

SIPLUS S7-1500 TM Count 2x24V -40...+70 °C with conformal coating based on 6ES7550-1AA00-0AB0 . Counter module, 2 channels for 24 V incremental or encoder 3 DI, 2 DQ per channel



Figure similar

General information	
Product type designation	TM Count 2x24V
Product function	
• I&M data	Yes
Installation type/mounting	
Rail mounting	Yes; S7-1500 mounting rail
Supply voltage	
Load voltage L+	
• 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
Input current	
Current consumption, max.	75 mA; without load
Encoder supply	

Number of outputs	1; A common 24V encoder supply for both channels
<b>24 V encoder supply</b>	
<ul style="list-style-type: none"> <li>• 24 V</li> <li>• Short-circuit protection</li> <li>• Output current, max.</li> </ul>	Yes; L+ (-0.8 V) Yes 1 A; Total current of all encoders / channels; > +60 °C max. total current 0.5 A
<b>Power</b>	
Power available from the backplane bus	1.3 W
<b>Power loss</b>	
Power loss, typ.	4 W
<b>Address area</b>	
Occupied address area	
<ul style="list-style-type: none"> <li>• Inputs</li> <li>• Outputs</li> </ul>	16 byte; Per channel 12 byte; per channel; 4 bytes for Motion Control
<b>Digital inputs</b>	
Number of digital inputs	6; 3 per channel
Digital inputs, parameterizable	Yes
Input characteristic curve in accordance with IEC 61131, type 3	Yes
Digital input functions, parameterizable	
<ul style="list-style-type: none"> <li>• Gate start/stop</li> <li>• Capture</li> <li>• Synchronization</li> <li>• Freely usable digital input</li> </ul>	Yes Yes Yes Yes
<b>Input voltage</b>	
<ul style="list-style-type: none"> <li>• Rated value (DC)</li> <li>• for signal "0"</li> <li>• for signal "1"</li> <li>• permissible voltage at input, min.</li> <li>• permissible voltage at input, max.</li> </ul>	24 V -30 to +5V +11 to +30V -30 V 30 V
<b>Input current</b>	
<ul style="list-style-type: none"> <li>• for signal "1", typ.</li> </ul>	2.5 mA
<b>Input delay (for rated value of input voltage)</b>	
for standard inputs	
<ul style="list-style-type: none"> <li>— parameterizable</li> <li>— at "0" to "1", min.</li> <li>— at "1" to "0", min.</li> </ul>	Yes; none / 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms 6 µs; for parameterization "none" 6 µs; for parameterization "none"
for counter/technological functions	
<ul style="list-style-type: none"> <li>— parameterizable</li> </ul>	Yes
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>• shielded, max.</li> </ul>	1 000 m

- unshielded, max.

600 m

## Digital outputs

Type of digital output	Transistor
Number of digital outputs	4; 2 per channel
Digital outputs, parameterizable	Yes
Short-circuit protection	
<ul style="list-style-type: none"> <li>• Response threshold, typ.</li> </ul>	1 A
Limitation of inductive shutdown voltage to	L+ (-33 V)
Controlling a digital input	Yes
Digital output functions, parameterizable	
<ul style="list-style-type: none"> <li>• Switching tripped by comparison values</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Freely usable digital output</li> </ul>	Yes
Switching capacity of the outputs	
<ul style="list-style-type: none"> <li>• with resistive load, max.</li> </ul>	0.5 A; Per digital output
<ul style="list-style-type: none"> <li>• on lamp load, max.</li> </ul>	5 W
Load resistance range	
<ul style="list-style-type: none"> <li>• lower limit</li> </ul>	48 Ω
<ul style="list-style-type: none"> <li>• upper limit</li> </ul>	12 kΩ
Output voltage	
<ul style="list-style-type: none"> <li>• for signal "1", min.</li> </ul>	23.2 V; L+ (-0.8 V)
Output current	
<ul style="list-style-type: none"> <li>• for signal "1" rated value</li> </ul>	0.5 A; Per digital output
<ul style="list-style-type: none"> <li>• for signal "1" permissible range, max.</li> </ul>	0.6 A; Per digital output
<ul style="list-style-type: none"> <li>• for signal "1" minimum load current</li> </ul>	2 mA
<ul style="list-style-type: none"> <li>• for signal "0" residual current, max.</li> </ul>	0.5 mA
Output delay with resistive load	
<ul style="list-style-type: none"> <li>• "0" to "1", max.</li> </ul>	50 μs
<ul style="list-style-type: none"> <li>• "1" to "0", max.</li> </ul>	50 μs
Switching frequency	
<ul style="list-style-type: none"> <li>• with resistive load, max.</li> </ul>	10 kHz
<ul style="list-style-type: none"> <li>• with inductive load, max.</li> </ul>	0.5 Hz; Acc. to IEC 60947-5-1, DC-13; observe derating curve
<ul style="list-style-type: none"> <li>• on lamp load, max.</li> </ul>	10 Hz
Total current of the outputs	
<ul style="list-style-type: none"> <li>• Current per module, max.</li> </ul>	2 A; > +60 °C max. total current of outputs 1 A
Cable length	
<ul style="list-style-type: none"> <li>• shielded, max.</li> </ul>	1 000 m
<ul style="list-style-type: none"> <li>• unshielded, max.</li> </ul>	600 m
Encoder	
Connectable encoders	
<ul style="list-style-type: none"> <li>• 2-wire sensor</li> </ul>	Yes

— permissible quiescent current (2-wire sensor), max.	1.5 mA
<b>Encoder signals, incremental encoder (asymmetrical)</b>	
• Input voltage	24 V
• Input frequency, max.	200 kHz
• Counting frequency, max.	800 kHz; with quadruple evaluation
• Cable length, shielded, max.	600 m; depending on input frequency, encoder and cable quality; max. 50 m at 200 kHz
• Signal filter, parameterizable	Yes
• Incremental encoder with A/B tracks, 90° phase offset	Yes
• Incremental encoder with A/B tracks, 90° phase offset and zero track	Yes
• Pulse encoder	Yes
• Pulse encoder with direction	Yes
• Pulse encoder with one impulse signal per count direction	Yes
<b>Encoder signal 24 V</b>	
— permissible voltage at input, min.	-30 V
— permissible voltage at input, max.	30 V
<b>Interface types</b>	
• Source/sink input	Yes
• Input characteristic curve in accordance with IEC 61131, type 3	Yes
<b>Isochronous mode</b>	
Isochronous operation (application synchronized up to terminal)	Yes
Filtering and processing time (TCI), min.	130 µs
Bus cycle time (TDP), min.	250 µs
<b>Interrupts/diagnostics/status information</b>	
<b>Alarms</b>	
• Diagnostic alarm	Yes
• Hardware interrupt	Yes
<b>Diagnostic messages</b>	
• Monitoring the supply voltage	Yes
• Wire-break	Yes
• Short-circuit	Yes
• A/B transition error at incremental encoder	Yes
<b>Diagnostics indication LED</b>	
• RUN LED	Yes; Green LED
• ERROR LED	Yes; Red LED
• MAINT LED	Yes; yellow LED

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|--|----------------|
| • Monitoring of the supply voltage (PWR-LED) | Yes; Green LED |
| • Channel status display                     | Yes; Green LED |
| • for channel diagnostics                    | Yes; Red LED   |
| • Status indicator backward counting (green) | Yes            |
| • Status indicator forward counting (green)  | Yes            |

## Integrated Functions

Number of counters	2
Counting frequency (counter) max.	800 kHz; with quadruple evaluation
<b>Counting functions</b>	
• Can be used with TO High_Speed_Counter	Yes
• Continuous counting	Yes
• Counter response parameterizable	Yes
• Hardware gate via digital input	Yes
• Software gate	Yes
• Event-controlled stop	Yes
• Synchronization via digital input	Yes
• Counting range, parameterizable	Yes
<b>Comparator</b>	
— Number of comparators	2; Per channel
— Direction dependency	Yes
— Can be changed from user program	Yes
<b>Position detection</b>	
• Suitable for S7-1500 Motion Control	Yes
<b>Measuring functions</b>	
• Measuring time, parameterizable	Yes
• Dynamic measurement period adjustment	Yes
• Number of thresholds, parameterizable	2
<b>Measuring range</b>	
— Frequency measurement, min.	0.04 Hz
— Frequency measurement, max.	800 kHz
— Cycle duration measurement, min.	1.25 µs
— Cycle duration measurement, max.	25 s
<b>Accuracy</b>	
— 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
<b>Potential separation</b>	
<b>Potential separation channels</b>	
• between the channels	No
• between the channels and backplane bus	Yes
• Between the channels and load voltage L+	No

<b>Permissible potential difference</b>	
between different circuits	75 V DC/60 V AC (base isolation)
<b>Isolation</b>	
Isolation tested with	707 V DC (type test)
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
<ul style="list-style-type: none"> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> </ul>	<p>-40 °C; = Tmin; Startup @ -25 °C</p> <p>70 °C; = Tmax; note derating for inductive loads; &gt; +60 °C total current of the encoder supply max. 0.5 A, total current of the outputs max. 1 A</p> <p>-40 °C; = Tmin; Startup @ -25 °C</p> <p>40 °C; Please note derating for inductive loads</p>
<b>Altitude during operation relating to sea level</b>	
<ul style="list-style-type: none"> <li>Installation altitude above sea level, max.</li> <li>Ambient air temperature-barometric pressure-altitude</li> </ul>	<p>5 000 m</p> <p>Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax - 20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)</p>
<b>Relative humidity</b>	
<ul style="list-style-type: none"> <li>With condensation, tested in accordance with IEC 60068-2-38, max.</li> </ul>	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
<b>Resistance</b>	
<b>Coolants and lubricants</b>	
— Resistant to commercially available coolants and lubricants	Yes
<b>Use in stationary industrial systems</b>	
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
— to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
<b>Use on ships/at sea</b>	
— to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
— to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
<b>from supply voltage 1L+</b>	
— Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!
<b>Decentralized operation</b>	

to SIMATIC S7-1500	Yes
to standard PROFINET controller	Yes
<b>Dimensions</b>	
Width	35 mm
Height	147 mm
Depth	129 mm
<b>Weights</b>	
Weight, approx.	250 g
<b>last modified:</b>	05/18/2018