



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"> Oversampling 	No
<ul style="list-style-type: none"> MSI 	Yes
<ul style="list-style-type: none"> MSO 	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; through internal protection with 7 A per group
Input current	
Current consumption, max.	30 mA
output voltage / header	
Rated value (DC)	24 V
Power	
Power available from the backplane bus	1.1 W
Power loss	
Power loss, typ.	3.45 W
Digital inputs	
Number of digital inputs	16

Digital inputs, parameterizable	No
Source/sink input	P-reading
Input characteristic curve in accordance with IEC 61131, type 3	Yes
Input voltage	
<ul style="list-style-type: none"> Rated value (DC) for signal "0" for signal "1" 	24 V -30 to +5 V +11 to +30V
Input current	
<ul style="list-style-type: none"> for signal "1", typ. 	2.7 mA
Input delay (for rated value of input voltage)	
for standard inputs	
<ul style="list-style-type: none"> parameterizable at "0" to "1", min. at "0" to "1", max. at "1" to "0", min. at "1" to "0", max. 	No 3 ms 4 ms 3 ms 4 ms
for interrupt inputs	
<ul style="list-style-type: none"> parameterizable 	No
Cable length	
<ul style="list-style-type: none"> shielded, max. unshielded, max. 	1 000 m 600 m
Digital outputs	
Type of digital output	Transistor
Number of digital outputs	16
Current-sourcing	Yes
Digital outputs, parameterizable	No
Short-circuit protection	Yes
<ul style="list-style-type: none"> Response threshold, typ. 	1 A
Limitation of inductive shutdown voltage to	L+ (-53 V)
Controlling a digital input	Yes
Switching capacity of the outputs	
<ul style="list-style-type: none"> with resistive load, max. on lamp load, max. 	0.5 A 5 W
Load resistance range	
<ul style="list-style-type: none"> lower limit upper limit 	48 Ω 12 kΩ
Output voltage	
<ul style="list-style-type: none"> for signal "1", min. 	L+ (-0.8 V)
Output current	
<ul style="list-style-type: none"> for signal "1" rated value for signal "1" permissible range, max. for signal "0" residual current, max. 	0.5 A 0.5 A 0.5 mA
Output delay with resistive load	
<ul style="list-style-type: none"> "0" to "1", max. "1" to "0", max. 	100 μs 500 μs
Parallel switching of two outputs	
<ul style="list-style-type: none"> for logic links for uprating for redundant control of a load 	Yes No Yes
Switching frequency	
<ul style="list-style-type: none"> with resistive load, max. with inductive load, max. on lamp load, max. 	100 Hz 0.5 Hz 10 Hz
Total current of the outputs	
<ul style="list-style-type: none"> Current per channel, max. Current per group, max. Current per module, max. 	0.5 A; see additional description in the manual 4 A; see additional description in the manual 8 A; see additional description in the manual
Cable length	
<ul style="list-style-type: none"> 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
• 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	
Suitable for safety-related tripping of standard modules	Yes; From FS03
Highest safety class achievable for safety-related tripping of standard modules	
• Performance level according to ISO 13849-1	PL d
• Category according to ISO 13849-1	Cat. 3
• SILCL according to IEC 62061	SILCL 2
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	-30 °C; from FS04
• horizontal installation, max.	60 °C
• vertical installation, min.	-30 °C; from FS04
• 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	25 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	280 g
Other	
Note:	Supplied incl. 40-pole push-in front connectors
last modified:	9/17/2021 