

SIMATIC ET 200SP, TM TIMER DIDQ 10X24V TIME BASED
DIGITAL INPUTS AND OUTPUTS 4DI, 6DO WITH TIMESTAMP
COUNT, PWM, OVERSAMPLING



General information	
Product type designation	TM timer DIDQ 10x24V
usable BaseUnits	BU type A0
Product function	
• I&M data	Yes; I&M 0
Engineering with	
• STEP 7 TIA Portal configurable/integrated as of version	V13 Update 3
• STEP 7 configurable/integrated as of version	V5.5 SP3 / -
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; against destruction
Input current	
Current consumption, max.	50 mA; without load
Encoder supply	

Number of outputs	1
24 V encoder supply	
• 24 V	Yes; L+ (-0.8 V)
• Short-circuit protection	Yes
• Output current, max.	500 mA; Observe derating
Power loss	
Power loss, typ.	1.5 W
Address area	
Occupied address area	
• Inputs	26 byte
• Outputs	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	
• Digital input with time stamp	Yes
— Number, max.	4
• Counter	Yes
— Number, max.	3
• Counter for incremental encoder	Yes
— Number, max.	1
• Digital input with oversampling	Yes
— Number, max.	4
• HW enable for digital input	Yes
— Number, max.	1
• HW enable for digital output	Yes
— Number, max.	3
Input voltage	
• Type of input voltage	DC
• Rated value (DC)	24 V
• for signal "0"	-30 to +5V
• for signal "1"	+11 to +30V
• permissible voltage at input, min.	-30 V
• permissible voltage at input, max.	30 V
Input current	
• for signal "1", typ.	2.5 mA
Input delay (for rated value of input voltage)	
• Minimum pulse width for program reactions	3 µs for parameterization "none"
for standard inputs	

— 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	

• 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	
Isochronous operation (application synchronized up to terminal)	Yes
Bus cycle time (TDP), min.	375 µs
Jitter, max.	1 µs
Interrupts/diagnostics/status information	
Diagnostics	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	
Number of counters	3
Counting frequency (counter) max.	200 kHz; with quadruple evaluation
Counting functions	
• Continuous counting	Yes
Potential separation	
Potential separation channels	
• between the channels and backplane bus	Yes
Permissible potential difference	
between different circuits	75 V DC/60 V AC (base isolation)
Isolation	
Isolation tested with	707 V DC (type test)
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	0 °C
• horizontal installation, max.	60 °C; Observe derating
• vertical installation, min.	0 °C
• vertical installation, max.	50 °C; Observe derating
Decentralized operation	
to SIMATIC S7-1500	Yes
Dimensions	
Width	15 mm
Weights	
Weight, approx.	45 g
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