

Siemens
EcoTech



SIMATIC S7-1500 digital input/output module, DI16x 24VDC BA, 16 channels in groups of 16, input delay typ. 3.2 ms input type 3 (IEC 61131), DQ16XDC 24V/0.5A BA; 16 channels in groups of 8; 4 A per group; the module supports the safety-oriented shutdown of load groups up to SIL2 according to EN IEC 62061:2021 and Category 2 / PL c according to EN ISO 13849-1:2015. delivery including front connector push-in,

General information	
Product type designation	DI 16x24VDC / DQ16x24VDC/0.5A BA
HW functional status	from FS01
Firmware version	V1.0.0
<ul style="list-style-type: none"> FW update possible 	Yes
Product function	
<ul style="list-style-type: none"> I&M data 	Yes; I&M0 to I&M3
<ul style="list-style-type: none"> Isochronous mode 	No
<ul style="list-style-type: none"> Prioritized startup 	Yes
Engineering with	
<ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated from version 	V13 / V13
<ul style="list-style-type: none"> STEP 7 configurable/integrated from version 	V5.5 SP3 / -
<ul style="list-style-type: none"> PROFIBUS from GSD version/GSD revision 	V1.0 / V5.1
<ul style="list-style-type: none"> PROFINET from GSD version/GSD revision 	V2.3 / -
Operating mode	
<ul style="list-style-type: none"> DI 	Yes
<ul style="list-style-type: none"> Counter 	No
<ul style="list-style-type: none"> DQ 	Yes
<ul style="list-style-type: none"> DQ with energy-saving function 	No
<ul style="list-style-type: none"> PWM 	No
<ul style="list-style-type: none"> Cam control (switching at comparison values) 	No
<ul style="list-style-type: none"> Oversampling 	No
<ul style="list-style-type: none"> MSI 	Yes
<ul style="list-style-type: none"> MSO 	Yes
<ul style="list-style-type: none"> Integrated operating cycle counter 	No
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; through internal protection with 7 A per group
Input current	
Current consumption, max.	30 mA
Output voltage	
Rated value (DC)	24 V
Power	
Power consumption from the backplane bus	1.1 W

Power loss	
Power loss, typ.	3.45 W
Address area	
Address space per module	
• Inputs	2 byte
• Outputs	2 byte
Digital inputs	
Number of digital inputs	16
Digital inputs, parameterizable	No
Sourcing/sinking input	P-reading
Input characteristic curve in accordance with IEC 61131, type 3	Yes
Pulse extension	No
Edge evaluation	No
Signal change flutter	No
Flutter observation window	No
Number of simultaneously controllable inputs	
• Number of simultaneously controllable inputs	16; see additional description in the manual
Digital input functions, parameterizable	
• Gate start/stop	No
• Freely usable digital input	No
• Counter	No
• Digital input with oversampling	No
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.	2.7 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	No
— at "0" to "1", min.	3 ms
— at "0" to "1", max.	4 ms
— at "1" to "0", min.	3 ms
— at "1" to "0", max.	4 ms
for interrupt inputs	
— parameterizable	No
for technological functions	
— parameterizable	No
Cable length	
• shielded, max.	1 000 m
• unshielded, max.	600 m
Digital outputs	
Type of digital output	Transistor
Number of digital outputs	16
Current-sinking	No
Current-sourcing	Yes
Digital outputs, parameterizable	No
Short-circuit protection	Yes
• Response threshold, typ.	1 A
Limitation of inductive shutdown voltage to	L+ (-53 V)
Controlling a digital input	Yes
Digital output functions, parameterizable	
• Switching tripped by comparison values	No
• Freely usable digital output	No
• PWM output	No
• Digital output with oversampling	No
Switching capacity of the outputs	
• with resistive load, max.	0.5 A

• on lamp load, max.	5 W
Load resistance range	
• lower limit	48 Ω
• upper limit	12 k Ω
Output voltage	
• for signal "1", min.	L+ (-0.8 V)
Output current	
• for signal "1" rated value	0.5 A
• for signal "1" permissible range, max.	0.5 A
• for signal "0" residual current, max.	0.5 mA
Output delay with resistive load	
• "0" to "1", max.	100 μ s
• "1" to "0", max.	500 μ s
Parallel switching of two outputs	
• for logic links	Yes
• for uprating	No
• for redundant control of a load	Yes
Switching frequency	
• with resistive load, max.	100 Hz
• with inductive load, max.	0.5 Hz
• on lamp load, max.	10 Hz
Total current of the outputs	
• Current per channel, max.	0.5 A; see additional description in the manual
• Current per group, max.	4 A; see additional description in the manual
• Current per module, max.	8 A; see additional description in the manual
Cable length	
• shielded, max.	1 000 m
• unshielded, max.	600 m
Encoder	
Connectable encoders	
• 2-wire sensor	Yes
— permissible quiescent current (2-wire sensor), max.	1.5 mA
Interrupts/diagnostics/status information	
Diagnostics function	No
Substitute values connectable	No
Alarms	
• Diagnostic alarm	No
• Maintenance interrupt	No
• Hardware interrupt	No
Diagnoses	
• Monitoring the supply voltage	No
• Wire break	No
• Short-circuit	No
• Group error	No
Diagnostics indication LED	
• RUN LED	Yes; green LED
• ERROR LED	Yes; red LED
• MAINT LED	No
• Monitoring of the supply voltage (PWR-LED)	Yes; green LED
• Channel status display	Yes; green LED
• for channel diagnostics	No
• for module diagnostics	No
Potential separation	
Potential separation channels	
• between the channels	No
• between the channels, in groups of	8
• between the channels and backplane bus	Yes
Isolation	
Isolation tested with	707 V DC (type test)

Standards, approvals, certificates			
Siemens Eco Profile (SEP)	Siemens EcoTech		
Suitable for safety-related tripping of standard modules	Yes; From FS03		
Ecological footprint			
<ul style="list-style-type: none"> 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		
Highest safety class achievable for safety-related tripping of standard modules			
<ul style="list-style-type: none"> Performance level according to ISO 13849-1 Category according to ISO 13849-1 SIL acc. to IEC 62061 remark on safety-oriented shutdown 	PL d Cat. 3 SIL 2 https://support.industry.siemens.com/cs/de/en/view/39198632		
Security			
signed firmware update	No		
safely removing data	No		
data integrity	No		
Ambient conditions			
Ambient temperature during operation			
<ul style="list-style-type: none"> horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. 	-30 °C; from FS04 60 °C -30 °C; from FS04 40 °C		
Altitude during operation relating to sea level			
<ul style="list-style-type: none"> Installation altitude above sea level, max. 	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual		
Absolute humidity			
<ul style="list-style-type: none"> dew point, min. 	-60 °C; suitable for dry room applications		
Dimensions			
Width	25 mm		
Height	147 mm		
Depth	129 mm		
Weights			
Weight, approx.	280 g		
Other			
Note:	Supplied incl. 40-pole push-in front connectors		
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
	IDEA	4	3566
	UNSPSC	15	32-15-17-05
Approvals / Certificates			
General Product Approval			

[Miscellaneous](#)

[Manufacturer Declaration](#)



General Product Approval

For use in hazardous locations



[China RoHS](#)

[Manufacturer Declaration](#)

[EM](#)



For use in hazardous locations

[EM](#)

[CCC-Ex](#)



[Type Examination Certificate](#)

[Miscellaneous](#)

For use in hazardous locations

Maritime application

[CCC-Ex](#)



[NK / Nippon Kaiji Kyokai](#)

Maritime application

Environment



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

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



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