"> • Input characteristic curve in accordance with IEC 61131, type 3 | Yes |
| Interrupts/diagnostics/status information | |
| Substitute values connectable | Yes; Parameterizable |
| Alarms | |
| <ul style="list-style-type: none"> • Diagnostic alarm | Yes |
| <ul style="list-style-type: none"> • Hardware interrupt | Yes |
| Diagnoses | |
| <ul style="list-style-type: none"> • Monitoring the supply voltage | Yes |
| <ul style="list-style-type: none"> • Wire-break | Yes |
| <ul style="list-style-type: none"> • Short-circuit | Yes |
| <ul style="list-style-type: none"> • A/B transition error at incremental encoder | Yes |
| <ul style="list-style-type: none"> • Group error | Yes |
| Diagnostics indication LED | |
| <ul style="list-style-type: none"> • Monitoring of the supply voltage (PWR-LED) | Yes; green PWR LED |
| <ul style="list-style-type: none"> • Channel status display | Yes; green LED |
| <ul style="list-style-type: none"> • for module diagnostics | Yes; green/red DIAG LED |
| <ul style="list-style-type: none"> • Status indicator forward counting (green) | Yes |
| <ul style="list-style-type: none"> • Status indicator backward counting (green) | Yes |
| Integrated Functions | |
| Counter | |
| <ul style="list-style-type: none"> • Number of counters | 1 |
| <ul style="list-style-type: none"> • Counting frequency, max. | 800 kHz; with quadruple evaluation |
| Fast mode | Yes |
| Counting functions | |
| <ul style="list-style-type: none"> • Can be used with TO High_Speed_Counter | Yes |
| <ul style="list-style-type: none"> • Continuous counting | Yes |
| <ul style="list-style-type: none"> • Counter response parameterizable | Yes |
| <ul style="list-style-type: none"> • Hardware gate via digital input | Yes |
| <ul style="list-style-type: none"> • Software gate | Yes |
| <ul style="list-style-type: none"> • Event-controlled stop | Yes |
| <ul style="list-style-type: none"> • Synchronization via digital input | Yes |
| <ul style="list-style-type: none"> • Counting range, parameterizable | Yes |
| Comparator | |
| <ul style="list-style-type: none"> — Number of comparators | 2 |
| <ul style="list-style-type: none"> — Direction dependency | Yes |
| <ul style="list-style-type: none"> — Can be changed from user program | Yes |
| Position detection | |
| <ul style="list-style-type: none"> • Incremental acquisition | Yes |
| <ul style="list-style-type: none"> • Suitable for S7-1500 Motion Control | Yes |

| Measuring functions | |
|---|--|
| • Measuring time, parameterizable | Yes |
| • Dynamic measurement period adjustment | Yes |
| • Number of thresholds, parameterizable | 2 |
| Measuring range | |
| — Frequency measurement, min. | 0.04 Hz |
| — Frequency measurement, max. | 800 kHz |
| — Cycle duration measurement, min. | 1.25 µs |
| — Cycle duration measurement, max. | 25 s |
| Accuracy | |
| — Frequency measurement | 100 ppm; depending on measuring interval and signal evaluation |
| — Cycle duration measurement | 100 ppm; depending on measuring interval and signal evaluation |
| — Velocity measurement | 100 ppm; depending on measuring interval and signal evaluation |
| Potential separation | |
| Potential separation channels | |
| • between the channels and backplane bus | Yes |
| Isolation | |
| Isolation tested with | 707 V DC (type test) |
| Standards, approvals, certificates | |
| Suitable for safety functions | No |
| Ambient conditions | |
| Ambient temperature during operation | |
| • horizontal installation, min. | -30 °C |
| • horizontal installation, max. | 60 °C |
| • vertical installation, min. | -30 °C |
| • vertical installation, max. | 50 °C |
| • ceiling installation, min. | -30 °C |
| • ceiling installation, max. | 50 °C |
| • floor installation, min. | -30 °C |
| • floor 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 |
| Decentralized operation | |
| to SIMATIC S7-300 | Yes |
| to SIMATIC S7-400 | Yes |
| to SIMATIC S7-1200 | Yes |
| to SIMATIC S7-1500 | Yes |
| to standard PROFIBUS master | Yes |
| to standard PROFINET controller | Yes |
| Dimensions | |
| Width | 15 mm |
| Height | 73 mm |
| Depth | 58 mm |
| Weights | |
| Weight, approx. | 45 g |

last modified: 8/9/2023 