Product overview

2

2.1 Properties

Part number:

6ES7523-1BL00-0AA0

View of the module

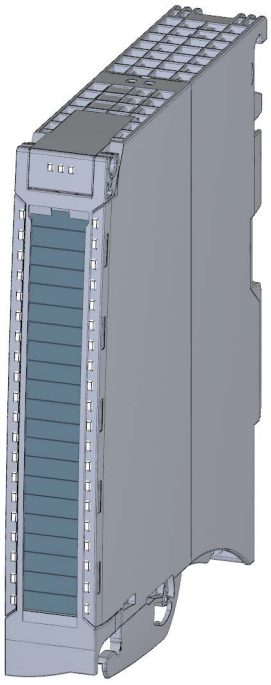


Figure 2-1 View of the DI 16x24VDC/DQ 16x24VDC/0.5A BA module

Properties

The module has the following technical properties:

- Digital inputs
  - 16 digital inputs; electrically isolated in groups of 16
  - Rated input voltage 24 VDC
  - Suitable for switches and 2-/3-/4-wire proximity switches
- Digital outputs
  - 16 digital outputs, electrically isolated in groups of 8
  - Rated output voltage 24 VDC
  - Rated output current 0.5 A per channel
  - Suitable for solenoid valves, DC contactors, and indicator lights

The module supports the following functions:

Table 2- 1 Version dependencies of the module functions

Function	Firmware version of the module	Configuration software	
		STEP 7 (TIA Portal)	GSD file in STEP 7 (TIA Portal) V12 or higher, or STEP 7 V5.5 SP3 or higher
Firmware update	V1.0.0 or higher	V13 or higher	X
Identification data I&M0 to I&M3	V1.0.0 or higher	V13 or higher	X
Module-internal Shared Input (MSI) / Shared Output (MSO)	V1.0.0 or higher	V13 Update 3 or higher (PROFINET IO only)	X (PROFINET IO only)
Configurable submodules / submodules for Shared Device	V1.0.0 or higher	V13 Update 3 or higher (PROFINET IO only)	X (PROFINET IO only)

You can configure the module with STEP 7 (TIA Portal) and with a GSD file.

Technical specifications

6

Technical specifications of the DI 16x24VDC/DQ 16x24VDC/0.5A BA

	6ES7523-1BL00-0AA0
Product type designation	DI 16x24VDC / DQ16x24VDC/0.5A BA
General information	
Hardware version	E01
Firmware version	V1.0.0
Product function	
I&M data	Yes; I&M0 to I&M3
Engineering with	
STEP 7 TIA Portal can be configured/integrated as of version	V13 / V13
STEP 7 can be configured/integrated as of version	V5.5 SP3 / -
Operating mode	
MSI	Yes
MSO	Yes
Supply voltage	
Type of supply voltage	DC
Rated value (DC)	24 V
Permitted range, low limit (DC)	20.4 V
Permitted range, high limit (DC)	28.8 V
Reverse polarity protection	Yes; with internal protection with 7 A per group
Input current	
Current consumption, max.	30 mA
Power	
Power taken from the backplane bus	1.1 W
Power loss	
Power loss, typ.	3.45 W
Digital inputs	
Number of inputs	16
Sinking/sourcing input	Sinking input
Input characteristic curve acc. to IEC 61131, type 3	Yes

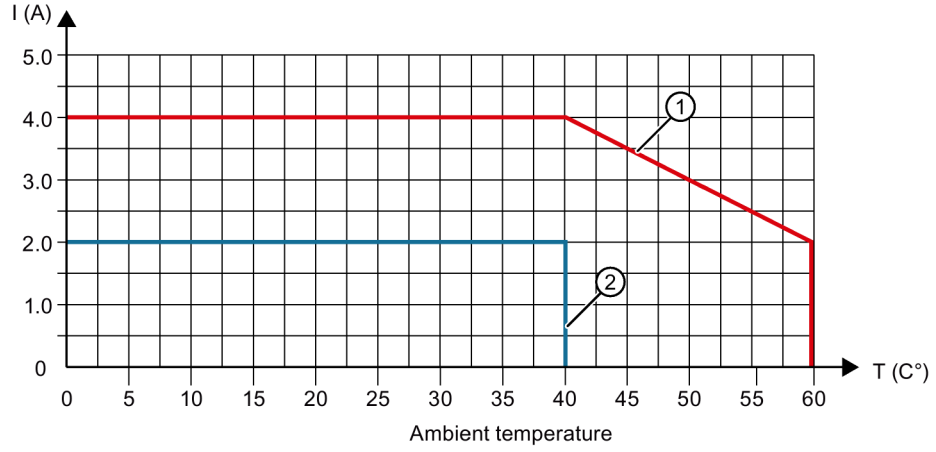
	6ES7523-1BL00-0AA0
Input voltage	
Rated value, DC	24 V
for signal "0"	-30 to +5 V
for signal "1"	11 to 30 V
Permitted voltage at input, min.	-30 V; -3 V permanently; -30 V brief reverse polarity protection
Permitted voltage at input, max.	30 V
Input current	
for signal "1", typ.	2.7 mA
Input delay (for rated value of input voltage)	
For standard inputs	
• Configurable	No
• with "0" to "1", min.	3 ms
• with "0" to "1", max.	4 ms
• with "1" to "0", min.	3 ms
• with "1" to "0", max.	4 ms
For interrupt inputs	
• Configurable	No
Cable length	
Cable length shielded, max.	1000 m
Cable length unshielded, max.	600 m
Digital outputs	
Type of digital output	Transistor
Number of outputs	16
Sourcing output	Yes
Short-circuit protection	Yes
• Response threshold, typ.	1 A
Limitation of inductive shutdown voltage to	L+ (-53 V)
Activation of a digital input	Yes
Switching capacity of the outputs	
With resistive load, max.	0.5 A
With lamp load, max.	5 W
Load resistance range	
Low limit	48 Ω
High limit	12 kΩ
Output voltage	
Type of output voltage	DC
for signal "1", min.	L+ (-0.8 V)
Output current	
For signal "1" rated value	0.5 A
For signal "1" permitted range, max.	0.5 A
For signal "0" residual current, max.	0.5 mA

	6ES7523-1BL00-0AA0
Output delay with resistive load	
"0" to "1", max.	100 µs
"1" to "0", max.	500 µs
Parallel switching of 2 outputs	
For logical operations	Yes
For increased performance	No
For redundant activation of a load	Yes
Switching frequency	
With resistive load, max.	100 Hz
With inductive load, max.	0.5 Hz
With lamp load, max.	10 Hz
Total current of the outputs	
Max. current per channel	0.5 A; see additional description in the manual
Max. current per group	4 A; see additional description in the manual
Max. current per module	8 A; see additional description in the manual
Cable length	
Cable length shielded, max.	1000 m
Cable length unshielded, max.	600 m
Encoders	
Connectable encoders	
2-wire sensor	Yes
• Permitted quiescent current (2-wire sensor), max.	1.5 mA
Isochronous mode	
Isochronous mode (application synchronized up to terminal)	No
Interrupts/diagnostics/status information	
Substitute values can be applied	No
Interrupts	
Diagnostics interrupt	No
Hardware interrupt	No
Diagnostics alarms	
Diagnostics	No
Monitoring of the supply voltage	No
Wire break	No
Short-circuit	No

	6ES7523-1BL00-0AA0
Diagnostics indicator LED	
RUN LED	Yes; green LED
ERROR LED	Yes; red LED
MAINT LED	No
Monitoring of the supply voltage	Yes; green LED
Channel status display	Yes; green LED
For channel diagnostics	No
For module diagnostics	No
Electrical isolation	
Electrical isolation of channels	
Between the channels	No
Between the channels, in groups of	8
Between the channels and the backplane bus	Yes
Permitted potential difference	
Between different circuits	75 VDC / 60 VAC (basic isolation)
Isolation	
Isolation tested with	707 VDC (type test)
Distributed mode	
Prioritized startup	Yes
Dimensions	
Width	25 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	280 g
Miscellaneous	
Note:	Supplied incl. 40-pin push-in front connector

Power reduction (derating) to total current of outputs (per group)

The following graphs show the load capacity of the outputs in relation to the mounting position and the ambient temperature.



① Horizontal mounting position
② Vertical mounting position

Figure 6-1 Details on total current of outputs (per group)

Dimensional drawing

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The dimensional drawing of the module on the mounting rail, as well as a dimensional drawing with open front cover, are provided in this appendix. Always observe the specified dimensions for installation in cabinets, control rooms, etc.

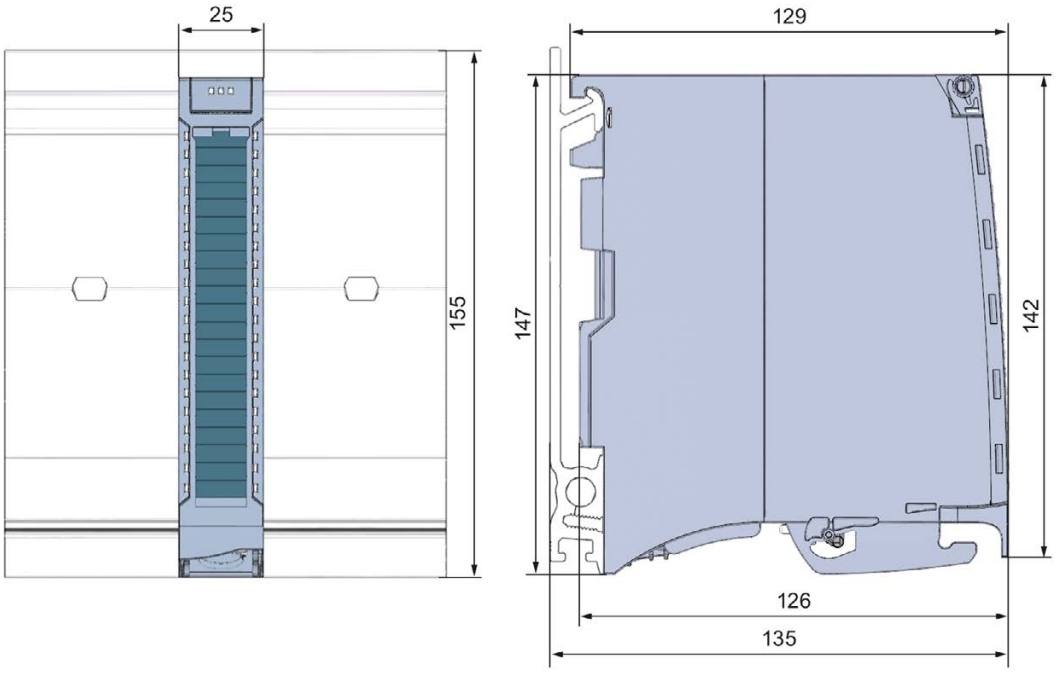


Figure A-1 Dimensional drawing of the DI 16x24VDC/DQ 16x24VDC/0.5A BA module