



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
<ul style="list-style-type: none"> <li>FW update possible</li> </ul>	Yes
Product function	
<ul style="list-style-type: none"> <li>I&amp;M data</li> </ul>	Yes; I&M0 to I&M3
<ul style="list-style-type: none"> <li>Isochronous mode</li> </ul>	Yes
<ul style="list-style-type: none"> <li>Prioritized startup</li> </ul>	Yes
Engineering with	
<ul style="list-style-type: none"> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	STEP 7 V17 or higher
<ul style="list-style-type: none"> <li>STEP 7 configurable/integrated from version</li> </ul>	V5.5 SP3 / -
<ul style="list-style-type: none"> <li>PROFIBUS from GSD version/GSD revision</li> </ul>	V1.0 / V5.1
<ul style="list-style-type: none"> <li>PROFINET from GSD version/GSD revision</li> </ul>	V2.3 / -
Operating mode	
<ul style="list-style-type: none"> <li>DI</li> </ul>	Yes
<ul style="list-style-type: none"> <li>Counter</li> </ul>	Yes
<ul style="list-style-type: none"> <li>Oversampling</li> </ul>	No
<ul style="list-style-type: none"> <li>MSI</li> </ul>	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	
<ul style="list-style-type: none"> <li>8.2 V</li> </ul>	Yes
<ul style="list-style-type: none"> <li>Short-circuit protection</li> </ul>	Yes; Per group, electronic
<ul style="list-style-type: none"> <li>Output current, max.</li> </ul>	100 mA; per group
<ul style="list-style-type: none"> <li>Output current per module, max.</li> </ul>	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; 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
<b>Digital input functions, parameterizable</b>	
<ul style="list-style-type: none"> <li>• Gate start/stop</li> <li>• Freely usable digital input</li> <li>• Counter <ul style="list-style-type: none"> <li>— Number, max.</li> <li>— Counting frequency, max.</li> <li>— Counting width</li> <li>— Counting direction up/down</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Yes; software/hardware gate</li> <li>Yes</li> <li>4; 4 counters max. 10 kHz or 2 counters max. 20 kHz + 2 counters max. 10 kHz; see manual for details</li> <li>20 kHz; See manual for details</li> <li>32 bit</li> <li>Yes; forward / backward</li> </ul>
<b>Input voltage</b>	
<ul style="list-style-type: none"> <li>• Rated value (DC)</li> </ul>	8.2 V
<b>Input current</b>	
<ul style="list-style-type: none"> <li>• for signal "1", typ.</li> </ul>	10 mA
<b>for 10 k switched contact</b>	
<ul style="list-style-type: none"> <li>— for signal "0"</li> <li>— for signal "1"</li> </ul>	<ul style="list-style-type: none"> <li>0.35 to 1.2 mA</li> <li>2.1 ... 10 mA</li> </ul>
<b>for unswitched contact</b>	
<ul style="list-style-type: none"> <li>— for signal "0", max. (permissible quiescent current)</li> <li>— for signal "1"</li> </ul>	<ul style="list-style-type: none"> <li>0.35 to 1.2 mA</li> <li>2.1 ... 10 mA</li> </ul>
<b>for NAMUR encoders</b>	
<ul style="list-style-type: none"> <li>— for signal "0", min.</li> <li>— for signal "0", max.</li> <li>— for signal "1", min.</li> <li>— for signal "1", max.</li> </ul>	<ul style="list-style-type: none"> <li>0.35 mA</li> <li>1.2 mA</li> <li>2.1 mA</li> <li>10 mA</li> </ul>
<b>Input delay (for rated value of input voltage)</b>	
<b>for standard inputs</b>	
<ul style="list-style-type: none"> <li>— parameterizable</li> <li>— at "0" to "1", min.</li> <li>— at "0" to "1", max.</li> <li>— at "1" to "0", min.</li> <li>— at "1" to "0", max.</li> </ul>	<ul style="list-style-type: none"> <li>Yes; 0.05 / 0.1 / 0.4 / 1.6 / 3.2 / 12.8 / 20 ms</li> <li>0.05 ms</li> <li>20 ms</li> <li>0.05 ms</li> <li>20 ms</li> </ul>
<b>for interrupt inputs</b>	
<ul style="list-style-type: none"> <li>— parameterizable</li> </ul>	Yes
<b>for technological functions</b>	
<ul style="list-style-type: none"> <li>— parameterizable</li> </ul>	Yes
<b>for NAMUR inputs</b>	
<ul style="list-style-type: none"> <li>— at "0" to "1", max.</li> <li>— at "1" to "0", max.</li> </ul>	<ul style="list-style-type: none"> <li>20 ms</li> <li>20 ms</li> </ul>
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>• shielded, max.</li> </ul>	200 m; 200 m for technological functions; depending on input frequency, encoder and cable quality; max. 50 m at 20 kHz
<b>Encoder</b>	
<b>Connectable encoders</b>	
<ul style="list-style-type: none"> <li>• NAMUR encoder/changeover contact according to EN 60947</li> <li>• Single contact / changeover contact unconnected</li> <li>• Single contact / changeover contact connected with 10 k<math>\Omega</math></li> <li>• 2-wire sensor <ul style="list-style-type: none"> <li>— permissible quiescent current (2-wire sensor), max.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Yes; no CO contact</li> <li>Yes; no CO contact</li> <li>Yes; no CO contact</li> <li>Yes</li> <li>1.2 mA</li> </ul>
<b>Isochronous mode</b>	
Filtering and processing time (TCI), min.	60 $\mu$ s; At 50 $\mu$ s filter time
Bus cycle time (TDP), min.	250 $\mu$ s
<b>Interrupts/diagnostics/status information</b>	
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	
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
<b>last modified:</b>	5/6/2022 