

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
• 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	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
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	Yes
• Short-circuit protection	Yes; Per group, electronic
• Output current, max.	150 mA; per group
• Output current per module, max.	300 mA
Power	
Power consumption from the backplane bus	0.6 W
Power loss	

Power loss, typ.	7 W
Digital inputs	
Number of digital inputs	16
Digital inputs, parameterizable	Yes
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
• 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
Encoder	
Connectable encoders	
• 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
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	
product functions / security / header			
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

Approvals / Certificates

General Product Approval



[Miscellaneous](#)



[KC](#)



For use in hazardous locations

[FM](#)

[CCC-Ex](#)



[Type Examination Certificate](#)



[Miscellaneous](#)

Maritime application



[NK / Nippon Kaiji Kyokai](#)



Maritime application

Environment



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



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