

SIMATIC ET 200SP, TM timer DIDQ 10x 24V time-controlled digital inputs and outputs 4 DI, 6DQ with time stamp Count, PWM, oversampling



| General information | |
|---|--------------------------|
| Product type designation | TM Timer DIDQ 10x24V |
| usable BaseUnits | BU type A0 |
| Product function | |
| <ul style="list-style-type: none"> I&M data | Yes; I&M 0 |
| Engineering with | |
| <ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated as of version | V13 Update 3 |
| <ul style="list-style-type: none"> STEP 7 configurable/integrated as of version | V5.5 SP3 / - |
| Supply voltage | |
| 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; against destruction |
| Input current | |
| Current consumption, max. | 50 mA; without load |
| Encoder supply | |

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| Number of outputs | 1 |
| 24 V encoder supply | |
| <ul style="list-style-type: none"> • 24 V • Short-circuit protection • Output current, max. | Yes; L+ (-0.8 V) Yes 500 mA; Observe derating |
| Power loss | |
| Power loss, typ. | 1.5 W |
| Address area | |
| Address space per module | |
| <ul style="list-style-type: none"> • Inputs • Outputs | 26 byte 32 byte |
| Digital inputs | |
| Number of digital inputs | 4 |
| Digital inputs, parameterizable | Yes |
| Input characteristic curve in accordance with IEC 61131, type 3 | Yes |
| Digital input functions, parameterizable | |
| <ul style="list-style-type: none"> • Digital input with time stamp <ul style="list-style-type: none"> — Number, max. • Counter <ul style="list-style-type: none"> — Number, max. • Counter for incremental encoder <ul style="list-style-type: none"> — Number, max. • Digital input with oversampling <ul style="list-style-type: none"> — Number, max. • HW enable for digital input <ul style="list-style-type: none"> — Number, max. • HW enable for digital output <ul style="list-style-type: none"> — Number, max. | Yes 4 Yes 3 Yes 1 Yes 4 Yes 1 Yes 3 |
| Input voltage | |
| <ul style="list-style-type: none"> • Type of input voltage • Rated value (DC) • for signal "0" • for signal "1" • permissible voltage at input, min. • permissible voltage at input, max. | DC 24 V -5 ... +5 V +11 to +30V -30 V; -5 V continuous, -30 V brief reverse polarity protection 30 V |
| Input current | |
| <ul style="list-style-type: none"> • for signal "1", typ. | 2.5 mA |
| Input delay (for rated value of input voltage) | |
| <ul style="list-style-type: none"> • Minimum pulse width for program reactions | 3 µs for parameterization "none" |
| for standard inputs | |

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| — parameterizable | Yes; none / 0.05 / 0.1 / 0.4 / 0.8 ms |
| — at "0" to "1", min. | 4 μ s |
| — at "1" to "0", min. | 4 μ s |
| Cable length | |
| • shielded, max. | 1 000 m; Depending on sensor, cable quality and rate of change |
| • unshielded, max. | 600 m; Depending on sensor, cable quality and rate of change |
| Digital outputs | |
| Type of digital output | Transistor |
| Number of digital outputs | 6 |
| Current-sinking | Yes; With High Speed output |
| Current-sourcing | Yes |
| Digital outputs, parameterizable | Yes |
| Short-circuit protection | Yes; electronic/thermal |
| • Response threshold, typ. | 1.7 A with Standard output, 0.5 A with High Speed output |
| Limitation of inductive shutdown voltage to | -0.8 V |
| Digital output functions, parameterizable | |
| • Digital output with time stamp | Yes |
| — Number, max. | 6 |
| • PWM output | Yes |
| — Number, max. | 6 |
| • Digital output with oversampling | Yes |
| — Number, max. | 6 |
| Switching capacity of the outputs | |
| • with resistive load, max. | 0.5 A; 0.1 A with High Speed output |
| • on lamp load, max. | 5 W; 1 W with High Speed output |
| Load resistance range | |
| • lower limit | 48 Ω ; 240 ohm with High Speed output |
| • upper limit | 12 k Ω |
| Output voltage | |
| • Type of output voltage | DC |
| • for signal "0", max. | 1 V; With High Speed output |
| • for signal "1", min. | 23.2 V; L+ (-0.8 V) |
| Output current | |
| • for signal "1" rated value | 0.5 A; 0.1 A with High Speed output, observe derating |
| • for signal "1" permissible range, max. | 0.6 A; 0.12 A with High Speed output, observe derating |
| • 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. | 1 μ s; With High Speed output, 5 μ s with Standard output |
| • "1" to "0", max. | 1 μ s; With High Speed output, 6 μ s with Standard output |
| Switching frequency | |

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| • with resistive load, max. | 10 kHz |
| • on lamp load, max. | 10 Hz |
| Total current of the outputs | |
| • Current per module, max. | 3.5 A; Observe derating |
| Cable length | |
| • shielded, max. | 1 000 m; Depending on load and cable quality |
| • unshielded, max. | 600 m; Depending on load and cable quality |
| Encoder | |
| Connectable encoders | |
| • Incremental encoder (asymmetrical) | Yes |
| • 24 V initiator | Yes |
| • 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. | 50 kHz |
| • Counting frequency, max. | 200 kHz; with quadruple evaluation |
| • Cable length, shielded, max. | 600 m; Depending on input frequency, encoder and cable quality; max. 200 m at 50 kHz |
| • Incremental encoder with A/B tracks, 90° phase offset | Yes |
| • Pulse encoder | Yes |
| Encoder signal 24 V | |
| — permissible voltage at input, min. | -30 V |
| — permissible voltage at input, max. | 30 V |
| Interface types | |
| • Input characteristic curve in accordance with IEC 61131, type 3 | Yes |
| Isochronous mode | |
| Bus cycle time (TDP), min. | 375 µs |
| Jitter, max. | 1 µs |
| Interrupts/diagnostics/status information | |
| Diagnostics function | Yes |
| Substitute values connectable | Yes |
| Alarms | |
| • Diagnostic alarm | Yes |
| Diagnostic messages | |
| • Monitoring the supply voltage | Yes |
| • Short-circuit | Yes |
| Diagnostics indication LED | |

- Monitoring of the supply voltage (PWR-LED) Yes; green PWR LED
- Channel status display Yes
- for module diagnostics Yes; green/red DIAG LED

Integrated Functions

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| Number of counters | 3 |
| Counting frequency (counter) max. | 200 kHz; with quadruple evaluation |
| Counting functions | |
| • Continuous counting | Yes |

Potential separation

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| Potential separation channels | |
| • between the channels and backplane bus | Yes |

Isolation

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| Isolation tested with | 707 V DC (type test) |
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Ambient conditions

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| Ambient temperature during operation | |
| • horizontal installation, min. | -30 °C |
| • horizontal installation, max. | 60 °C; Observe derating |
| • vertical installation, min. | -30 °C |
| • vertical installation, max. | 50 °C; Observe derating |
| Altitude during operation relating to sea level | |
| • Installation altitude above sea level, max. | 2 000 m; On request: Installation altitudes greater than 2 000 m |

Decentralized operation

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| to SIMATIC S7-1500 | Yes |
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Dimensions

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| Width | 15 mm |
| Height | 73 mm |
| Depth | 58 mm |

Weights

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| Weight, approx. | 45 g |
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last modified: 02/24/2020