

Siemens
EcoTech



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
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 consumption 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; 0.05 s, 0.1 s, 0.2 s, 0.5 s, 1 s, 2 s
Edge evaluation	Yes; rising edge, falling edge, edge change
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 • Freely usable digital input • Counter — Number, max. — Counting frequency, max. — Counting width — Counting direction up/down	Yes; software/hardware gate Yes 4; 4 counters max. 10 kHz or 2 counters max. 20 kHz + 2 counters max. 10 kHz; see manual for details 20 kHz; See manual for details 32 bit Yes; forward / backward
Input voltage	
• Rated value (DC)	8.2 V
Input current	
• for signal "1", typ.	10 mA
for 10 k switched contact	
— 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
for unswitched contact	
— for signal "0", max. (permissible quiescent current)	0.35 to 1.2 mA
— for signal "1", typ.	2.1 ... 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
for NAMUR inputs	
— at "0" to "1", max.	20 ms
— at "1" to "0", max.	20 ms
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	
• NAMUR encoder/changeover contact according to EN 60947 • Single contact / changeover contact unconnected • Single contact / changeover contact connected with 10 kΩ	Yes; no CO contact Yes; no CO contact Yes; no CO contact

• 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
• Monitoring of encoder power supply	Yes; short-circuit
• 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 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	
Siemens Eco Profile (SEP)	Siemens EcoTech
Suitable for safety functions	No
Ecological footprint	
• environmental product declaration	Yes
Global warming potential	
— global warming potential, (total) [CO2 eq]	18.9 kg
— global warming potential, (during production) [CO2 eq]	12.1 kg
— global warming potential, (during operation) [CO2 eq]	7.66 kg
— global warming potential, (after end of life cycle) [CO2 eq]	-1.02 kg
Security	
signed firmware update	No
data integrity	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	
Classifications			
		Version	Classification
	eClass	14	27-24-22-04
	eClass	12	27-24-22-04
	eClass	9.1	27-24-22-04
	eClass	9	27-24-22-04
	eClass	8	27-24-22-04
	eClass	7.1	27-24-22-04
	eClass	6	27-24-22-04
	ETIM	10	EC001419
	ETIM	9	EC001419
	ETIM	8	EC001419
	ETIM	7	EC001419
Approvals / Certificates			
General Product Approval			
Manufacturer Declaration	Miscellaneous		
			
General Product Approval		For use in hazardous locations	
KC			CCC-Ex
			FM
			
For use in hazardous locations		Maritime application	
Type Examination Certificate		Miscellaneous	
			
			
Maritime application			
	NK / Nippon Kaiji Kyokai		
			CCS (China Classification Society)
			
Environment			
			