6ES7552-1AA00-0AB0





SIMATIC S7-1500, TM Timer DIDQ 16x 24 V time-controlled digital inputs and outputs max. 8 DI, 16 DQ of which max. 16 with time stamp, Count, PWM, oversampling

General information	
Product type designation	TM Timer DIDQ 16x24V
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
Installation type/mounting	
Rail mounting	Yes; S7-1500 mounting rail
Supply voltage	
Load voltage 1L+	
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
Load voltage 2L+	
 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	
from load voltage 1L+ (without load), max.	40 mA; without load
from load voltage 2L+ (without load), max.	30 mA; without load
Encoder supply	
Number of outputs	8; max. depending on parameterization
24 V encoder supply	
• 24 V	Yes; L+ (-0.8 V)
 Short-circuit protection 	Yes
 Output current, max. 	1.2 A; Total current of all encoders / channels, max. 0.5 A per output
Power	
Power available from the backplane bus	1.3 W
Power loss	
Power loss, typ.	5 W
Address area	
Address space per module	
• Inputs	44 byte
Outputs	74 byte
Digital inputs	

Ingroups of New Year	Number of digital innut-	Or many demanding on page
Digital inputs, parameterizable (Pes Input obrarecteristic curve in accordance with IEC 61131, type 3 Digital input with time stamp (Pes Input obrarecteristic curve in accordance with IEC 61131, type 3 Digital input with time stamp (Pes Input obtained input obrarecteristic Curve in accordance with IEC 61131, Pes Input obrarecteristic Curve in accordance (Pes Input obrarecteristic Pes Input obrarecter	Number of digital inputs	8; max. depending on parameterization
Input characteristic curve in accordance with IEC 61131, type 3		
Digital input with time stamp		
Digital input with time stamp Number, max. Sourcer Number, max. Counter Number, max. Digital input with oversampling Number, max. Digital input with oversampling Number, max. Digital input with oversampling Number, max. HW enable for digital input Number, max. HW enable for digital output Number, max. Digital output vitage Tyes of input voltage Tyes of input voltage Tye of or signal "1" Tye of or signal "1" Tye Tor signal twith for program reactions Tor standard inputs Description Tye of input voltage Tyes in one / 0.05 / 0.1 / 0.4 / 0.8 ms Tye of digital output Type of digital output Type of input voltage Type of	·	Yes
- Number, max. • Counter	Digital input functions, parameterizable	
Counter Number, max. Counter for incremental encoder Number, max. Digital input with oversampling Nes Number, max. HW enable for digital input Number, max. HW enable for digital output Number of input voltage Type of input voltage at input, min. Number of input voltage at input, will num voltage Minimum pulse width for program reactions For standard inputs Parameterizable Number of input voltage Yes; none / 0.05 / 0.1 / 0.4 / 0.8 ms 4 µs; for parameterization "none" Type of digital output Number of digital outputs Type of digital outputs In your spending on sensor, cable quality and rate of change Our mumber of digital outputs In groups of Number of digital outputs Number of digital outputs In groups of Number of digital outputs Number of digital outputs Number of digital outputs Number of digital outputs Number of digital output outputs Number of digital	 Digital input with time stamp 	Yes
- Number, max. • Counter for incremental encoder - Number, max. • Digital input with oversampling - Number, max. • Digital input with oversampling - Number, max. • HW enable for digital input - Number, max. • HW enable for digital output - Number, max. • HW enable for digital output - Number, max. • HW enable for digital output - Number, max. • Input voltage • Type of input voltage • Rated value (DC) • for signal "1" • of r signal "2" • permissible voltage at input, min. • permissible voltage at input, min. • permissible voltage at input, max. • for signal "1", typ. • for signal "1", typ. • for signal "1", typ. - Parameterizable • Minimum pulse width for program reactions for standard inputs - parameterizable - at "0" to "1", min at "1" to "0", min. Cable length • shielded, max. • unshielded, max. • unshielded, max. 1 000 m; Depending on sensor, cable quality and rate of change • shielded, max. • unshielded, max. 1 000 m; Depending on sensor, cable quality and rate of change Digital outputs - Transistor Number of digital output Number of digital output • shielded, max. 1 000 m; Depending on sensor, cable quality and rate of change Digital outputs - In Transistor Number of digital output Number of digital output • shielded, max. 1 000 m; Depending on sensor, cable quality and rate of change Digital outputs • in groups of Current-shinking Yes Oligital output shinking Yes Digital output shinking Yes Digital output shinking yes Possible output shinke stamp Number, max. 16	— Number, max.	8
Counter for incremental encoder Number, max. Digital input with oversampling Number, max. HW enable for digital input Number, max. HW enable for digital input Number, max. HW enable for digital output Number max. HY es Nor signal "0" So y -5	Counter	Yes
- Number, max. • Digital input with oversampling - Number, max. • HW enable for digital input - Number, max. • HW enable for digital output - Number, max. • HW enable for digital output - Number, max. • HW enable for digital output - Number, max. • HW enable for digital output - Number, max. • Type of input voltage • Type of signal "0" - 5 +5 V • for signal "1" + 111 to +30V • permissible voltage at input, min. • permissible voltage at input, max. 1 put 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 - parameterizable - at "0" to "1", min at "1" to "0", min at "1" to "0", min. Cable length • shielded, max. • unshielded, max. • for permissible - in groups of - Rate of the program transistor Number of digital output Transistor Number of digital output Ves Short-circuit protection - Response threshold, typ Limitation of inductive shutdown voltage to - Os Northermal - Possibilat output functions, parameterizable - Ontrolling a digital input - Digital output functions, parameterizable - Digital output functions, param	— Number, max.	4
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- Number, max. ● HW enable for digital input - Number, max. ● HW enable for digital output - Number, max. ● HW enable for digital output - Number, max. ■ Number of digital outputs ■ Number of digital output outputs ■ Number of digital output outputs ■ Number outputs ■ Num	Digital input with oversampling	Yes
HW enable for digital input - Number, max. HW enable for digital output - Number, max. HW enable for digital output - Number, max. Input voltage • Type of input voltage • Rated value (DC) • Rated value (DC) • For signal "0" • For signal "1" • permissible voltage at input, min. • permissible voltage at input, max. • or signal "1", typ. • For signal "1", typ. 2.5 mA Input delay (for rated value of input voltage) • Minimum pulse width for program reactions for standard inputs - parameterizable - at "0" to "1", min. - at "1" to "0", min. Cable length • Shielded, max. • unshielded, max. • unshielde		8
- Number, max. • HW enable for digital output - Number, max. Input voltage • Type of input voltage • Rated value (DC) • for signal "0" • for signal "1" • permissible voltage at input, min. • permissible voltage at input, max. Input current • for signal "1", typ. Input delay (for rated value of input voltage) • Minimum pulse width for program reactions for standard inputs - parameterizable - at "0" to "1", min at "1" to "0", min. Cable length • shielded, max. • unshielded, max. • unshielded, max. • unshielded, max. • our digital outputs Type of digital outputs • in groups of Current-sinking - Current-sourcing Digital outputs, parameterizable - Response threshold, typ. Limitation of inductive shutdrown voltage to - Only Old Ves - Only Wes - Store output for the shut voltage output - Ves - Short-circuit protection - Response threshold, typ. Limitation of inductive shutdrown voltage to - Only Digital output functions, parameterizable - Response threshold, typ. Limitation of inductive shutdrown voltage to - Only Digital output functions, parameterizable - Only Digital output functions, parameterizable - Digital output functions, parameterizable - Digital output functions, parameterizable - Only Digital output functions, parameterizable - Digital output functions, parameterizable		Yes
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Input voltage • Type of input voltage • Rated value (DC) • Rated value (DC) • For signal "0" • For signal "1" • permissible voltage at input, min. • permissible voltage at input, max. • for signal "1", typ. • S.5 mA Input durerent • for signal "1", typ. • Minimum pulse width for program reactions for standard inputs - parameterizable - at "0" to "1", min at "1" to "0", min. - shielded, max. • unshielded, max. • unshielded, max. • one digital output Type of digital outputs Type of digital outputs - parameterizable Number of digital outputs • fin groups of Current-sinking - Current-sinking - Yes; With High Speed output Current-sourcing - Yes Short-circuit protection - Response threshold, typ. Limitation of inductive shutdown voltage to - 0.8 V Controlling a digital input Pigital output tintentions, parameterizable - Oligital output functions, parameterizable		
Input voltage • Type of input voltage • Rated value (DC) • for signal "0" • for signal "1" • for signal "1" • permissible voltage at input, min. • permissible voltage at input, min. • permissible voltage at input, max. 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 — parameterizable — at "0" to "1", min. — at "1" to "0", min. 4 µs; for parameterization "none" Cable length • shielded, max. • on my Depending on sensor, cable quality and rate of change • unshielded, max. 1 000 m; Depending on sensor, cable quality and rate of change • On m; Depending on parameterization Number of digital output Transistor Number of digital output Transistor Number of digital output Ourrent-sourcing Yes; With High Speed output Ves; With High Speed output Ves; Short-circuit protection • Response threshold, typ. Limitation of inductive shutdown voltage to Output output functions, parameterizable • Digital outputs functions, parameterizable • Digital output with time stamp Yes Digital output functions, parameterizable • Digital output with time stamp Yes Digital output with time stamp Yes Number, max.		
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Rated value (DC) • for signal "0" • for signal "1" • permissible voltage at input, min. • permissible voltage at input, max. 100 V; 5 V continuous, -30 V brief reverse polarity protection • permissible voltage at input, max. 2.5 mA Input current • for signal "1", typ. Input delay (for rated value of input voltage) • Minimum pulse width for program reactions for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", min. — at "1" to "0", min. Cable length • shielded, max. • unshielded, max. • unshielded, max. • unshielded, max. 1 000 m; Depending on sensor, cable quality and rate of change of digital outputs Type of digital outputs Type of digital outputs Number of digital outputs • in groups of Current-sinking Current-sinking Yes; With High Speed output Yes Short-circuit protection • Response threshold, typ. Limitation of inductive shutdown voltage to • Digital outputs, parameterizable • Digital outputs parameterizable • Digital output thin time stamp — Number, max. 1 output the time stamp 2 dyes 2 dye ontinuous, -30 V brief reverse polarity protection 5 output stance of voicinations, parameterizable • Digital output with time stamp 2 dyes 1 output functions, parameterizable • Digital output with time stamp 9 output with time stamp 1 output with time stamp	·	DC
• for signal "0" • for signal "1" • permissible voltage at input, min. • permissible voltage at input, max. • permissible voltage at input, max. • permissible voltage at input, max. • for signal "1", typ. • Minimum pulse width for program reactions for standard inputs — parameterizable — at "0" to "1", min. — at "1" to "0", min. — at "1" to "0", min. • shielded, max. • unshielded, max. • unshielded, max. • unshielded, max. • for parameterization "none" Type of digital output Transistor Number of digital outputs • in groups of Current-sourcing — yes Digital outputs, parameterizable • Response threshold, typ. Limitation of inductive shutdown voltage to • Digital output, min. • Response threshold, typ. Limitation of inductive shutdown voltage to • Digital output, max. • Digital output, max. • Digital output tim time stamp — Number, max. 16		
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Input current • for signal "1", typ. Input delay (for rated value of input voltage) • Minimum pulse width for program reactions for standard inputs — parameterizable — at "0" to "1", min. — at "1" to "0", min. Cable length • shielded, max. • unshielded, max. • unshielded, max. 1 000 m; Depending on sensor, cable quality and rate of change 600 m; Depending on sensor, cable quality and rate of change 900 m; Depending on parameterization and rate of change 16; max. depending on parameterization and rate of change 16; max. depending on parameterization and rate of change 17 yes; With High Speed output 16; max. depending on parameterization and rate of change 17 yes; With High Speed output 17 yes; With High Speed output 18 yes; With High Speed output 19 yes Digital outputs, parameterizable 19 yes Short-circuit protection 10 yes; electronic/thermal 10 yes; electronic/thermal 10 yes ele		
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Input delay (for rated value of input voltage) • Minimum pulse width for program reactions for standard inputs	·	2.5 m/s
 Minimum pulse width for program reactions for standard inputs — parameterizable	3.	2.0 IIIA
for standard inputs	·	
- parameterizable - at "0" to "1", min at "1" to "0", min. 4 μs; for parameterization "none" 4 μs; for parameterization "none" Cable length • shielded, max. • unshielded, max. 1 000 m; Depending on sensor, cable quality and rate of change 600 m; Depending on sensor, cable quality and rate of change Digital outputs Type of digital output Number of digital outputs • in groups of Current-sinking Current-sinking Current-sourcing Digital outputs, parameterizable Short-circuit protection • Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Pes Digital output with time stamp - Number, max. Yes Number, max.		3 µs for parameterization "none"
- at "0" to "1", min. - at "1" to "0", min. - at "1" to "0", min. Cable length • shielded, max. • unshielded, max. • unshielded, max. 1 000 m; Depending on sensor, cable quality and rate of change 600 m; Depending on sensor, cable quality and rate of change Digital outputs Transistor Number of digital outputs • in groups of Current-sinking Yes; With High Speed output Current-sourcing Digital outputs, parameterizable Short-circuit protection • Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Pes Digital output with time stamp - Number, max. 1 000 m; Depending on sensor, cable quality and rate of change 600 m; Depending on sensor, cable quality and rate of change 16 000 m; Depending on	·	
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Type of digital output Transistor Number of digital outputs in groups of Current-sinking Current-sourcing Digital outputs, parameterizable Short-circuit protection Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Digital output functions, parameterizable Pes Digital output functions, parameterizable Pes Digital output with time stamp Number, max. Pyes Transistor Transistor 16; max. depending on parameterization Pyes; With High Speed output Yes Yes 1.7 A with Standard output, 0.5 A with High Speed output Yes Digital output functions, parameterizable		
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Current-sourcing Digital outputs, parameterizable Short-circuit protection Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Digital output functions, parameterizable Digital output with time stamp Number, max. Yes Yes Yes 1.7 A with Standard output, 0.5 A with High Speed output -0.8 V Yes Digital output functions, parameterizable Yes 16	• in groups of	8
Digital outputs, parameterizable Short-circuit protection Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Digital output functions, parameterizable Digital output with time stamp Number, max. Yes Yes Yes Yes 1.7 A with Standard output, 0.5 A with High Speed output 1.7 A with Standard output, 0.5 A with High Speed output Yes 1.8 V Yes 1.9 V Yes Digital output functions, parameterizable	Current-sinking	Yes; With High Speed output
Short-circuit protection Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Digital output functions, parameterizable Digital output with time stamp Number, max. Yes; electronic/thermal 1.7 A with Standard output, 0.5 A with High Speed output Ves Ves Position output, 0.5 A with High Speed output Ves Ves 1.7 A with Standard output, 0.5 A with High Speed output Ves 1.8 V Yes 1.9 V Yes 1.9 V The standard output, 0.5 A with High Speed output Ves 1.9 V The standard output, 0.5 A with High Speed output Ves 1.9 V The standard output, 0.5 A with High Speed output 1.9 V The standard output, 0.5 A with High Speed output Ves 1.9 V The standard output, 0.5 A with High Speed output Ves 1.9 V The standard output, 0.5 A with High Speed output Ves 1.0 V The standard output, 0.5 A with High Speed output Ves 1.0 V The standard output, 0.5 A with High Speed output Ves 1.7 A with Standard output, 0.5 A with High Speed output 1.8 V The standard output, 0.5 A with High Speed output 1.9 V The standard output, 0.5 A with High Speed output 1.0 V The standard output, 0.5 A with High Speed output 1.7 A with Standard output, 0.5 A with High Speed output 1.8 V The standard output, 0.5 A with High Speed output 1.9 V The standard output, 0.5 A with High Speed output 1.7 A with Standard output, 0.5 A with High Speed output 1.8 V The standard output, 0.5 A with High Speed output 1.8 V The standard output, 0.5 A with High Speed output 1.8 V The standard output, 0.5 A with High Speed output 1.9 V The standard output, 0.5 A with High Speed output 1.0 V The standard output, 0.5 A with High Speed output 1.7 A with Standard output, 0.5 A with High Speed output 1.8 V The standard output, 0.5 A with High Speed output 1.8 V The standard output, 0.5 A with High Speed output 1.8 V The standard output, 0.5 A with High Speed output 1.8 V The standard output, 0.5 A with High Speed output 1.8 V The standard output, 0.5 A with High Speed o	Current-sourcing	Yes
● Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Digital output functions, parameterizable ● Digital output with time stamp — Number, max. 1.7 A with Standard output, 0.5 A with High Speed output Ves Yes 1.7 A with Standard output, 0.5 A with High Speed output Yes 1.8 V Yes 1.9 V Yes	Digital outputs, parameterizable	Yes
Limitation of inductive shutdown voltage to Controlling a digital input Yes Digital output functions, parameterizable • Digital output with time stamp — Number, max. 16	Short-circuit protection	Yes; electronic/thermal
Limitation of inductive shutdown voltage to Controlling a digital input Yes Digital output functions, parameterizable • Digital output with time stamp — Number, max. 16	 Response threshold, typ. 	1.7 A with Standard output, 0.5 A with High Speed output
Digital output functions, parameterizable ● Digital output with time stamp — Number, max. 16		
Digital output functions, parameterizable ● Digital output with time stamp — Number, max. 16		Yes
 Digital output with time stamp Number, max. 16 		
— Number, max.		Yes
		16
Pyvini output Yes	PWM output	Yes
— Number, max.	·	
Digital output with oversampling Yes		
— Number, max.		
Switching capacity of the outputs		
• with resistive load, max. 0.5 A; 0.1 A with High Speed output		0.5 A: 0.1 A with High Speed output
• on lamp load, max. • on lamp load, max. 5 W; 1 W with High Speed output	· · · · · · · · · · · · · · · · · · ·	
Load resistance range	·	o vi, i vi witii i iigii opeed output
● lower limit 48 Ω; 240 ohm with High Speed output	-	48 O: 240 ohm with High Speed output
• upper limit • upper limit 12 kΩ		
- apporting	- иррог шти	12 1122

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	23.2 V, L· (-0.0 V)
• 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 denating
for signal "1" minimum load current	2 mA
for signal "0" residual current, max.	0.5 mA
Output delay with resistive load	0.5 IIIA
• "0" to "1", max.	1 μs; With High Speed output, 5 μs with Standard output
• "1" to "0", max.	1 µs; With High Speed output, 6 µs with Standard output
Switching frequency	1 ps, with riigh speed output, o ps with standard output
with resistive load, max.	10 kHz
on lamp load, max.	10 Hz
Total current of the outputs	TOTIZ
Current per group, max.	4 A
1 0 1	
Current per module, max. Cable length	8 A; Observe derating
• shielded, max.	1 000 m; depending on load and cable quality
	1 000 m; depending on load and cable quality
• unshielded, max.	600 m; depending on load and cable quality
Encoder	
Connectable encoders	V
Incremental encoder (asymmetrical)	Yes
• 24 V initiator	Yes
• 2-wire sensor	Yes
permissible quiescent current (2-wire sensor),	1.5 mA
max.	
Encoder signals, incremental encoder (asymmetrical)	24 V
Input fraguency may	50 kHz
Input frequency, max. Counting frequency, max.	
Counting frequency, max. Could be read to this ideal, may	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 	Yes
offset	
• 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	Yes
61131, type 3	
Isochronous mode	
Bus cycle time (TDP), min.	250 μs
Jitter, max.	1 µs
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Substitute values connectable	Yes
Alarms	
Diagnostic alarm	Yes
Diagnoses	
Monitoring the supply voltage	Yes
Short-circuit	Yes
Diagnostics indication LED	
• RUN LED	Yes; green LED
• ERROR LED	Yes; red LED
MAINT LED	Yes; Yellow LED
Monitoring of the supply voltage (PWR-LED)Channel status display	Yes; green LED Yes; green LED
Granner status display for channel diagnostics	Yes; red LED
■ IOI CHAIIITEI GIAGIIOSUCS	I CO, ICU LED

Integrated Functions	
Counter	Yes
 Number of counters 	4
Counting frequency, max.	200 kHz; with quadruple evaluation
Counting functions	
Continuous counting	Yes
Position detection	
 Incremental acquisition 	Yes
Potential separation	
Potential separation channels	
 between the channels and backplane bus 	Yes
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
 vertical installation, min. 	0°C
vertical installation, max.	40 °C; Observe derating
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP system manual
Decentralized operation	
to SIMATIC S7-1500	Yes
Dimensions	
Width	35 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	320 g
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