



Figure similar

SIMATIC S7-1500, TM timer DIDQ 24x24 V time-controlled digital inputs and outputs max. 8 DI, 16 DQ of which max. 24 with time stamp, counting, PWM, oversampling; for marine approvals see product information

General information	
Product type designation	TM Timer DIDQ 24x24V
Firmware version	V2.0
• FW update possible	Yes
Product function	
• I&M data	Yes; I&M0 to I&M3
• Isochronous mode	Yes
Engineering with	
• STEP 7 TIA Portal configurable/integrated from version	STEP 7 V19 with HSP or higher
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	
Current consumption, max.	40 mA; without load
from load voltage 1L+ (without load), max.	20 mA; without load
from load voltage 2L+ (without load), max.	20 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 consumption from the backplane bus	1.3 W
Power loss	
Power loss, typ.	5 W
Address area	
Address space per module	

• Inputs	45 byte; max. depending on parameterization
• Outputs	78 byte; max. depending on parameterization
Digital inputs	
Number of digital inputs	8; max. depending on parameterization
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.	8
• Counter	Yes
— Number, max.	4
• Counter for incremental encoder	Yes
— Number, max.	4
• Digital input with oversampling	Yes
— Number, max.	8
• HW enable for digital input	Yes
— Number, max.	4
• HW enable for digital output	Yes
— Number, max.	4
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	3 µs; for parameterization "none"
for standard inputs	
— Parameterizable	Yes; none / 0.05 / 0.1 / 0.4 / 0.8 ms
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	16; max. depending on parameterization
• in groups of	8
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
Controlling a digital input	Yes
Digital output functions, parameterizable	
• Digital output with time stamp	Yes
— Number, max.	16
• PWM output	Yes
— Number, max.	16
• Digital output with oversampling	Yes
— Number, max.	16
Switching capacity of the outputs	
• with resistive load, max.	0.5 A; 0.1 A 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 • for signal "0", max. • for signal "1", min.	DC 1 V; With High Speed output 23.2 V; L+ (-0.8 V)
Output current	
• for signal "1" rated value • for signal "1" permissible range, max. • for signal "1" minimum load current • for signal "0" residual current, max.	0.5 A; 0.1 A with High Speed output, observe derating 0.6 A; 0.12 A with High Speed output, observe derating 2 mA 0.5 mA
Output delay with resistive load	
• "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	
• with resistive load, max.	10 kHz
Total current of the outputs	
• Current per group, max. • Current per module, max.	4 A 8 A; Observe derating
Cable length	
• shielded, max. • unshielded, max.	1 000 m; depending on load and cable quality 600 m; depending on load and cable quality
Encoder	
Connectable encoders	
• 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)	
• 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
Interface types	
• Input characteristic curve in accordance with IEC 61131, type 3	Yes
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 • short-circuit	Yes Yes
Diagnostics indication LED	
• RUN LED • ERROR LED • MAINT LED • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics	Yes; green LED Yes; red LED Yes; Yellow LED Yes; green LED Yes; green LED Yes; red LED
Integrated Functions	
Counter	Yes
• Number of counters • Counting frequency, max.	4 200 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)
Security	
signed firmware update	Yes
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	-30 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	-30 °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
Absolute humidity	
• dew point, min.	-60 °C; suitable for dry room applications
Decentralized operation	
to SIMATIC S7-1500	Yes
Dimensions	
Width	35 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	320 g
Classifications	

	Version	Classification
eClass	16	27-24-22-05
eClass	14	27-24-22-05
eClass	12	27-24-22-05
eClass	9.1	27-24-22-05
eClass	9	27-24-22-05
eClass	8	27-24-22-05
eClass	7.1	27-24-22-05
eClass	6	27-24-22-05
ETIM	10	EC001422
ETIM	9	EC001422
ETIM	8	EC001422
ETIM	7	EC001422

Approvals / Certificates

General Product Approval

[Miscellaneous](#)

[Manufacturer Declaration](#)



General Product Approval	EMV	For use in hazardous locations
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[China RoHS](#)



[CCC-Ex](#)

[FM](#)

For use in hazardous locations	Maritime application
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[Type Examination Certificate](#)



[Miscellaneous](#)

[CCC-Ex](#)



Maritime application



[NK / Nippon Kaiji Kyokai](#)



[CCS \(China Classification Society\)](#)

Maritime application	Environment
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[KR \(Korean Register of Shipping\)](#)

[China RoHS](#)

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