

Siemens  
EcoTech



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

General information	
Product type designation	DI 16x24 V DC HS
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>	Yes
<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.	550 mA
Encoder supply	
Number of outputs	16; 2x 24 V DC
Short-circuit protection	Yes
24 V encoder supply	
<ul style="list-style-type: none"> <li>24 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>	150 mA; per group
<ul style="list-style-type: none"> <li>Output current per module, max.</li> </ul>	300 mA
Power	
Power consumption from the backplane bus	0.6 W

<b>Power loss</b>	
Power loss, typ.	7 W
<b>Address area</b>	
Address space per module	
• Inputs	2 byte
• Outputs	0 byte
<b>Digital inputs</b>	
Number of digital inputs	16
Digital inputs, parameterizable	Yes
Sourcing/sinking 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
Number of simultaneously controllable inputs	
• Number of simultaneously controllable inputs	16; see additional description in the manual
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
• for signal "0"	-30 to +5 V
• 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	
• 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
<b>Encoder</b>	
Connectable encoders	
• 2-wire sensor	Yes
— permissible quiescent current (2-wire sensor), max.	2 mA
<b>Isochronous mode</b>	
Filtering and processing time (TCI), min.	60 µs; At 50 µs filter time
Bus cycle time (TDP), min.	250 µs
<b>Interrupts/diagnostics/status information</b>	

Diagnostics function	Yes
<b>Alarms</b>	
• Diagnostic alarm	Yes
• Hardware interrupt	Yes
<b>Diagnoses</b>	
• Monitoring the supply voltage	Yes
• Monitoring of encoder power supply	Yes; short-circuit
• Wire break	Yes; to I < 350 µA
• Short-circuit	No
<b>Diagnostics indication LED</b>	
• 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
<b>Potential separation</b>	
<b>Potential separation channels</b>	
• 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
<b>Isolation</b>	
Isolation tested with	707 V DC (type test)
<b>Standards, approvals, certificates</b>	
Siemens Eco Profile (SEP)	Siemens EcoTech
Suitable for safety functions	No
<b>Ecological footprint</b>	
• environmental product declaration	Yes
<b>Global warming potential</b>	
— 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
<b>Security</b>	
signed firmware update	No
safely removing data	No
data integrity	No
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
• horizontal installation, min.	-30 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	-30 °C
• vertical installation, max.	40 °C
<b>Altitude during operation relating to sea level</b>	
• Installation altitude above sea level, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
<b>Absolute humidity</b>	
• dew point, min.	-60 °C; suitable for dry room applications
<b>Dimensions</b>	
Width	35 mm
Height	147 mm
Depth	129 mm
<b>Weights</b>	
Weight, approx.	240 g
<b>Classifications</b>	

	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**

[Miscellaneous](#)

[Manufacturer Declaration](#)



**General Product Approval**

**For use in hazardous locations**



[China RoHS](#)

[Manufacturer Declaration](#)

[FM](#)

[CCC-Ex](#)

**For use in hazardous locations**

**Maritime application**



[Type Examination Certificate](#)

[Miscellaneous](#)

[CCC-Ex](#)



**Maritime application**



[NK / Nippon Kaiji Kyokai](#)



**Maritime application**

**Environment**

[CCS \(China Classification Society\)](#)

[KR \(Korean Register of Shipping\)](#)



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