MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

SIEMENS

6ES7138-6AA00-0BA0

TM COUNT 1X24V COUNTER MODULE

Used with the applicable SIMATIC ET 200SP configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Siemens ET 200SP TM Count 1x24V Manual, Technical Specifications

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Digital input functions, configurable	
Gate start/stop	Yes
Capture	Yes
Synchronization	Yes
Freely assignable digital input	Yes
Input voltage	
Rated value, DC	24 V
For signal "0"	-30 V to +5 V
For signal "1"	+11 V to +30 V
Permitted voltage at input, min.	-30 V
Permitted voltage at input, max.	30 V
Input current	
for signal "1", typ.	2.5 mA
Input delay (at rated value of input voltage)	
For standard inputs	
• Configurable	Yes; none / 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms
• at "0" to "1", min.	6 µs; with parameter assignment "none"
• at "1" to "0", min.	6 µs; with parameter assignment "none"
For counters/technological functions	
• Configurable	Yes
Cable length	
Cable length shielded, max.	1000 m
Cable length unshielded, max.	600 m
Digital outputs	
Type of digital output	Transistor
Number of outputs	2
Digital outputs, configurable	Yes
Short-circuit protection	Yes; electronic/thermal
• Response threshold, typ.	1 A
Limiting of inductive shutdown voltage to	L+ (-33 V)
Control of a digital input	Yes
Digital output functions, configurable	
Switch at comparison values	Yes
Freely assignable digital output	Yes
Output switching capacity	
With resistive load, max.	0.5 A; per digital output
With lamp load, max.	5 W
Load resistance range	
Low limit	48 Ω
High limit	12 kΩ

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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; to IEC 947-5-1, DC-13; observe derating curve
With lamp load, max.	10 Hz
Total current of outputs	
Max. current per module	1 A
Cable length	
Cable length shielded, max.	1000 m
Cable length unshielded, max.	600 m
Encoders	
Supported encoders	
2-wire sensor	Yes
• Permitted quiescent current (2-wire sensor), max.	1.5 mA
Encoder signals, incremental encoders (asymmetrical)	
Input voltage	24 V
Input frequency, max.	200 kHz
Counting frequency, max.	800 kHz; with quadruple evaluation
Signal filter, configurable	Yes
Cable length shielded, max.	600 m; depends on input frequency, encoder and cable quality; max. 50 m with 200 kHz
Incremental encoder with A/B tracks, phase-shifted by 90°	Yes
Incremental encoder with A/B tracks, phase-shifted by 90°, and zero track	Yes
Pulse encoder	Yes
Pulse encoder with direction	Yes
Pulse encoder with one pulse signal per count direction	Yes
24 V encoder signal	
• Permitted voltage at input, min.	-30 V
• Permitted voltage at input, max.	30 V
Interface hardware	
Input characteristics to IEC 61131, Type 3	Yes
Sinking/sourcing input	Yes

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Isochronous mode	
Isochronous mode (application synchronized until terminal)	Yes
Bus cycle time (TDP), min.	250 µs
Interrupts/diagnostics/status information	
Activation of substitute values	Yes; configurable
Interrupts	
Diagnostic interrupt	Yes
Hardware interrupt	Yes
Diagnostic messages	
Monitoring of supply voltage	Yes
Wire break	Yes
Short circuit	Yes
A/B transition error with incremental encoder	Yes
Group error	Yes
LED diagnostics display	
Monitoring of supply voltage	Yes, green PWR LED
For module diagnostics	Yes; green / red DIAG LED
Count down status display (green)	Yes
Count up status display (green)	Yes
Integrated functions	
Number of counters	1
Counting frequency (counters), max.	800 kHz; with quadruple evaluation
Counting functions	
Can be used with TO High_Speed_Counter	Yes
Continuous counting	Yes
Counter response configurable	Yes
Hardware gate by means of digital input	Yes
Software gate	Yes
Event-triggered stop	Yes
Synchronization by means of digital input	Yes
Counting range, configurable	Yes
Comparator	
• Number of comparators	2
• Direction-dependent	Yes
• Can be changed from user program	Yes
Position detection	
Suitable for S7-1500 Motion Control	Yes