Data sheet

6ES7521-7BH00-0AB0



SIMATIC S7-1500, digital input module DI 16x24 V DC AUX; 16 channels in groups of 8; for 24 V encoder; sensor supply 24 V DC; input type 2 (IEC 61131); input delay parameterizable 0.05..20 ms; isochronous mode up to 250 μs ; integrated counting function up to 20 kHz; pulse stretching; chatter monitoring; signal inversion diagnostics; hardware interrupts: front connector (screw terminals or push-in) and, if applicable, order shield set separately

Product type designation	General information		
Firmware version	Product type designation	DI 16x24 V DC HS	
Product function Raw data	HW functional status	From FS01	
Product function i&M data	Firmware version	V1.0.0	
I &M data I schronous mode I schronous mode Prioritized startup Engineering with STEP 7 TIA Portal configurable/integrated from version STEP 7 Tour form GSD version/GSD revision PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision I provided the provided from version I provided from CSD version/GSD revision I provided from CSD version/GSD version/	FW update possible	Yes	
Isochronous mode Prioritized startup Engineering with STEP 7 TIA Portal configurable/integrated from version STEP 7 TIA Portal configurable/integrated from version STEP 7 ton figurable/integrated from version PROFIBUS from GSD version/GSD revision Press Pres	Product function		
Prioritized startup Engineering with • STEP 7 TIA Portal configurable/integrated from version • STEP 7 configurable/integrated from version • STEP 7 configurable/integrated from version • STEP 7 configurable/integrated from version • PROFIBUS from GSD version/GSD revision • PROFINET from GSD version/GSD revision • PROFINET from GSD version/GSD revision • PROFINET from GSD version/GSD revision • PROFINET from GSD version/GSD revision • PROFINET from GSD version/GSD revision • Pressure from GSD version/GSD version • Pressure from GSD version/GSD version • Pressur	● I&M data	Yes; I&M0 to I&M3	
Engineering with STEP 7 TIA Portal configurable/integrated from version STEP 7 configurable/integrated from version PROFIBUS from GSD version/GSD revision PROFIBUS from GSD version/GSD revision PROFIBUS from GSD version/GSD revision V2.3 /- Operating mode Ol Yes Counter Yes Oversampling Yes MSI Yes MSI Yes Supply voltage Rated value (DC) Permissible range, lower limit (DC) 19.2 V Permissible range, upper limit (DC) 28.8 V Reverse polarity protection Yes Current consumption, max. 550 mA Encoder supply Number of outputs 16; 2x 24 V DC Short-circuit protection Yes Short-circuit protection Yes 24 V encoder supply Output current, max. 150 mA; per group Output current, max. 150 mA; per group Output current, max. 300 mA Power Power loss Power loss Power loss, typ. 7 W Digital inputs	 Isochronous mode 	Yes	
STEP 7 TIA Portal configurable/integrated from version STEP 7 configurable/integrated from version PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision Press Discrepancy Pres Counter Pres Oversampling Pres MSI Pres Supply voltage Rated value (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC) Permissible range, upper limit (DC) Press Pres Current consumption, max Pres Encoder supply Number of outputs Short-circuit protection Pres Short-circuit protection Pres Power loss Power	Prioritized startup	Yes	
STEP 7 configurable/integrated from version PROFIBUS from GSD version/GSD revision V1.0 / V5.1 PROFIBUS from GSD version/GSD revision V2.3 /- Operating mode DI Yes Ounter Ves Oversampling MSI Yes MSI Rated value (DC) Permissible range, lower limit (DC) Permissible range, lower limit (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC) Permissible range, upper limit (DC) Permissible range of the version of the	Engineering with		
PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision PROFINET from GSD version/GSD revision V2.3 /- Operating mode Outline Counter Pes Oversampling Yes MSI Yes MSI Yes Supply voltage Rated value (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC) Pes Input current Current consumption, max. 550 mA Encoder supply Number of outputs Short-circuit protection Yes 24 V encoder supply 24 V Short-circuit protection Yes Yes 4 V encoder supply Output current, max. Short-circuit protection Pes Power proup allable from the backplane bus Power Power loss Power loss Power loss, typ. Power loss, typ. Poigtal inputs	 STEP 7 TIA Portal configurable/integrated from version 	STEP 7 V17 or higher	
PROFINET from GSD version/GSD revision Operating mode Outline Outline Oversampling Oversampli	 STEP 7 configurable/integrated from version 	V5.5 SP3 / -	
Operating mode • DI • Counter • Counter • Oversampling • MSI Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permis	 PROFIBUS from GSD version/GSD revision 	V1.0 / V5.1	
Our Persampling Yes Oversampling Yes MSI Yes Supply voltage 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 Current consumption, max. 550 mA Encoder supply Number of outputs 16; 2x 24 V DC Short-circuit protection Yes 24 V encoder supply 24 V Short-circuit protection Yes Output current, max. 150 mA; per group, electronic Output current, max. 150 mA; per group Output current, max. 300 mA Power Power available from the backplane bus Power loss Power loss Power loss, typ. 7 W Digital inputs	PROFINET from GSD version/GSD revision	V2.3 / -	
Counter Oversampling Yes MSI Yes MSI Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. 550 mA Encoder supply Number of outputs Short-circuit protection Yes 24 V Pes 24 V Pes Short-circuit protection Yes 24 V Pes Short-circuit protection Yes 25 Per group, electronic Output current, max. Output current per module, max. Fower Power available from the backplane bus Power loss Power loss, typ. Power loss, typ. Digital inputs	Operating mode		
Oversampling MSI MSI Yes Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Current consumption, max. 550 mA Encoder supply Number of outputs Short-circuit protection Yes 24 V encoder supply • 24 V Yes • Short-circuit protection Output current, max. • Output current per module, max. Power Power available from the backplane bus Power loss Power loss, typ. 7 W Digital inputs	• DI	Yes	
MSI Supply voltage Rated value (DC) Permissible range, lower limit (DC) Permissible range, upper limi	Counter	Yes	
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. 550 mA Encoder supply Number of outputs 16; 2x 24 V DC Short-circuit protection Yes 24 V encoder supply • 24 V • Short-circuit protection Yes; Per group, electronic • Output current, max. 150 mA; per group • Output current per module, max. 300 mA Power Power variable from the backplane bus 0.6 W Power loss Power loss, typ. 7 W Digital inputs	 Oversampling 	Yes	
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. 550 mA Encoder supply Number of outputs 16; 2x 24 V DC Short-circuit protection Yes 24 V encoder supply • 24 V • Short-circuit protection Yes • Short-circuit protection Yes; Per group, electronic • Output current, max. 150 mA; per group • Output current per module, max. 300 mA Power Power loss Power loss, typ. 7 W Digital inputs	• MSI	Yes	
permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. Encoder supply Number of outputs Short-circuit protection Yes 24 V encoder supply • 24 V • Short-circuit protection Output current, max. Output current, max. Output current, max. • Output current per module, max. Power Power loss, typ. Power loss, typ. Digital inputs	Supply voltage		
permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. 550 mA Encoder supply Number of outputs Short-circuit protection Yes 24 V encoder supply • 24 V • Short-circuit protection Yes Short-circuit protection Yes 24 V encoder supply • 24 V • Short-circuit protection Yes; Per group, electronic • Output current, max. 150 mA; per group • Output current per module, max. Power Power available from the backplane bus Power loss, typ. 7 W Digital inputs	Rated value (DC)	24 V	
Reverse polarity protection Input current Current consumption, max. Encoder supply Number of outputs Short-circuit protection 24 V encoder supply • 24 V • Short-circuit protection • Output current, max. • Output current, max. • Output current per module, max. Power Power available from the backplane bus Power loss, typ. Poigital inputs	permissible range, lower limit (DC)	19.2 V	
Input current Current consumption, max. 550 mA Encoder supply Number of outputs 16; 2x 24 V DC Short-circuit protection Yes 24 V encoder supply • 24 V • Short-circuit protection Yes; Per group, electronic • Output current, max. 150 mA; per group • Output current per module, max. 300 mA Power Power available from the backplane bus 0.6 W Power loss, typ. 7 W Digital inputs	permissible range, upper limit (DC)	28.8 V	
Current consumption, max. Encoder supply Number of outputs Short-circuit protection Yes 24 V encoder supply • 24 V • Short-circuit protection Yes; Per group, electronic • Output current, max. • Output current per module, max. Power Power available from the backplane bus Power loss Power loss, typ. 550 mA 16; 2x 24 V DC Yes Yes Yes 9 a	Reverse polarity protection	Yes	
Number of outputs 16; 2x 24 V DC Short-circuit protection Yes 24 V encoder supply 24 V Short-circuit protection Yes; Per group, electronic Output current, max. 150 mA; per group Output current per module, max. Power Power available from the backplane bus Power loss Power loss, typ. 7 W Digital inputs	Input current		
Number of outputs Short-circuit protection Yes 24 V encoder supply 24 V Short-circuit protection Short-circuit protection Output current, max. Output current per module, max. Power Power available from the backplane bus Power loss Power loss, typ. 16; 2x 24 V DC Yes Yes Yes Yes Yes Yes Yes Ye	Current consumption, max.	550 mA	
Short-circuit protection 24 V encoder supply • 24 V • Short-circuit protection • Output current, max. • Output current per module, max. Power Power available from the backplane bus Power loss Power loss, typ. Poigital inputs	Encoder supply		
24 V encoder supply • 24 V • Short-circuit protection • Output current, max. • Output current per module, max. 150 mA; per group • Output current per module, max. 200 mA Power Power available from the backplane bus Power loss Power loss, typ. Digital inputs	Number of outputs	16; 2x 24 V DC	
Yes Short-circuit protection Output current, max. Output current per module, max.	Short-circuit protection	Yes	
 Short-circuit protection Output current, max. Output current per module, max. Power Power available from the backplane bus Power loss Power loss, typ. 7 W Digital inputs 	24 V encoder supply		
Output current, max. Output current per module, max. Output curr	• 24 V	Yes	
Output current per module, max. Power Power available from the backplane bus O.6 W Power loss Power loss, typ. 7 W Digital inputs	Short-circuit protection	Yes; Per group, electronic	
Power available from the backplane bus Power loss Power loss, typ. 7 W Digital inputs	 Output current, max. 	150 mA; per group	
Power available from the backplane bus Power loss Power loss, typ. 7 W Digital inputs	Output current per module, max.	300 mA	
Power loss Power loss, typ. 7 W Digital inputs	Power		
Power loss, typ. 7 W Digital inputs	Power available from the backplane bus	0.6 W	
Digital inputs	Power loss		
	Power loss, typ.	7 W	
Number of digital inputs 16	Digital inputs		
	Number of digital inputs	16	

Digital inputs parameterizable	Yes
Digital inputs, parameterizable	
Source/sink input	P-reading
Input characteristic curve in accordance with IEC 61131, type 2	Yes
Pulse extension	Yes; 0.05 s, 0.1 s, 0.2 s, 0.5 s, 1 s, 2 s
Edge evaluation	Yes; Positive edge, negative edge
Signal change flutter	Yes; 2 to 32 signal changes
Flutter observation window	Yes; 0.5 s, 1 s to 100 s in 1-s steps
Digital input functions, parameterizable	
Gate start/stop	Yes; software/hardware gate
 Freely usable digital input 	Yes
Counter	
— Number, max.	4; 4 totalizers max. 10 kHz or 2 totalizers max. 20 kHz + 2 totalizers max. 10
	kHz
Counting frequency, max.	20 kHz
 Counting width 	32 bit
 Counting direction up/down 	Yes
Digital input with oversampling	Yes
— Number, max.	16
— Values per cycle, max.	16
— Resolution, min.	15.625 µs
Input voltage	
Rated value (DC)	24 V
	-30 to +5 V
• for signal "0"	
• for signal "1"	+11 to +30V
Input current	
• for signal "1", typ.	9 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	Yes; 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms
— at "0" to "1", min.	0.05 ms
— at "0" to "1", max.	20 ms
— at "1" to "0", min.	0.05 ms
— at "1" to "0", max.	20 ms
for interrupt inputs	
— parameterizable	Yes
for technological functions	
— parameterizable	Yes
Cable length	103
	1 000 ms coo ms for to shaplacing functional depending an input frequency
• shielded, max.	1 000 m; 600 m for technological functions; depending on input frequency, encoder and cable quality; max. 50 m at 20 kHz
unshielded, max.	600 m; for technological functions: No
Encoder	, 10. 100009.001010110
Connectable encoders	V
• 2-wire sensor	Yes
— permissible quiescent current (2-wire sensor), max.	2 mA
Isochronous mode	
Filtering and processing time (TCI), min.	60 μs; At 50 μs filter time
Bus cycle time (TDP), min.	250 μs
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
Diagnostic alarm	Yes
Hardware interrupt	Yes
·	100
Diagnoses	V
Monitoring the supply voltage	Yes
 Monitoring the supply voltage Monitoring of encoder power supply	Yes; short-circuit
Monitoring the supply voltage	
 Monitoring the supply voltage Monitoring of encoder power supply	Yes; short-circuit
 Monitoring the supply voltage Monitoring of encoder power supply Wire-break	Yes; short-circuit Yes; to I < 350 μ A
 Monitoring the supply voltage Monitoring of encoder power supply Wire-break Short-circuit 	Yes; short-circuit Yes; to I < 350 μ A

 Monitoring of the supply voltage (PWR-LED) 	Yes; green LED
Channel status display	Yes; green LED
 for channel diagnostics 	Yes; red LED
 for module diagnostics 	Yes; red LED
Potential separation	
Potential separation channels	
 between the channels 	No
 between the channels, in groups of 	8
 between the channels and backplane bus 	Yes
 Between the channels and load voltage L+ 	Yes
 between the channels and the power supply of the electronics 	No
Isolation	
Isolation tested with	707 V DC (type test)
Standards, approvals, certificates	
Suitable for safety functions	No
Ambient conditions	
Ambient temperature during operation	
 horizontal installation, min. 	-30 °C
 horizontal installation, max. 	60 °C
 vertical installation, min. 	-30 °C
 vertical installation, max. 	40 °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
Dimensions	
Width	35 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	240 g

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