



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

General information	
Product type designation	TM Timer DIDQ 10x24V
HW functional status	From FS03
usable BaseUnits	BU type A0
Product function	
• I&M data	Yes; I&M 0
• Isochronous mode	Yes
Engineering with	
• STEP 7 TIA Portal configurable/integrated from version	V13 Update 3
• STEP 7 configurable/integrated from 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	
Address space per module	
• Inputs	26 byte
• Outputs	32 byte
Hardware configuration	
Automatic encoding	Yes
• Mechanical coding element	Yes
• Type of mechanical coding element	type B
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
<b>Input voltage</b>	
• Type of input voltage	DC
• 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
<b>Input current</b>	
• for signal "1", typ.	2.5 mA
<b>Input delay (for rated value of input voltage)</b>	
• Minimum pulse width for program reactions	3 µs for parameterization "none"
<b>for standard inputs</b>	
— parameterizable	Yes; none / 0.05 / 0.1 / 0.4 / 0.8 ms
— at "0" to "1", min.	4 µs
— at "1" to "0", min.	4 µs
<b>Cable length</b>	
• 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
<b>Digital outputs</b>	
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
<b>Digital output functions, parameterizable</b>	
• Digital output with time stamp	Yes
— Number, max.	6
• PWM output	Yes
— Number, max.	6
• Digital output with oversampling	Yes
— Number, max.	6
<b>Switching capacity of the outputs</b>	
• 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
<b>Load resistance range</b>	
• lower limit	48 Ω; 240 ohm with High Speed output
• upper limit	12 kΩ
<b>Output voltage</b>	
• 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)
<b>Output current</b>	
• 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
<b>Output delay with resistive load</b>	

<ul style="list-style-type: none"> <li>• "0" to "1", max.</li> <li>• "1" to "0", max.</li> </ul>	1 µs; With High Speed output, 5 µs with Standard output 1 µs; With High Speed output, 6 µs with Standard output
<b>Switching frequency</b>	
<ul style="list-style-type: none"> <li>• with resistive load, max.</li> <li>• on lamp load, max.</li> </ul>	10 kHz 10 Hz
<b>Total current of the outputs</b>	
<ul style="list-style-type: none"> <li>• Current per module, max.</li> </ul>	3.5 A; Observe derating
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>• shielded, max.</li> <li>• unshielded, max.</li> </ul>	1 000 m; depending on load and cable quality 600 m; depending on load and cable quality
<b>Encoder</b>	
<b>Connectable encoders</b>	
<ul style="list-style-type: none"> <li>• Incremental encoder (asymmetrical)</li> <li>• 24 V initiator</li> <li>• 2-wire sensor</li> <li>— permissible quiescent current (2-wire sensor), max.</li> </ul>	Yes Yes Yes 1.5 mA
<b>Encoder signals, incremental encoder (asymmetrical)</b>	
<ul style="list-style-type: none"> <li>• Input voltage</li> <li>• Input frequency, max.</li> <li>• Counting frequency, max.</li> <li>• Cable length, shielded, max.</li> <li>• Incremental encoder with A/B tracks, 90° phase offset</li> <li>• pulse encoder</li> </ul>	24 V 50 kHz 200 kHz; with quadruple evaluation 600 m; Depending on input frequency, encoder and cable quality; max. 200 m at 50 kHz Yes Yes
<b>Interface types</b>	
<ul style="list-style-type: none"> <li>• Input characteristic curve in accordance with IEC 61131, type 3</li> </ul>	Yes
<b>Isochronous mode</b>	
Bus cycle time (TDP), min.	375 µs
Jitter, max.	1 µs
<b>Interrupts/diagnostics/status information</b>	
Diagnostics function	Yes
Substitute values connectable	Yes
<b>Alarms</b>	
<ul style="list-style-type: none"> <li>• Diagnostic alarm</li> </ul>	Yes
<b>Diagnoses</b>	
<ul style="list-style-type: none"> <li>• Monitoring the supply voltage</li> <li>• Short-circuit</li> </ul>	Yes Yes
<b>Diagnostics indication LED</b>	
<ul style="list-style-type: none"> <li>• Monitoring of the supply voltage (PWR-LED)</li> <li>• Channel status display</li> <li>• for module diagnostics</li> </ul>	Yes; green PWR LED Yes Yes; green/red DIAG LED
<b>Integrated Functions</b>	
Counter	Yes
<ul style="list-style-type: none"> <li>• Number of counters</li> <li>• Counting frequency, max.</li> </ul>	3 200 kHz; with quadruple evaluation
<b>Counting functions</b>	
<ul style="list-style-type: none"> <li>• Continuous counting</li> </ul>	Yes
<b>Potential separation</b>	
<b>Potential separation channels</b>	
<ul style="list-style-type: none"> <li>• between the channels and backplane bus</li> </ul>	Yes
<b>Isolation</b>	
Isolation tested with	707 V DC (type test)
<b>Standards, approvals, certificates</b>	
Suitable for safety functions	No
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
<ul style="list-style-type: none"> <li>• horizontal installation, min.</li> <li>• horizontal installation, max.</li> <li>• vertical installation, min.</li> <li>• vertical installation, max.</li> </ul>	-30 °C 60 °C; Observe derating -30 °C 50 °C; Observe derating

Altitude during operation relating to sea level	
<ul style="list-style-type: none"> <li>Installation altitude above sea level, max.</li> </ul>	5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200SP system manual
Decentralized operation	
to SIMATIC S7-1500	Yes
Dimensions	
Width	15 mm
Height	73 mm
Depth	58 mm
Weights	
Weight, approx.	45 g
last modified:	12/28/2021 