



SIMATIC ET 200SP, TM count 1x 24 V Counter module, 1 channel for 24 V incremental encoder or pulse encoder, 3 DI, 2 DQ Suitable for BU type A0, packing quantity: 1 unit,

General information	
Product type designation	TM Count 1x24V
Firmware version	V2.0
<ul style="list-style-type: none"> FW update possible 	Yes
usable BaseUnits	BU type A0
Color code for module-specific color identification plate	CC00
Product function	
<ul style="list-style-type: none"> I&M data 	Yes; I&M0 to I&M3
<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 	STEP 7 V15 SP1 or higher
<ul style="list-style-type: none"> STEP 7 configurable/integrated from version 	V5.6 and higher
<ul style="list-style-type: none"> PROFIBUS from GSD version/GSD revision 	One GSD file each, Revision 3 and 5 and higher
<ul style="list-style-type: none"> PROFINET from GSD version/GSD revision 	GSDML V2.34
Supply voltage	
Rated value (DC)	24 V
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
Input current	
Current consumption, max.	60 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; electronic/thermal
<ul style="list-style-type: none"> Output current, max. 	300 mA
Power loss	
Power loss, typ.	1 W
Address area	
Address space per module	
<ul style="list-style-type: none"> Inputs 	16 byte; 4 bytes in Fast mode
<ul style="list-style-type: none"> Outputs 	12 byte; 4 bytes for Motion Control, 0 bytes for Fast mode
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	3
Digital inputs, parameterizable	Yes
Input characteristic curve in accordance with IEC 61131, type 3	Yes
Digital input functions, parameterizable	
• Gate start/stop	Yes
• Capture	Yes
• Synchronization	Yes
• Freely usable digital input	Yes
• Probe	Yes
Input voltage	
• 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)	
for standard inputs	
— parameterizable	Yes; none / 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms
for technological functions	
— parameterizable	Yes
Cable length	
• shielded, max.	1 000 m
• unshielded, max.	600 m
Digital outputs	
Type of digital output	Transistor
Number of digital outputs	2
Digital outputs, parameterizable	Yes
Short-circuit protection	Yes; electronic/thermal
• Response threshold, typ.	1 A
Limitation of inductive shutdown voltage to	L+ (-53 V)
Controlling a digital input	Yes
Digital output functions, parameterizable	
• Switching tripped by comparison values	Yes
• Freely usable digital output	Yes
Switching capacity of the outputs	
• with resistive load, max.	0.5 A; Per digital output
• on lamp load, max.	5 W
Load resistance range	
• lower limit	48 Ω
• upper limit	12 kΩ
Output voltage	
• for signal "1", min.	23.2 V; L+ (-0.8 V)
Output current	
• for signal "1" rated value	0.5 A; Per digital output
• for signal "1" permissible range, max.	0.6 A; Per digital output
• 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.	50 μs
• "1" to "0", max.	50 μs
Switching frequency	
• with resistive load, max.	10 kHz
• with inductive load, max.	0.5 Hz; Acc. to IEC 60947-5-1, DC-13; observe derating curve
• on lamp load, max.	10 Hz
Total current of the outputs	
• Current per module, max.	1 A
Cable length	
• shielded, max.	1 000 m
• unshielded, max.	600 m

Encoder	
Connectable encoders	
<ul style="list-style-type: none"> • 2-wire sensor — permissible quiescent current (2-wire sensor), max. 	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. • Signal filter, parameterizable • Incremental encoder with A/B tracks, 90° phase offset • Incremental encoder with A/B tracks, 90° phase offset and zero track • pulse encoder • pulse encoder with direction • pulse encoder with one impulse signal per count direction 	24 V 200 kHz 800 kHz; with quadruple evaluation 600 m; depending on input frequency, encoder and cable quality; max. 50 m at 200 kHz Yes Yes Yes Yes Yes Yes Yes
Interface types	
<ul style="list-style-type: none"> • Source/sink input • Input characteristic curve in accordance with IEC 61131, type 3 	Yes Yes
Interfaces	
Number of RS 485 interfaces	0
Interrupts/diagnostics/status information	
Substitute values connectable	Yes; Parameterizable
Alarms	
<ul style="list-style-type: none"> • Diagnostic alarm • Hardware interrupt 	Yes Yes
Diagnoses	
<ul style="list-style-type: none"> • Monitoring the supply voltage • Wire-break • Short-circuit • A/B transition error at incremental encoder • Group error 	Yes Yes Yes Yes Yes
Diagnostics indication LED	
<ul style="list-style-type: none"> • Monitoring of the supply voltage (PWR-LED) • Channel status display • for module diagnostics • Status indicator forward counting (green) • Status indicator backward counting (green) 	Yes; green PWR LED Yes; green LED Yes; green/red DIAG LED Yes Yes
Integrated Functions	
Counter	Yes
<ul style="list-style-type: none"> • Number of counters • Counting frequency, max. 	1 800 kHz; with quadruple evaluation
Fast mode	Yes
Counting functions	
<ul style="list-style-type: none"> • Can be used with TO High_Speed_Counter • Continuous counting • Counter response parameterizable • Hardware gate via digital input • Software gate • Event-controlled stop • Synchronization via digital input • Counting range, parameterizable 	Yes Yes Yes Yes Yes Yes Yes
Comparator	
<ul style="list-style-type: none"> — Number of comparators — Direction dependency — Can be changed from user program 	2 Yes Yes
Position detection	
<ul style="list-style-type: none"> • Incremental acquisition • Suitable for S7-1500 Motion Control 	Yes Yes

Measuring functions	
• Measuring time, parameterizable	Yes
• Dynamic measurement period adjustment	Yes
• Number of thresholds, parameterizable	2
Measuring range	
— Frequency measurement, min.	0.04 Hz
— Frequency measurement, max.	800 kHz
— Cycle duration measurement, min.	1.25 µs
— Cycle duration measurement, max.	25 s
Accuracy	
— Frequency measurement	100 ppm; depending on measuring interval and signal evaluation
— Cycle duration measurement	100 ppm; depending on measuring interval and signal evaluation
— Velocity measurement	100 ppm; depending on measuring interval and signal evaluation

Potential separation

Potential separation channels	
• between the channels and backplane bus	Yes

Isolation

Isolation tested with	707 V DC (type test)
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Standards, approvals, certificates

Suitable for safety functions	No
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Ambient conditions

Ambient temperature during operation	
• horizontal installation, min.	-30 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	-30 °C
• vertical installation, max.	50 °C
• ceiling installation, min.	-30 °C
• ceiling installation, max.	50 °C
• floor installation, min.	-30 °C
• floor installation, max.	50 °C

Altitude during operation relating to sea level

• Installation altitude above sea level, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
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Decentralized operation

to SIMATIC S7-300	Yes
to SIMATIC S7-400	Yes
to SIMATIC S7-1200	Yes
to SIMATIC S7-1500	Yes
to standard PROFIBUS master	Yes
to standard PROFINET controller	Yes

Dimensions

Width	15 mm
Height	73 mm
Depth	58 mm

Weights

Weight, approx.	45 g
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Classifications

	Version	Classification
eClass	14	27-24-26-05
eClass	12	27-24-26-05
eClass	9.1	27-24-26-05
eClass	9	27-24-26-05
eClass	8	27-24-26-05
eClass	7.1	27-24-26-05
eClass	6	27-24-26-05
ETIM	9	EC001601
ETIM	8	EC001601
ETIM	7	EC001601
IDEA	4	3567

Approvals / Certificates

General Product Approval



[Miscellaneous](#)

[Manufacturer Declaration](#)



For use in hazardous locations



[EM](#)

[CCC-Ex](#)



[Miscellaneous](#)

Maritime application



[NK / Nippon Kaiji Kyokai](#)



Maritime application



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



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