## SIEMENS

## Data sheet

## 6ES7550-1AA00-0AB0



SIMATIC S7-1500, TM count 2x24 V counter module, 2 channels for 24 V incremental or encoder 3 DI, 2 DQ per channel

Product type designation       TM Count 2x24V         Firmware version       V1.3         • FW update possible       Yes         Product function       Isochronous mode         • Isochronous mode       Yes         Engineering with       • STEP 7 TIA Portal configurable/integrated from version       V12 (FW V1.0) V15 (FW V1.3)/V12 (FW V1.0), V13 (FW V1.1)         • ROFIBUS from GSD version/GSD revision       GSD Revision 5       V2.3 / -         Installation type/mounting       Pres: S7-1500 mounting rail       Supply voltage         Load voltage L+       •       At V         • Reverse polarity protection       Yes       Yes         Input current       Current consumption, max.       75 mA; without load         Encoder supply       1; A common 24V encoder supply for both channels       24 V         • Stort-circuit protection       Yes       Yes         Power oscillater role outputs       1; A common 24V encoder supply for both channels       24 V         • Address space per module       1.3 W       Power loss         Power loss       13 W       Power loss       1.3 W         Power loss       16 byte; per channel       12 byte; per channel         • Logital inputs       16 byte; per channel       12 byte; per channel         • Digital in	General information	
• FW update possible     Yes       Product function		TM Count 2x24V
Product function         • I&M data         • Isochronous mode         • Isochronous mode         • STEP 7 TIA Portal configurable/integrated from version         • STEP 7 TIA Portal configurable/integrated from version         • PROFIBUS from GSD version/GSD revision         • PROFIBUS from GSD version/GSD revision         • PROFINET from GSD version/GSD revision         V2.3 / -         Installation type/mounting         Rail mounting         Supply voltage         Load voltage L+         • Rated value (DC)         • permissible range, lower limit (DC)         • Reverse polarity protection         Yees         Input current         Current consumption, max.         To doubuts         1; A common 24V encoder supply for both channels         24 V         • Short-circuit protection         Yees         • Output current, max.         • Address area         Address area         Address area         Address area         Address space per module         • Inputs	Firmware version	V1.3
• I&M data     Yes; I&M0 to I&M3       • Isochronous mode     Yes       Engineering with     • STEP 7 TIA Portal configurable/integrated from version     V12 (FW V1.0) V15 (FW V1.3)/V12 (FW V1.0), V13 (FW V1.1)       • PROFIBUS from GSD version/GSD revision     GSD Revision 5       • PROFIBUS from GSD version/GSD revision     V2.3 / -       Installation type/mounting     Yes; S7-1500 mounting rail       Supply voltage     -       Load voltage L+     •       • Rated value (DC)     24 V       • permissible range, lower limit (DC)     28 V       • permissible range, upper limit (DC)     28 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     Yes; L+ (-0.8 V)       • Short-circuit protection     Yes; L+ (-0.8 V)       • Quer toss, typ.     4 W       Address area     -       Address area     - </td <td>• FW update possible</td> <td>Yes</td>	• FW update possible	Yes
• Isochronous mode     Yes       Engineering with	Product function	
Engineering with	• I&M data	Yes; I&M0 to I&M3
• STEP 7 TIA Portal configurable/integrated from version       V12 (FW V1.0) V15 (FW V1.0), V13 (FW V1.1)         • PROFIBUS from GSD version/GSD revision       GSD Revision 5         • PROFINET from GSD version/GSD revision       V2.3 / -         Installation type/mounting       Version         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, lower limit (DC)       28.8 V         • Reverse polarity protection       Yes         Input current       Current consumption, max.         Current consumption, max.       75 mA; without load         Encoder supply       Yes; L+ (-0.8 V)         • Short-circuit protection       Yes; L+ (-0.8 V)         • Output current, max.       1 A; total current of all encoders/channels         Power loss       1.3 W         Power loss       1.3 W         Power loss       4 W         Address space per module       16 byte; Per channel         • loputs       12 byte; per channel; 4 bytes for Motion Control         Digital inputs       6; 3 per channel; 4 bytes for Motion Control	Isochronous mode	Yes
version     GSD Revision 5          • PROFIBUS from GSD version/GSD revision     V2.3 /-        Installation type/mounting     V2.3 /-        Rail mounting     Yes; S7-1500 mounting rail       Supply voltage         Load voltage L+ <ul> <li>Rated value (DC)</li> <li>permissible range, lower limit (DC)</li> <li>19.2 V</li> <li>permissible range, upper limit (DC)</li> <li>28.8 V</li> <li>Reverse polarity protection</li> <li>Yes</li> </ul> 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     Yes; L+ (-0.8 V)            • Short-circuit protection           Yes             Power loss             • Output current, max.         1 A; total current of all encoders/channels           Power loss             Power loss             Power loss             Power loss, typ.         4 W           Address space per module <ul> <li>Outputs</li> <li>12 byte; per channel; 4 bytes for Motion Control</li> </ul> <td< td=""><td>Engineering with</td><td></td></td<>	Engineering with	
• PROFINET from GSD version/GSD revision       V2.3 / -         Installation type/mounting       Rail 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       -         Value noder supply       -         Value noder supply       -         • 24 V       ecoder supply         • 24 V       recoder supply         • 24 V       recoder supply         • 24 V       Yes; L+ (-0.8 V)         • Short-circuit protection       Yes         • Output current, max.       1 A; total current of all encoders/channels         Power       -         Power available from the backplane bus       1.3 W         Power loss, typ.       4 W         Address space per module       16 byte; Per channel         • Outputs       12 byte; per channel; 4 bytes for Motion Control	5 S	V12 (FW V1.0) V15 (FW V1.3)/V12 (FW V1.0), V13 (FW V1.1)
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.         Current consumption, max.       75 mA; without load         Encoder supply       Number of outputs         24 V encoder supply       1; A common 24V encoder supply for both channels         24 V encoder supply       • 24 V         • Short-circuit protection       Yes; L+ (-0.8 V)         • Short-circuit protection       Yes; L+ (-0.8 V)         • Output current, max.       1 A; total current of all encoders/channels         Power available from the backplane bus       1.3 W         Power loss       Power loss, typ.         Power loss       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       6; 3 per channel	<ul> <li>PROFIBUS from GSD version/GSD revision</li> </ul>	GSD Revision 5
Rail mounting       Yes; S7-1500 mounting rail         Supply voltage         Load voltage L+         • Rated value (DC)       24 V         • permissible range, lower limit (DC)       28.8 V         • permissible range, upper limit (DC)       28.8 V         • Reverse polarity protection       Yes         Input current       Current consumption, max.         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         Power available from the backplane bus       1.3 W         Power loss       Power loss         Power loss       4 W         Address space per module       16 byte; Per channel         • Inputs       16 byte; Per channel         • Outputs       12 byte; per channel; 4 bytes for Motion Control         Digital inputs       6; 3 per channel	<ul> <li>PROFINET from GSD version/GSD revision</li> </ul>	V2.3 / -
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         24 V encoder supply         • 24 V         • Short-circuit protection         Yes; L+ (-0.8 V)         • Short-circuit protection         Yes         • Output current, max.         1 A; total current of all encoders/channels         Power         Power loss         Power loss, typ.         4 W         Address area         Address space per module         • Inputs         • Outputs         16 byte; Per channel         • Outputs         12 byte; per channel; 4 bytes for Motion Control	Installation type/mounting	
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.         Current consumption, max.       75 mA; without load         Encoder supply       1; A common 24V encoder supply for both channels         24 V encoder supply       42 V         • Short-circuit protection       Yes; L+ (-0.8 V)         • Short-circuit protection       Yes         • Output current, max.       1 A; total current of all encoders/channels         Power          Power loss       1.3 W         Power loss       1.3 W         Power loss       4 W         Address space per module          • Inputs       16 byte; Per channel         • Outputs       12 byte; per channel; 4 bytes for Motion Control         Digital inputs       6; 3 per channel	Rail mounting	Yes; S7-1500 mounting rail
• 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.         Current consumption, max.       75 mA; without load         Encoder supply       Number of outputs         24 V encoder supply       1; A common 24V encoder supply for both channels         24 V encoder supply       • 24 V         • 24 V       Yes; L+ (-0.8 V)         • Short-circuit protection       Yes         • Output current, max.       1 A; total current of all encoders/channels         Power       Power loss         Power loss, typ.       4 W         Address space per module       16 byte; Per channel         • Outputs       12 byte; per channel; 4 bytes for Motion Control         Digital inputs       6; 3 per channel	Supply voltage	
<ul> <li>permissible range, lower limit (DC)</li> <li>permissible range, upper limit (DC)</li> <li>28.8 V</li> <li>Reverse polarity protection</li> <li>Yes</li> </ul> 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 <ul> <li>Yes; L+ (-0.8 V)</li> <li>Short-circuit protection</li> <li>Yes</li> </ul> Power Power available from the backplane bus 1.3 W Power loss Power loss, typ. <ul> <li>Address space per module</li> <li>Outputs</li> <li>16 byte; Per channel</li> <li>Outputs</li> <li>12 byte; per channel; 4 bytes for Motion Control</li> </ul> Digital inputs <ul> <li>6; 3 per channel</li> </ul>	Load voltage L+	
<ul> <li>permissible range, upper limit (DC)</li> <li>28.8 V</li> <li>Reverse polarity protection</li> <li>Yes</li> <li>Input current</li> <li>Current consumption, max.</li> <li>75 mA; without load</li> <li>Encoder supply</li> <li>Number of outputs</li> <li>1; A common 24V encoder supply for both channels</li> <li>24 V encoder supply</li> <li>24 V</li> <li>Short-circuit protection</li> <li>Yes; L+ (-0.8 V)</li> <li>Short-circuit protection</li> <li>Yes</li> <li>Output current, max.</li> <li>1 A; total current of all encoders/channels</li> <li>Power</li> <li>Power loss</li> <li>Power loss, typ.</li> <li>Address space per module</li> <li>Inputs</li> <li>16 byte; Per channel</li> <li>Outputs</li> <li>12 byte; per channel; 4 bytes for Motion Control</li> <li>Digital inputs</li> <li>K aper channel</li> <li>Sper channel</li> </ul>	Rated value (DC)	24 V
• Reverse polarity protection       Yes         Input current       75 mA; without load         Current consumption, max.       75 mA; without load         Encoder supply       1; A common 24V encoder supply for both channels         24 V encoder supply       924 V         • 24 V       Yes; L+ (-0.8 V)         • Short-circuit protection       Yes         • Output current, max.       1 A; total current of all encoders/channels         Power       1.3 W         Power loss       1.3 W         Power loss       4 W         Address space per module       16 byte; Per channel         • Outputs       12 byte; per channel; 4 bytes for Motion Control         Digital inputs       6; 3 per channel	<ul> <li>permissible range, lower limit (DC)</li> </ul>	19.2 V
Input current         Current consumption, max.       75 mA; without load         Encoder supply       1; A common 24V encoder supply for both channels         24 V encoder supply       24 V         • 24 V       Yes; L+ (-0.8 V)         • Short-circuit protection       Yes         • Output current, max.       1 A; total current of all encoders/channels         Power       Power available from the backplane bus         Power loss       1.3 W         Power loss       4 W         Address space per module       16 byte; Per channel         • Outputs       12 byte; per channel; 4 bytes for Motion Control         Digital inputs       6; 3 per channel	<ul> <li>permissible range, upper limit (DC)</li> </ul>	28.8 V
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         • 24 V         • Short-circuit protection         • Output current, max.         Power         Power available from the backplane bus         1.3 W         Power loss         Power loss         Power loss         Address space per module         • Inputs         • Outputs         16 byte; Per channel         • Outputs         12 byte; per channel; 4 bytes for Motion Control         Digital inputs         Number of digital inputs	<ul> <li>Reverse polarity protection</li> </ul>	Yes
Encoder supply       1; A common 24V encoder supply for both channels         24 V encoder supply       24 V         • 24 V       Yes; L+ (-0.8 V)         • Short-circuit protection       Yes         • Output current, max.       1 A; total current of all encoders/channels         Power       Power available from the backplane bus         Power loss       1.3 W         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       6; 3 per channel	Input current	
Number of outputs       1; A common 24V encoder supply for both channels         24 V encoder supply       Yes; L+ (-0.8 V)         • Short-circuit protection       Yes         • Output current, max.       1 A; total current of all encoders/channels         Power       Power available from the backplane bus         Power loss       1.3 W         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       6; 3 per channel	Current consumption, max.	75 mA; without load
24 V encoder supply       Yes; L+ (-0.8 V)         • Short-circuit protection       Yes         • Output current, max.       1 A; total current of all encoders/channels         Power          Power available from the backplane bus       1.3 W         Power loss          Power loss, typ.       4 W         Address area          Address space per module       16 byte; Per channel         • Outputs       16 byte; per channel; 4 bytes for Motion Control         Digital inputs       6; 3 per channel         Number of digital inputs       6; 3 per channel	Encoder supply	
• 24 V       Yes; L+ (-0.8 V)         • Short-circuit protection       Yes         • Output current, max.       1 A; total current of all encoders/channels         Power       1.3 W         Power loss       1.3 W         Power loss, typ.       4 W         Address area       4 W         Address space per module       16 byte; Per channel         • Outputs       16 byte; per channel         • Outputs       12 byte; per channel; 4 bytes for Motion Control	Number of outputs	1; A common 24V encoder supply for both channels
• Short-circuit protectionYes• Output current, max.1 A; total current of all encoders/channelsPowerPower available from the backplane bus1.3 WPower loss1.3 WPower loss, typ.4 WAddress areaAddress space per module• Inputs16 byte; Per channel• Outputs12 byte; per channel; 4 bytes for Motion ControlDigital inputs6; 3 per channelNumber of digital inputs6; 3 per channel	24 V encoder supply	
• Output current, max.       1 A; total current of all encoders/channels         Power       Power available from the backplane bus       1.3 W         Power loss       1.3 W         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       6; 3 per channel	• 24 V	Yes; L+ (-0.8 V)
Power         Power available from the backplane bus       1.3 W         Power loss       4 W         Address area       4 W         Address space per module       16 byte; Per channel         • Inputs       16 byte; Per channel         • Outputs       12 byte; per channel; 4 bytes for Motion Control         Digital inputs       6; 3 per channel	<ul> <li>Short-circuit protection</li> </ul>	Yes
Power available from the backplane bus       1.3 W         Power loss       4 W         Address area       4 W         Address space per module       16 byte; Per channel         • Inputs       16 byte; Per channel         • Outputs       12 byte; per channel; 4 bytes for Motion Control         Digital inputs       6; 3 per channel	<ul> <li>Output current, max.</li> </ul>	1 A; total current of all encoders/channels
Power loss       4 W         Address area       4 W         Address space per module       6         • Inputs       16 byte; Per channel         • Outputs       16 byte; per channel; 4 bytes for Motion Control         Digital inputs       6; 3 per channel         Number of digital inputs       6; 3 per channel	Power	
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       6; 3 per channel	Power available from the backplane bus	1.3 W
Address area         Address space per module         • Inputs       16 byte; Per channel         • Outputs       12 byte; per channel; 4 bytes for Motion Control         Digital inputs       6; 3 per channel	Power loss	
Address space per module         • Inputs       16 byte; Per channel         • Outputs       12 byte; per channel; 4 bytes for Motion Control         Digital inputs       6; 3 per channel	Power loss, typ.	4 W
• Inputs       16 byte; Per channel         • Outputs       12 byte; per channel; 4 bytes for Motion Control         Digital inputs       6; 3 per channel	Address area	
Outputs 12 byte; per channel; 4 bytes for Motion Control Digital inputs Number of digital inputs 6; 3 per channel	Address space per module	
Digital inputs     6; 3 per channel	Inputs	16 byte; Per channel
Number of digital inputs         6; 3 per channel	Outputs	12 byte; per channel; 4 bytes for Motion Control
	Digital inputs	
Digital inputs, parameterizable Yes	Number of digital inputs	6; 3 per channel
	Digital inputs, parameterizable	Yes

Input characteristic curve in accordance with IEC 61131,	Yes
type 3	
Digital input functions, parameterizable	
Gate start/stop	Yes
Capture	Yes
<ul> <li>Synchronization</li> </ul>	Yes
<ul> <li>Freely usable digital input</li> </ul>	Yes
Input voltage	
<ul> <li>Type of input voltage</li> </ul>	DC
<ul> <li>Rated value (DC)</li> </ul>	24 V
● for signal "0"	-5 +5 V
● for signal "1"	+11 to +30V
<ul> <li>permissible voltage at input, min.</li> </ul>	-30 V; -5 V continuous, -30 V brief reverse polarity protection
<ul> <li>permissible voltage at input, max.</li> </ul>	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
— 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
Cable length	
<ul> <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	Yes; electronic/thermal
Response threshold, typ.	1A
Limitation of inductive shutdown voltage to	L+ (-33 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	(0.0
lower limit	48 Ω 12 kΩ
upper limit	12 kΩ
Output voltage	DC
Type of output voltage     for signal "4" min	
• for signal "1", min.	23.2 V; L+ (-0.8 V)
Output current	0.5 A: Per digital output
<ul> <li>for signal "1" rated value</li> <li>for signal "1" permissible range, max</li> </ul>	0.5 A; Per digital output
<ul> <li>for signal "1" permissible range, max.</li> <li>for signal "1" minimum load current</li> </ul>	0.6 A; Per digital output 2 mA
<ul> <li>for signal "1" minimum load current</li> <li>for signal "0" residual current, max</li> </ul>	2 mA 0.5 mA
for signal "0" residual current, max. Output delay with resistive load	
• "0" to "1", max.	50 µs
• 0 to 1, max. • "1" to "0", max.	50 μs 50 μs
Switching frequency	00 µ0
with resistive load, max.	10 kHz
with resistive load, max.	0.5 Hz; Acc. to IEC 60947-5-1, DC-13; observe derating curve
<ul> <li>on lamp load, max.</li> </ul>	10 Hz
Total current of the outputs	
Current per module, max.	2 A
o out on por modulo, max.	- / `

Cable length	
• shielded, max.	1 000 m
• unshielded, max.	600 m
Encoder	
Connectable encoders	
2-wire sensor	Yes
<ul> <li>permissible quiescent current (2-wire sensor), max.</li> </ul>	1.5 mA
Encoder signals, incremental encoder (asymmetrical)	
<ul> <li>Input voltage</li> </ul>	24 V
<ul> <li>Input frequency, max.</li> </ul>	200 kHz
<ul> <li>Counting frequency, max.</li> </ul>	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
<ul> <li>Signal filter, parameterizable</li> </ul>	Yes
<ul> <li>Incremental encoder with A/B tracks, 90° phase offset</li> </ul>	Yes
<ul> <li>Incremental encoder with A/B tracks, 90° phase offset and zero track</li> </ul>	Yes
pulse encoder	Yes
<ul> <li>pulse encoder with direction</li> </ul>	Yes
<ul> <li>pulse encoder with one impulse signal per count direction</li> </ul>	Yes
Encoder signal 24 V	
— permissible voltage at input, min.	-30 V
— permissible voltage at input, max.	30 V
Interface types	
Source/sink input	Yes
<ul> <li>Input characteristic curve in accordance with IEC 61131, type 3</li> </ul>	Yes
Isochronous mode	
	130 µs
Filtering and processing time (TCI), min. Bus cycle time (TDP), min.	130 µs 250 µs
Filtering and processing time (TCI), min.	
Filtering and processing time (TCI), min. Bus cycle time (TDP), min.	
Filtering and processing time (TCI), min. Bus cycle time (TDP), min. Interrupts/diagnostics/status information	
Filtering and processing time (TCI), min. Bus cycle time (TDP), min. Interrupts/diagnostics/status information Alarms	250 μs
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms         • Diagnostic alarm	250 μs Yes
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms         • Diagnostic alarm         • Hardware interrupt	250 μs Yes
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms         • Diagnostic alarm         • Hardware interrupt         Diagnoses	250 μs Yes Yes
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms         • Diagnostic alarm         • Hardware interrupt         Diagnoses         • Monitoring the supply voltage	250 μs Yes Yes Yes
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms         • Diagnostic alarm         • Hardware interrupt         Diagnoses         • Monitoring the supply voltage         • Wire-break	250 μs Yes Yes Yes Yes
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms         • Diagnostic alarm         • Hardware interrupt         Diagnoses         • Monitoring the supply voltage         • Wire-break         • Short-circuit	250 μs Yes Yes Yes Yes Yes
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms         • Diagnostic alarm         • Hardware interrupt         Diagnoses         • Monitoring the supply voltage         • Wire-break         • Short-circuit         • A/B transition error at incremental encoder	250 μs Yes Yes Yes Yes Yes Yes Yes
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms         • Diagnostic alarm         • Hardware interrupt         Diagnoses         • Monitoring the supply voltage         • Wire-break         • Short-circuit         • A/B transition error at incremental encoder         Diagnostics indication LED         • RUN LED         • ERROR LED	250 μs Yes Yes Yes Yes Yes Yes
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms         • Diagnostic alarm         • Hardware interrupt         Diagnoses         • Monitoring the supply voltage         • Wire-break         • Short-circuit         • A/B transition error at incremental encoder         Diagnostics indication LED         • RUN LED	250 μs Yes Yes Yes Yes Yes Yes Yes
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms         • Diagnostic alarm         • Hardware interrupt         Diagnoses         • Monitoring the supply voltage         • Wire-break         • Short-circuit         • A/B transition error at incremental encoder         Diagnostics indication LED         • RUN LED         • ERROR LED	250 μs Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms            • Diagnostic alarm         • Hardware interrupt          Diagnoses            • Monitoring the supply voltage         • Wire-break         • Short-circuit         • A/B transition error at incremental encoder          Diagnostics indication LED         • RUN LED         • ERROR LED         • MAINT LED	250 μs Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms         • Diagnostic alarm         • Hardware interrupt         Diagnoses         • Monitoring the supply voltage         • Wire-break         • Short-circuit         • A/B transition error at incremental encoder         Diagnostics indication LED         • RUN LED         • ERROR LED         • MAINT LED         • Monitoring of the supply voltage (PWR-LED)	250 μs Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms         • Diagnostic alarm         • Hardware interrupt         Diagnoses         • Monitoring the supply voltage         • Wire-break         • Short-circuit         • A/B transition error at incremental encoder         Diagnostics indication LED         • RUN LED         • ERROR LED         • Monitoring of the supply voltage (PWR-LED)         • Channel status display	250 μs Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms         • Diagnostic alarm         • Hardware interrupt         Diagnoses         • Monitoring the supply voltage         • Wire-break         • Short-circuit         • A/B transition error at incremental encoder         Diagnostics indication LED         • RUN LED         • ERROR LED         • Monitoring of the supply voltage (PWR-LED)         • Channel status display         • for channel diagnostics	250 μs Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms            Diagnostic alarm <ul> <li>Hardware interrupt</li> </ul> Diagnoses <li>Monitoring the supply voltage</li> <li>Wire-break</li> <li>Short-circuit</li> <li>A/B transition error at incremental encoder</li> Diagnostics indication LED       RUN LED         ERROR LED       MAINT LED         Monitoring of the supply voltage (PWR-LED)         Channel status display         for channel diagnostics         Status indicator forward counting (green)	250 μs Yes Yes Yes Yes Yes Yes Yes Ye
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms            Diagnostic alarm <ul> <li>Hardware interrupt</li> </ul> Diagnoses <li>Monitoring the supply voltage</li> <li>Wire-break</li> <li>Short-circuit</li> <li>A/B transition error at incremental encoder</li> Diagnostics indication LED       RUN LED         RUN LED       ERROR LED         Monitoring of the supply voltage (PWR-LED)         Channel status display         for channel diagnostics         Status indicator forward counting (green)         Status indicator backward counting (green)	250 μs Yes Yes Yes Yes Yes Yes Yes Ye
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms <ul> <li>Diagnostic alarm</li> <li>Hardware interrupt</li> </ul> Diagnoses <ul> <li>Monitoring the supply voltage</li> <li>Wire-break</li> <li>Short-circuit</li> <li>A/B transition error at incremental encoder</li> </ul> Diagnostics indication LED <ul> <li>RUN LED</li> <li>ERROR LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Channel status display</li> <li>for channel diagnostics</li> <li>Status indicator forward counting (green)</li> <li>Status indicator backward counting (green)</li> </ul>	250 μs Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms         • Diagnostic alarm         • Hardware interrupt         Diagnoses         • Monitoring the supply voltage         • Wire-break         • Short-circuit         • A/B transition error at incremental encoder         Diagnostics indication LED         • RUN LED         • ERROR LED         • Monitoring of the supply voltage (PWR-LED)         • Channel status display         • for channel diagnostics         • Status indicator forward counting (green)         • Status indicator backward counting (green)         • Status indicator backward counting (green)	250 μs Yes Yes Yes Yes Yes Yes Yes Ye
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms         • Diagnostic alarm         • Hardware interrupt         Diagnoses         • Monitoring the supply voltage         • Wire-break         • Short-circuit         • A/B transition error at incremental encoder         Diagnostics indication LED         • RUN LED         • ERROR LED         • Monitoring of the supply voltage (PWR-LED)         • Channel status display         • for channel diagnostics         • Status indicator forward counting (green)         • Status indicator backward counting (green)         • Integrated Functions         Counter         • Number of counters	250 μs Yes Yes Yes Yes Yes Yes Yes Ye
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms         • Diagnostic alarm         • Hardware interrupt         Diagnoses         • Monitoring the supply voltage         • Wire-break         • Short-circuit         • A/B transition error at incremental encoder         Diagnostics indication LED         • RUN LED         • ERROR LED         • Monitoring of the supply voltage (PWR-LED)         • Channel status display         • for channel diagnostics         • Status indicator forward counting (green)         • Status indicator backward counting (green)         • Status indicator backward counting (green)         • Counter         • Number of counters         • Counting frequency, max.         Counting functions	250 μs Yes Yes Yes Yes Yes Yes Yes Ye
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms <ul> <li>Diagnostic alarm</li> <li>Hardware interrupt</li> </ul> Diagnoses <ul> <li>Monitoring the supply voltage</li> <li>Wire-break</li> <li>Short-circuit</li> <li>A/B transition error at incremental encoder</li> </ul> Diagnostics indication LED       RUN LED <ul> <li>RUN LED</li> <li>ERROR LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Channel status display</li> <li>for channel diagnostics</li> <li>Status indicator forward counting (green)</li> <li>Status indicator backward counting (green)</li> <li>Status indicator backward counting (green)</li> </ul> Integrated Functions         Counter       Number of counters <ul> <li>Counting frequency, max.</li> </ul> Counting functions <ul> <li>Can be used with TO High_Speed_Counter</li> </ul>	250 μs Yes Yes Yes Yes Yes Yes Yes Ye
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms         • Diagnostic alarm         • Hardware interrupt         Diagnoses         • Monitoring the supply voltage         • Wire-break         • Short-circuit         • A/B transition error at incremental encoder         Diagnostics indication LED         • RUN LED         • ERROR LED         • Monitoring of the supply voltage (PWR-LED)         • Channel status display         • for channel diagnostics         • Status indicator forward counting (green)         • Status indicator backward counting (green)         • Status indicator backward counting (green)         • Counter         • Number of counters         • Counting functions         • Counting functions         • Can be used with TO High_Speed_Counter         • Continuous counting	250 μs Yes Yes Yes Yes Yes Yes Yes Ye
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms <ul> <li>Diagnostic alarm</li> <li>Hardware interrupt</li> </ul> Diagnoses <ul> <li>Monitoring the supply voltage</li> <li>Wire-break</li> <li>Short-circuit</li> <li>A/B transition error at incremental encoder</li> </ul> Diagnostics indication LED       RUN LED <ul> <li>RUN LED</li> <li>ERROR LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Channel status display</li> <li>for channel diagnostics</li> <li>Status indicator forward counting (green)</li> <li>Status indicator backward counting (green)</li> <li>Status indicator backward counting (green)</li> </ul> Integrated Functions         Counter       Number of counters <ul> <li>Counting frequency, max.</li> </ul> Counting functions <ul> <li>Can be used with TO High_Speed_Counter</li> </ul>	250 µs Yes Yes Yes Yes Yes Yes Yes Ye
Filtering and processing time (TCI), min.         Bus cycle time (TDP), min.         Interrupts/diagnostics/status information         Alarms <ul> <li>Diagnostic alarm</li> <li>Hardware interrupt</li> </ul> Diagnoses <ul> <li>Monitoring the supply voltage</li> <li>Wire-break</li> <li>Short-circuit</li> <li>A/B transition error at incremental encoder</li> </ul> Diagnostics indication LED       RUN LED <ul> <li>REROR LED</li> <li>Monitoring of the supply voltage (PWR-LED)</li> <li>Channel status display</li> <li>for channel diagnostics</li> <li>Status indicator forward counting (green)</li> <li>Status indicator backward counting (green)</li> <li>Status indicator backward counting (green)</li> </ul> Integrated Functions         Counter       Number of counters <ul> <li>Counting frequency, max.</li> </ul> Counting functions <ul> <li>Can be used with TO High_Speed_Counter</li> <li>Continuous counting</li> <li>Counter response parameterizable</li> </ul>	250 µs Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye

<ul> <li>Event-controlled stop</li> </ul>	Yes
Synchronization via digital input	Yes
Counting range, parameterizable	Yes
Comparator	165
— Number of comparators	2; Per channel
— Direction dependency	Yes
— Can be changed from user program	Yes
Position detection	163
Incremental acquisition	Yes
Suitable for S7-1500 Motion Control	Yes
Measuring functions	100
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	200
— 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	Too ppril, apportanty on modouring interval and orginal oralidation
Potential separation channels	
between the channels	No
<ul> <li>between the channels and backplane bus</li> </ul>	Yes
Between the channels and backplane bus	No
Isolation	
Isolation tested with	707 V DC (type test)
Ambient conditions	TOT V DC (type test)
Ambient conditions	
Ambient temperature during exerction	
Ambient temperature during operation	0.00
horizontal installation, min.	0 °C
<ul><li>horizontal installation, min.</li><li>horizontal installation, max.</li></ul>	60 °C; Please note derating for inductive loads
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> </ul>	60 °C; Please note derating for inductive loads 0 °C
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> </ul>	60 °C; Please note derating for inductive loads
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> </ul> Altitude during operation relating to sea level	60 °C; Please note derating for inductive loads 0 °C 40 °C; Please note derating for inductive loads
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> </ul>	60 °C; Please note derating for inductive loads 0 °C
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> </ul> Altitude during operation relating to sea level	60 °C; Please note derating for inductive loads 0 °C 40 °C; Please note derating for inductive loads 5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> </ul> Altitude during operation relating to sea level <ul> <li>Installation altitude above sea level, max.</li> </ul>	60 °C; Please note derating for inductive loads 0 °C 40 °C; Please note derating for inductive loads 5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> </ul> Altitude during operation relating to sea level <ul> <li>Installation altitude above sea level, max.</li> </ul> Decentralized operation	60 °C; Please note derating for inductive loads 0 °C 40 °C; Please note derating for inductive loads 5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP system manual
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> </ul> Altitude during operation relating to sea level <ul> <li>Installation altitude above sea level, max.</li> </ul> Decentralized operation <ul> <li>to SIMATIC S7-300</li> </ul>	60 °C; Please note derating for inductive loads 0 °C 40 °C; Please note derating for inductive loads 5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP system manual Yes
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> </ul> Decentralized operation <ul> <li>to SIMATIC S7-300</li> <li>to SIMATIC S7-400</li> </ul>	60 °C; Please note derating for inductive loads 0 °C 40 °C; Please note derating for inductive loads 5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP system manual Yes Yes
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> </ul> Altitude during operation relating to sea level <ul> <li>Installation altitude above sea level, max.</li> </ul> Decentralized operation <ul> <li>to SIMATIC S7-300</li> <li>to SIMATIC S7-400</li> <li>to SIMATIC S7-1200</li> </ul>	60 °C; Please note derating for inductive loads 0 °C 40 °C; Please note derating for inductive loads 5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP system manual Yes Yes Yes
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> </ul> Decentralized operation <ul> <li>to SIMATIC S7-300</li> <li>to SIMATIC S7-400</li> <li>to SIMATIC S7-1200</li> <li>to SIMATIC S7-1500</li> </ul>	60 °C; Please note derating for inductive loads 0 °C 40 °C; Please note derating for inductive loads 5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP system manual Yes Yes Yes Yes
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> <li>Altitude during operation relating to sea level         <ul> <li>Installation altitude above sea level, max.</li> </ul> </li> <li>Decentralized operation         <ul> <li>to SIMATIC S7-300</li> <li>to SIMATIC S7-1200</li> <li>to SIMATIC S7-1500</li> <li>to standard PROFIBUS master</li> </ul> </li> </ul>	60 °C; Please note derating for inductive loads 0 °C 40 °C; Please note derating for inductive loads 5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP system manual Yes Yes Yes Yes Yes Yes Yes Yes; FW V1.1 and higher
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> <li>Altitude during operation relating to sea level         <ul> <li>Installation altitude above sea level</li> <li>Installation altitude above sea level, max.</li> </ul> </li> <li>Decentralized operation         <ul> <li>to SIMATIC S7-300</li> <li>to SIMATIC S7-400</li> <li>to SIMATIC S7-1200</li> <li>to SIMATIC S7-1500</li> <li>to standard PROFIBUS master</li> <li>to standard PROFINET controller</li> </ul> </li> </ul>	60 °C; Please note derating for inductive loads 0 °C 40 °C; Please note derating for inductive loads 5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP system manual Yes Yes Yes Yes Yes Yes Yes Yes; FW V1.1 and higher
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> <li>Altitude during operation relating to sea level</li> <li>Installation altitude above sea level, max.</li> </ul> Decentralized operation <ul> <li>to SIMATIC S7-300</li> <li>to SIMATIC S7-400</li> <li>to SIMATIC S7-1200</li> <li>to SIMATIC S7-1500</li> <li>to standard PROFIBUS master</li> <li>to standard PROFINET controller</li> </ul>	60 °C; Please note derating for inductive loads         0 °C         40 °C; Please note derating for inductive loads         5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP system manual         Yes         Yes         Yes         Yes         Yes         Yes         Yes         Yes         Yes         Yes; FW V1.1 and higher         Yes
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> <li>Altitude during operation relating to sea level         <ul> <li>Installation altitude above sea level, max.</li> </ul> </li> <li>Decentralized operation         to SIMATIC S7-300         to SIMATIC S7-400         to SIMATIC S7-1200         to SIMATIC S7-1500         to standard PROFIBUS master         to standard PROFINET controller         </li></ul> <li>Dimensions         Width</li>	60 °C; Please note derating for inductive loads 0 °C 40 °C; Please note derating for inductive loads 5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP system manual Yes Yes Yes Yes Yes Yes Yes Yes Yes Source of the set
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> </ul> Altitude during operation relating to sea level <ul> <li>Installation altitude above sea level, max.</li> </ul> Decentralized operation <ul> <li>to SIMATIC S7-300</li> <li>to SIMATIC S7-400</li> <li>to SIMATIC S7-1200</li> <li>to SIMATIC S7-1500</li> <li>to standard PROFIBUS master</li> <li>to standard PROFINET controller</li> </ul> Dimensions Width <ul> <li>Height</li> <li>Depth</li> </ul>	60 °C; Please note derating for inductive loads 0 °C 40 °C; Please note derating for inductive loads 5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP system manual Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> <li>Altitude during operation relating to sea level         <ul> <li>Installation altitude above sea level</li> <li>Installation altitude above sea level, max.</li> </ul> </li> <li>Decentralized operation         <ul> <li>to SIMATIC S7-300</li> <li>to SIMATIC S7-400</li> <li>to SIMATIC S7-1200</li> <li>to SIMATIC S7-1500</li> <li>to standard PROFIBUS master</li> <li>to standard PROFINET controller</li> </ul> </li> <li>Dimensions         <ul> <li>Width</li> <li>Height</li> <li>Depth</li> <li>Weights</li> </ul> </li> </ul>	60 °C; Please note derating for inductive loads 0 °C 40 °C; Please note derating for inductive loads 5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP system manual Yes Yes Yes Yes Yes Yes Yes; FW V1.1 and higher Yes 35 mm 147 mm 129 mm
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> </ul> Altitude during operation relating to sea level <ul> <li>Installation altitude above sea level, max.</li> </ul> Decentralized operation <ul> <li>to SIMATIC S7-300</li> <li>to SIMATIC S7-400</li> <li>to SIMATIC S7-1200</li> <li>to SIMATIC S7-1500</li> <li>to standard PROFIBUS master</li> <li>to standard PROFINET controller</li> </ul> Dimensions Width <ul> <li>Height</li> <li>Depth</li> </ul>	60 °C; Please note derating for inductive loads 0 °C 40 °C; Please note derating for inductive loads 5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200MP system manual Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes