



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
HW functional status	From FS03
usable BaseUnits	BU type A0
Product function	
<ul style="list-style-type: none"> I&M data 	Yes; I&M 0
<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 	V13 Update 3
<ul style="list-style-type: none"> STEP 7 configurable/integrated from 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	
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
<ul style="list-style-type: none"> Output current, max. 	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 	26 byte
<ul style="list-style-type: none"> Outputs 	32 byte
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	4
Digital inputs, parameterizable	Yes
Input characteristic curve in accordance with IEC 61131,	Yes

type 3	
Digital input functions, parameterizable	
• Digital input with time stamp — Number, max.	Yes 4
• Counter — Number, max.	Yes 3
• Counter for incremental encoder — Number, max.	Yes 1
• Digital input with oversampling — Number, max.	Yes 4
• HW enable for digital input — Number, max.	Yes 1
• HW enable for digital output — Number, max.	Yes 3
Input voltage	
• 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
Input current	
• for signal "1", typ.	2.5 mA
Input delay (for rated value of input voltage)	
• Minimum pulse width for program reactions for standard inputs	3 µs for parameterization "none"
— 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
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 — Number, max.	Yes 6
• PWM output — Number, max.	Yes 6
• Digital output with oversampling — Number, max.	Yes 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 kΩ
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

<ul style="list-style-type: none"> • for signal "1" permissible range, max. • for signal "1" minimum load current • for signal "0" residual current, max. 	0.6 A; 0.12 A with High Speed output, observe derating 2 mA 0.5 mA
Output delay with resistive load	
<ul style="list-style-type: none"> • "0" to "1", max. • "1" to "0", max. 	1 µs; With High Speed output, 5 µs with Standard output 1 µs; With High Speed output, 6 µs with Standard output
Switching frequency	
<ul style="list-style-type: none"> • with resistive load, max. • on lamp load, max. 	10 kHz 10 Hz
Total current of the outputs	
<ul style="list-style-type: none"> • Current per module, max. 	3.5 A; Observe derating
Cable length	
<ul style="list-style-type: none"> • shielded, max. • unshielded, max. 	1 000 m; depending on load and cable quality 600 m; depending on load and cable quality
Encoder	
Connectable encoders	
<ul style="list-style-type: none"> • Incremental encoder (asymmetrical) • 24 V initiator • 2-wire sensor — permissible quiescent current (2-wire sensor), max. 	Yes Yes Yes 1.5 mA
Encoder signals, incremental encoder (asymmetrical)	
<ul style="list-style-type: none"> • Input voltage • Input frequency, max. • Counting frequency, max. • Cable length, shielded, max. • Incremental encoder with A/B tracks, 90° phase offset • pulse encoder 	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
Encoder signal 24 V	
<ul style="list-style-type: none"> — permissible voltage at input, min. — permissible voltage at input, max. 	-30 V 30 V
Interface types	
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • Diagnostic alarm 	Yes
Diagnoses	
<ul style="list-style-type: none"> • Monitoring the supply voltage • Short-circuit 	Yes Yes
Diagnostics indication LED	
<ul style="list-style-type: none"> • Monitoring of the supply voltage (PWR-LED) • Channel status display • for module diagnostics 	Yes; green PWR LED Yes Yes; green/red DIAG LED
Integrated Functions	
Counter	Yes
<ul style="list-style-type: none"> • Number of counters • Counting frequency, max. 	3 200 kHz; with quadruple evaluation
Counting functions	
<ul style="list-style-type: none"> • Continuous counting 	Yes
Potential separation	
Potential separation channels	
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. 	<ul style="list-style-type: none"> -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"> • Installation altitude above sea level, max. 	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 