

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 | |
|--|--|
| 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 | |
| Load voltage L+ | |

- 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

Encoder supply

Number of outputs 1

24 V encoder supply

- 24 V Yes; L+ (-0.8 V)
- Short-circuit protection Yes; electronic/thermal
- Output current, max. 300 mA

Power loss

Power loss, typ. 1 W

Address area

Address space per module

- Inputs 16 byte; 4 bytes in Fast mode
- Outputs 12 byte; 4 bytes for Motion Control, 0 bytes for Fast mode

Hardware configuration

Automatic encoding

- 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 μ s; for parameterization "none" |
| — at "1" to "0", min. | 6 μ s; 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 k Ω |
| 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 μ s |
| • "1" to "0", max. | 50 μ s |
| 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 | |
| • shielded, max. | 1 000 m |
| • unshielded, max. | 600 m |
| Encoder | |
| Connectable encoders | |
| • 2-wire sensor | Yes |
| — permissible quiescent current (2-wire sensor), max. | 1.5 mA |
| Encoder signals, incremental encoder (asymmetrical) | |
| • Input voltage | 24 V |
| • Input frequency, max. | 200 kHz |
| • Counting frequency, max. | 800 kHz; with quadruple evaluation |
| • Cable length, shielded, max. | 600 m; depending on input frequency, encoder and cable quality; max. 50 m at 200 kHz |
| • Signal filter, parameterizable | Yes |
| • Incremental encoder with A/B tracks, 90° phase offset | Yes |
| • Incremental encoder with A/B tracks, 90° phase offset and zero track | Yes |
| • Pulse encoder | Yes |
| • Pulse encoder with direction | Yes |
| • Pulse encoder with one impulse signal per count direction | Yes |
| Encoder signal 24 V | |
| — permissible voltage at input, min. | -30 V; -5 V continuous, -30 V brief reverse polarity protection |
| — permissible voltage at input, max. | 30 V |
| Interface types | |
| • Source/sink input | Yes |
| • Input characteristic curve in accordance with IEC 61131, type 3 | Yes |
| Interrupts/diagnostics/status information | |
| Substitute values connectable | Yes; Parameterizable |
| Alarms | |
| • Diagnostic alarm | Yes |
| • Hardware interrupt | Yes |
| Diagnoses | |
| • Monitoring the supply voltage | Yes |
| • Wire-break | Yes |
| • Short-circuit | Yes |
| • A/B transition error at incremental encoder | Yes |
| • Group error | Yes |

| Diagnostics indication LED | |
|--|--|
| • Monitoring of the supply voltage (PWR-LED) | Yes; green PWR LED |
| • Channel status display | Yes; green LED |
| • for module diagnostics | Yes; green/red DIAG LED |
| • Status indicator forward counting (green) | Yes |
| • Status indicator backward counting (green) | Yes |
| Integrated Functions | |
| Number of counters | 1 |
| Counting frequency (counter) max. | 800 kHz; with quadruple evaluation |
| Fast mode | Yes |
| Counting functions | |
| • Can be used with TO High_Speed_Counter | Yes |
| • Continuous counting | Yes |
| • Counter response parameterizable | Yes |
| • Hardware gate via digital input | Yes |
| • Software gate | Yes |
| • Event-controlled stop | Yes |
| • Synchronization via digital input | Yes |
| • Counting range, parameterizable | Yes |
| Comparator | |
| — Number of comparators | 2 |
| — Direction dependency | Yes |
| — Can be changed from user program | Yes |
| Position detection | |
| • Incremental acquisition | Yes |
| • 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 μ s |
| — 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:

08/19/2020