SIEMENS

Data sheet 6ES7521-7TH00-0AB0

SIMATIC S7-1500, digital input module DI 16xNAMUR HF, 16 channels in groups of 8; for 8.2 V NAMUR encoder; sensor supply 8.2 V; input delay; parameterizable 0.05 ... 20 ms; integrated counting function up to 20 kHz pulse stretching; chatter monitoring; signal inversion diagnostics; hardware interrupts; all necessary components for shielding included in the scope of supply; front connector (screw terminals or push-in) to be ordered separately

General information	
Product type designation	DI 16xNAMUR HF
HW functional status	From FS01
Firmware version	V1.0.0
● FW update possible	Yes
Product function	
● I&M data	Yes; I&M0 to I&M3
● Isochronous mode	Yes
● Prioritized startup	Yes
Engineering with	
● STEP 7 TIA Portal configurable/integrated from version	STEP 7 V17 or higher
● STEP 7 configurable/integrated from version	V5.5 SP3 / -
● PROFIBUS from GSD version/GSD revision	V1.0 / V5.1
● PROFINET from GSD version/GSD revision	V2.3 / -
Operating mode	
● DI	Yes
● Counter	Yes
● Oversampling	No
● 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
Input current	
Current consumption, max.	220 mA; with 19.2 V supply
Encoder supply	
Number of outputs	16; 2x 8.2 V DC
Short-circuit protection	Yes
NAMUR encoder supply	
● 8.2 V	Yes
● Short-circuit protection	Yes; Per group, electronic
● Output current, max.	100 mA; per group
● Output current per module, max.	200 mA
Power	
Power available from the backplane bus	0.6 W
Power loss	
Power loss, typ.	3.7 W

Digital inputs	
Number of digital inputs	16; NAMUR
Digital inputs, parameterizable	Yes
Source/sink input	P-reading
Pulse extension	Yes
Digital input functions, parameterizable	
● Gate start/stop	Yes; software/hardware gate
● Freely usable digital input	Yes
● Counter	
— Number, max.	4
— Counting frequency, max.	20 kHz; See manual for details
— Counting width	32 bit
— Counting direction up/down	Yes; forward / backward
Input voltage	
● Rated value (DC)	8.2 V
Input current	
● for signal "1", typ.	10 mA
for NAMUR encoders	
— for signal "0", min.	0.35 mA
— for signal "0", max.	1.2 mA
— for signal "1", min.	2.1 mA
— for signal "1", max.	10 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	Yes; 0.05 / 0.1 / 0.4 / 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	
● shielded, max.	200 m; 200 m for technological functions; depending on input frequency, encoder and cable quality; max. 50 m at 20 kHz
Encoder	
Connectable encoders	
● 2-wire sensor	Yes
— permissible quiescent current (2-wire sensor), max.	1.2 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
Diagnoses	
● Monitoring the supply voltage	Yes
● Wire-break	Yes; to I < 350 µA
● Short-circuit	No
Diagnostics indication LED	
● RUN LED	Yes; green LED
● ERROR LED	Yes; red LED
● 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 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

last modified: 8/16/2021