



Figure similar

SIPLUS S7-1500 TM count 2x24 V based on 6ES7550-1AA00-0AB0 with conformal coating, -40...+70 °C, start up -25 °C, counter module, 2 channels for 24 V incremental encoder or pulse generator 3 DI, 2 DQ per channel

General information	
Product type designation	TM Count 2x24V
Product function	
• I&M data	Yes
• Isochronous mode	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
24 V encoder supply	
• 24 V	Yes; L+ (-0.8 V)
• Short-circuit protection	Yes
• Output current, max.	1 A; Total current of all encoders / channels; > +60 °C max. total current 0.5 A
Power	
Power available from the backplane bus	1.3 W
Power loss	
Power loss, typ.	4 W
Address area	
Address space per module	
• Inputs	16 byte; Per channel
• Outputs	12 byte; per channel; 4 bytes for Motion Control
Digital inputs	
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	
• Gate start/stop	Yes
• Capture	Yes
• Synchronization	Yes
• Freely usable digital input	Yes
Input voltage	

<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 +5 V +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	
— parameterizable	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; for parameterization "none"
— at "1" to "0", min.	6 µs; for parameterization "none"
for technological functions	
— parameterizable	Yes
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>shielded, max.</li> <li>unshielded, max.</li> </ul>	1 000 m 600 m
<b>Digital outputs</b>	
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> <li>Freely usable digital output</li> </ul>	Yes Yes
Switching capacity of the outputs	
<ul style="list-style-type: none"> <li>with resistive load, max.</li> <li>on lamp load, max.</li> </ul>	0.5 A; Per digital output 5 W
Load resistance range	
<ul style="list-style-type: none"> <li>lower limit</li> <li>upper limit</li> </ul>	48 Ω 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> <li>for signal "1" permissible range, max.</li> <li>for signal "1" minimum load current</li> <li>for signal "0" residual current, max.</li> </ul>	0.5 A; Per digital output 0.6 A; Per digital output 2 mA 0.5 mA
Output delay with resistive load	
<ul style="list-style-type: none"> <li>"0" to "1", max.</li> <li>"1" to "0", max.</li> </ul>	50 µs 50 µs
Switching frequency	
<ul style="list-style-type: none"> <li>with resistive load, max.</li> <li>with inductive load, max.</li> <li>on lamp load, max.</li> </ul>	10 kHz 0.5 Hz; Acc. to IEC 60947-5-1, DC-13; observe derating curve 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> <li>unshielded, max.</li> </ul>	1 000 m 600 m
<b>Encoder</b>	
Connectable encoders	
<ul style="list-style-type: none"> <li>2-wire sensor</li> <li>— permissible quiescent current (2-wire sensor), max.</li> </ul>	Yes 1.5 mA
Encoder signals, incremental encoder (asymmetrical)	
<ul style="list-style-type: none"> <li>Input voltage</li> <li>Input frequency, max.</li> <li>Counting frequency, max.</li> </ul>	24 V 200 kHz 800 kHz; with quadruple evaluation

<ul style="list-style-type: none"> <li>• Cable length, shielded, max.</li> </ul>	600 m; depending on input frequency, encoder and cable quality; max. 50 m at 200 kHz
<ul style="list-style-type: none"> <li>• Signal filter, parameterizable</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Incremental encoder with A/B tracks, 90° phase offset</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Incremental encoder with A/B tracks, 90° phase offset and zero track</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• pulse encoder</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• pulse encoder with direction</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• pulse encoder with one impulse signal per count direction</li> </ul>	Yes
<b>Interface types</b>	
<ul style="list-style-type: none"> <li>• Source/sink input</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Input characteristic curve in accordance with IEC 61131, type 3</li> </ul>	Yes
<b>Isochronous mode</b>	
Filtering and processing time (TCI), min.	130 µs
Bus cycle time (TDP), min.	250 µs
<b>Interrupts/diagnostics/status information</b>	
<b>Alarms</b>	
<ul style="list-style-type: none"> <li>• Diagnostic alarm</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Hardware interrupt</li> </ul>	Yes
<b>Diagnoses</b>	
<ul style="list-style-type: none"> <li>• Monitoring the supply voltage</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Wire-break</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Short-circuit</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• A/B transition error at incremental encoder</li> </ul>	Yes
<b>Diagnostics indication LED</b>	
<ul style="list-style-type: none"> <li>• RUN LED</li> </ul>	Yes; green LED
<ul style="list-style-type: none"> <li>• ERROR LED</li> </ul>	Yes; red LED
<ul style="list-style-type: none"> <li>• MAINT LED</li> </ul>	Yes; Yellow LED
<ul style="list-style-type: none"> <li>• Monitoring of the supply voltage (PWR-LED)</li> </ul>	Yes; green LED
<ul style="list-style-type: none"> <li>• Channel status display</li> </ul>	Yes; green LED
<ul style="list-style-type: none"> <li>• for channel diagnostics</li> </ul>	Yes; red LED
<ul style="list-style-type: none"> <li>• Status indicator forward counting (green)</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Status indicator backward counting (green)</li> </ul>	Yes
<b>Integrated Functions</b>	
<b>Counter</b>	
<ul style="list-style-type: none"> <li>• Number of counters</li> </ul>	2
<ul style="list-style-type: none"> <li>• Counting frequency, max.</li> </ul>	800 kHz; with quadruple evaluation
<b>Counting functions</b>	
<ul style="list-style-type: none"> <li>• Can be used with TO High_Speed_Counter</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Continuous counting</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Counter response parameterizable</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Hardware gate via digital input</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Software gate</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Event-controlled stop</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Synchronization via digital input</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Counting range, parameterizable</li> </ul>	Yes
<b>Comparator</b>	
<ul style="list-style-type: none"> <li>— Number of comparators</li> </ul>	2; Per channel
<ul style="list-style-type: none"> <li>— Direction dependency</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— Can be changed from user program</li> </ul>	Yes
<b>Position detection</b>	
<ul style="list-style-type: none"> <li>• Incremental acquisition</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Suitable for S7-1500 Motion Control</li> </ul>	Yes
<b>Measuring functions</b>	
<ul style="list-style-type: none"> <li>• Measuring time, parameterizable</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Dynamic measurement period adjustment</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Number of thresholds, parameterizable</li> </ul>	2
<b>Measuring range</b>	
<ul style="list-style-type: none"> <li>— Frequency measurement, min.</li> </ul>	0.04 Hz
<ul style="list-style-type: none"> <li>— Frequency measurement, max.</li> </ul>	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>Isolation</b>	
Isolation tested with	707 V DC (type test)
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
• horizontal installation, min.	-40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C
• horizontal installation, max.	70 °C; = Tmax; note derating for inductive loads; > +60 °C total current of the encoder supply max. 0.5 A, total current of the outputs max. 1 A
• vertical installation, min.	-40 °C; = Tmin; Startup @ -25 °C
• vertical installation, max.	40 °C; Please note derating for inductive loads
<b>Ambient temperature during storage/transportation</b>	
• min.	-40 °C
• max.	70 °C
<b>Altitude during operation relating to sea level</b>	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	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)
<b>Relative humidity</b>	
• With condensation, tested in accordance with IEC 60068-2-38, max.	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; Incl. diesel and oil droplets in the air
<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>Usage in industrial process technology</b>	
— Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)
— Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
<b>Remark</b>	
— Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!
<b>Conformal coating</b>	
• Coatings for printed circuit board assemblies acc. to EN 61086	Yes; Class 2 for high reliability
• Protection against fouling acc. to EN 60664-3	Yes; Type 1 protection
• Military testing according to MIL-I-46058C, Amendment 7	Yes; Discoloration of coating possible during service life
• Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-	Yes; Conformal coating, Class A

CC-830A

**Decentralized operation**

to SIMATIC S7-1500	Yes
to standard PROFINET controller	Yes

**Dimensions**

Width	35 mm
Height	147 mm
Depth	129 mm

**Weights**

Weight, approx.	250 g
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**last modified:** 9/20/2021 