



[Home](#)

Full Navigation Path

- > [Siemens Industry Catalogue](#) > [Automation technology](#)
- > [Automation Systems](#)
- > [SIMATIC Industrial Automation Systems](#) > [Controllers](#)
- > [SIMATIC S7 modular controllers](#) > [S7-1200](#)
- > [Signal modules](#) > [Digital modules](#)
- > [SM 1223 digital input/output module](#)

URL:

<https://eb.automation.siemens.com/goos/catalog/pages/PrintPreviewProductData.aspx>

Current View:

[Product Information](#)



e.g. [Dear Customer](#)

Overview

- Digital inputs and outputs as supplement to the integral I/O of the CPUs
- For flexible adaptation of the controller to the relevant task
- For subsequent expansion of the system with additional inputs and outputs

Application

Digital input/output modules permit:

- Connection of the controller to digital signals of the process
- Output of digital signals from the controller to the process

This provides users with the following advantages:

- Optimum adaptation:
With signal modules which can be mixed as desired, users can adapt their controllers exactly to the relevant task. This avoids superfluous investments. Modules with 8, 16, and 32 input/output channels are available.
- Flexibility:
If the task is expanded subsequently, the controller can be upgraded. Updating of the user program is extremely simple

Function

The SM 1223 digital input/output signal modules convert

- the level of the external digital signals from the process into the internal signal level of the S7-1200 and
- the internal signal level of the S7-1200 into the external signal level required by the process.

Technical specifications

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	1BH30-0XB0	1BL30-0XB0	1PH30-0XB0	1PL30-0XB0	1QH30-0XB0
Product type designation	SM 1223 DI 8x24 VDC, DQ 8x24 VDC	SM 1223 DI 16x24 VDC, DQ 16x24 VDC	SM 1223 DI 8x24 VDC, DQ 8xRelay	SM 1223 DI 16x24 VDC, DQ 16xRelay	120/230 V AC SM223 DIx8/DQx8 RLY
CiR - Configuration in RUN					
Reparameterization possible in RUN					
■ 24 V DC	Yes	Yes	Yes	Yes	Yes
■ permissible range, lower limit (DC)	20.4 V	20.4 V	20.4 V	20.4 V	20.4 V
■ permissible range, upper limit (DC)	28.8 V	28.8 V	28.8 V	28.8 V	28.8 V
from backplane bus 5 V DC, max.	145 mA	185 mA	145 mA	180 mA	120 mA
Digital inputs					
■ from load voltage L+ (without load), max.	4 mA; per channel	4 mA; per channel			
Power supply to the transmitters					
■ present	Yes	Yes	Yes	Yes	Yes
Power losses					
Power loss, typ.	2.5 W	4.5 W	5.5 W	10 W	
Digital inputs					
Number of digital inputs	8	16	8	16	8
■ in groups of	2	2	2	2	4
Number of simultaneously controllable inputs					
■ all mounting positions					
■ Concurrently controllable inputs, up to 40 °C	8	16	8	16	8
■ horizontal installation					
■ up to 40 °C, max.	8	16	8	16	8
■ up to 50 °C, max.	8	16	8	16	8
■ vertical installation					
■ up to 40 °C, max.	8	16	8	16	8
Input characteristic curve acc. to IEC 1131, Type 1	Yes	Yes	Yes	Yes	Yes
Input voltage					
■ Rated value, AC					230 V
■ Rated value, DC	24 V	24 V	24 V	24 V	
■ for signal "0"	5 V DC at 1 mA	5 V DC at 1 mA	5 V DC at 1 mA	5 V DC at 1 mA	20 V AC at 1 mA

■ for signal "1"	15 V DC at 2.5 mA	15 V DC at 2.5 mA	15 V DC at 2.5 mA	15 V DC at 2.5 mA	79 V AC at 2.5 mA
Input current					
■ for signal "0", max. (permissible quiescent current)	1 mA	1 mA	1 mA	1 mA	1 mA
■ for signal "1", min.	2.5 mA	2.5 mA	2.5 mA	2.5 mA	2.5 mA
■ for signal "1", typ.	4 mA; Typical	4 mA; Typical	4 mA; Typical	4 mA; Typical	9 mA; Typical
Input delay (for rated value of input voltage)					
■ for standard inputs					
■ parameterizable	Yes; 0.2, 0.4, 0.8, 1.6, 3.2, 6.4, and 12.8 ms, selectable in groups of four	Yes; 0.2, 0.4, 0.8, 1.6, 3.2, 6.4, and 12.8 ms, selectable in groups of four	Yes; 0.2, 0.4, 0.8, 1.6, 3.2, 6.4, and 12.8 ms, selectable in groups of four	Yes; 0.2, 0.4, 0.8, 1.6, 3.2, 6.4, and 12.8 ms, selectable in groups of four	Yes; 0.2, 0.4, 0.8, 1.6, 3.2, 6.4, and 12.8 ms, selectable in groups of four
■ for interrupt inputs					
■ parameterizable	Yes	Yes	Yes	Yes	Yes
Cable length					
■ Cable length, shielded, max.	500 m	500 m	500 m	500 m	500 m
■ Cable length unshielded, max.	300 m	300 m	300 m	300 m	300 m
Digital outputs					
Number of digital outputs	8	16	8	16	8
■ in groups of	1	1	2	4	2
Short-circuit protection	No; to be provided externally	No; to be provided externally	No; to be provided externally	No; to be provided externally	No; to be provided externally
Limitation of inductive shutdown voltage to	L+ (-48 V)	L+ (-48 V)			
Switching capacity of the outputs					
■ with resistive load, max.	0.5 A	0.5 A	2 A	2 A	2 A
■ on lamp load, max.	5 W	5 W	30 W DC ; 200 W AC	30 W DC ; 200 W AC	30 W DC ; 200 W AC
Output voltage					
■ Rated value (AC)			5 to 250 V AC	5 to 250 V AC	5 to 250 V AC
■ Rated value (DC)	24 V	24 V	5 to 30 V AC	5 to 30 V AC	5 to 30 V DC
■ for signal "0" (DC), max.	0.1 V; with 10 kOhm load	0.1 V; with 10 kOhm load			
■ for signal "1", min.	20 VDC	20 VDC			

Output current					
■ for signal "1" permissible range, max.	0.5 A	0.5 A	2 A	2 A	2 A
■ for signal "0" residual current, max.	10 µA	10 µA			
Output delay with resistive load					
■ 0 to "1", max.	50 µs	50 µs	10 ms	10 ms	10 ms
■ 1 to "0", max.	200 µs	200 µs	10 ms	10 ms	10 ms
Aggregate current of outputs (per group)					
■ horizontal installation					
■ up to 50 °C, max.	4 A; Current per mass	8 A; Current per mass	10 A; Current per mass	8 A; Current per mass	10 A; Current per mass
Cable length					
■ Cable length, shielded, max.	500 m	500 m	500 m	500 m	500 m
■ Cable length unshielded, max.	150 m	150 m	150 m	150 m	150 m
Relay outputs					
Number of relay outputs			8	16	8
Rated input voltage of relay L+ (DC)			24 V	24 V	24 V
Number of operating cycles			mechanically 10 million, at rated load voltage 100,000	mechanically 10 million, at rated load voltage 100,000	mechanically 10 million, at rated load voltage 100,000
Switching capacity of contacts					
■ with inductive load, max.	0.5 A	0.5 A	2 A	2 A	2 A
■ on lamp load, max.	5 W	5 W	30 W DC ; 200 W AC	30 W DC ; 200 W AC	30 W DC ; 200 W AC
■ with resistive load, max.	0.5 A	0.5 A	2 A	2 A	2 A
Interrupts/diagnostics/status information					
Alarms					
■ Alarms	Yes	Yes	Yes	Yes	Yes
■ Diagnostic alarm	Yes	Yes	Yes	Yes	Yes
Diagnoses					
■ Diagnostic functions	Yes	Yes	Yes	Yes	Yes
Diagnostics indication LED					
■ for status of the	Yes	Yes	Yes	Yes	Yes

inputs					
■ For status of the outputs	Yes	Yes	Yes	Yes	Yes
■ for maintenance	Yes	Yes	Yes	Yes	Yes
■ Status indicator digital output (green)	Yes	Yes	Yes	Yes	Yes
■ Status indicator digital input (green)	Yes	Yes	Yes	Yes	Yes
Galvanic isolation					
Galvanic isolation digital inputs					
■ between the channels, in groups of	2	2	2	2	2
Galvanic isolation digital outputs					
■ between the channels			Relays	Relays	Relays
■ between the channels, in groups of	1	1	2	4	2
■ between the channels and the backplane bus	500 VAC	500 VAC	1500 V AC for 1 minute	1500 V AC for 1 minute	1500 V AC for 1 minute
Climatic and mechanical conditions for storage and transport					
Climatic conditions for storage and transport					
■ Free fall					
■ Drop height, max. (in packaging)	0.3 m; Five times, in dispatch package	0.3 m; Five times, in dispatch package	0.3 m; Five times, in dispatch package	0.3 m; Five times, in dispatch package	0.3 m; Five times, in dispatch package
■ Temperature					
■ Permissible temperature range	-40 °C to +70 °C	-40 °C to +70 °C	-40 °C to +70 °C	-40 °C to +70 °C	-40 °C to +70 °C
■ Air pressure acc. to IEC 60068-2-13					
■ Permissible air pressure	1080 to 660 hPa	1080 to 660 hPa	1080 to 660 hPa	1080 to 660 hPa	1080 to 660 hPa
■ Relative humidity					
■ Permissible range (without condensation) at 25 °C	95%	95%	95%	95%	95%

Mechanical and climatic conditions during operation

Climatic conditions in operation

■ Temperature					
■ permissible temperature change	5°C to 55°C, 3°C / minute	5°C to 55°C, 3°C / minute	5°C to 55°C, 3°C / minute	5°C to 55°C, 3°C / minute	5°C to 55°C, 3°C / minute
IP20	Yes	Yes	Yes	Yes	Yes
Standards, approvals, certificates					
CE mark	Yes	Yes	Yes	Yes	Yes
C-TICK	Yes	Yes	Yes	Yes	Yes
FM approval	Yes	Yes	Yes	Yes	Yes
Connection method					
required front connector	Yes	Yes	Yes	Yes	Yes
Mechanics/material					
Type of housing (front)					
■ Plastic	Yes	Yes	Yes	Yes	Yes
Dimensions and weight					
Dimensions					
■ Width	45 mm	70 mm	45 mm	70 mm	45 mm
■ Height	100 mm	100 mm	100 mm	100 mm	100 mm
■ Depth	75 mm	75 mm	75 mm	75 mm	75 mm
Weight					
■ Weight, approx.	210 g	310 g	230 g	350 g	230 g

More information

Brochures

Information material for downloading can be found in the Internet:

<http://www.siemens.com/simatic/printmaterial>