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# **SIEMENS**

## SIPLUS SM 1223 digital input/output modules

### Overview

- Digital inputs and outputs as supplement to the integral I/O of the CPUs
- For flexible adaptation of the controller to the corresponding task
- For subsequent expansion of the system with additional inputs and outputs
- From +60 °C to +70 °C, max. 50% of the inputs can be controlled simultaneously

#### Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

### 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 controller and
- the internal signal level of the SIMATIC S7-1200 Controller into the external signal level required for the process.

### Technical specifications

Article number	6AG1223-1BH32- 2XB0	6AG1223-1BH32- 4XB0	6AG1223-1PH32- 2XB0	6AG1223-1PH32- 4XB0
	SIPLUS S7-1200 SM 1223 8DI/8DQ	SIPLUS S7-1200 SM 1223 8DI/8DQ	SIPLUS S7-1200 SM 1223 8DI/8DQ RLY	SIPLUS S7-1200 SM 1223 8DI/8DQ RLY
General information				
Product type designation	SM 1223, DI 8x24 V DC, DQ 8x24 V DC	SM 1223, DI 8x24 V DC, DQ 8x24 V DC	SM 1223, DI 8x24 V DC, DQ 8x relay	SM 1223, DI 8x24 V DC, DQ 8x relay
Supply voltage				•
Rated value (DC)	24 V	24 V	24 V	24 V
permissible range, lower limit (DC)	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
Input current				
from backplane bus 5 V DC, max.	145 mA	145 mA	145 mA	145 mA
Digital inputs				
<ul> <li>from load voltage L+</li> </ul>	4 mA; per channel	4 mA; per channel	4 mA/input 11 mA/relay	4 mA/input 11 mA/relay
(without load), max.			III-viciay	III-viciay
output voltage / header supply voltage of the transmitters / header				
<ul> <li>product function / supply</li> </ul>	Yes	Yes	Yes	Yes
voltage for transmitters				
Power loss			·	
Power loss, typ.	2.5 W	2.5 W	5.5 W	5.5 W
Digital inputs		-	*	•
Number of digital inputs	8	8	8	8
• in groups of	2	2	2	2
Input characteristic curve in accordance with IEC 61131, type 1	Yes	Yes	Yes	Yes
Number of simultaneously controllable inputs	,			
all mounting positions				
— up to 40 °C, max.	8	8	8	8
horizontal installation				
— up to 40 °C, max.	8	8	8	8
— up to 50 °C, max.	8	8	8	8
vertical installation				
— up to 40 °C, max.	8	8	8	8
Input voltage		-		•
Type of input voltage	DC	DC	DC	DC
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
• 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
		·	·	

Article number	6AG1223-1BH32- 2XB0 SIPLUS S7-1200 SM 1223 8DI/8DQ	6AG1223-1BH32- 4XB0 SIPLUS S7-1200 SM 1223 8DI/8DQ	6AG1223-1PH32- 2XB0 SIPLUS S7-1200 SM 1223 8DI/8DQ RLY	6AG1223-1PH32- 4XB0 SIPLUS S7-1200 SM 1223 8DI/8DQ RLY
Input current				
<ul> <li>for signal "0", max.</li> <li>(permissible quiescent current)</li> </ul>	1 mA	1 mA	1 mA	1 mA
• for signal "1", min.	2.5 mA	2.5 mA	2.5 mA	2.5 mA
-	4 mA	4 mA	4 mA	4 mA
for signal "1", typ.  Input delay (for rated value of	- 111/2		71110	
input voltage)				
for standard inputs — parameterizable	Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four	Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four	Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four	Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four
for interrupt inputs  — parameterizable	Yes	Yes	Yes	Yes
Cable length		•	•	
shielded, max.	500 m	500 m	500 m	500 m
unshielded, max.	300 m	300 m	300 m	300 m
Digital outputs  Number of digital outputs	8	8	8	8
<ul> <li>in groups of</li> </ul>	1	1	2	2
Short-circuit protection  Limitation of inductive shutdown	No; to be provided externally L+ (-48 V)	No; to be provided externally L+ (-48 V)	No; to be provided externally	No; to be provided externally
voltage to		- ( */		
Switching capacity of the outputs				
• with resistive load, max.	0.5 A	0.5 A	2 A	2 A
• on lamp load, max.	5 W	5 W	30 W with DC, 200 W with AC	30 W with DC, 200 W with AC
Output voltage • Rated value (DC)	24 V	24 V	5 V DC to 30 V DC	5 V DC to 30 V DC
• Rated value (AC)			5 V AC to 250 V AC	5 V AC to 250 V AC
• for signal "0", max.	0.1 V; with 10 kOhm load	0.1 V; with 10 kOhm load		
• for signal "1", min.	20 V DC	20 V DC		
Output current				
• for signal "1" rated value	0.5 A	0.5 A	2 A	2 A
<ul> <li>for signal "1" permissible range, max.</li> </ul>	0.5 A	0.5 A	2 A	2 A
<ul> <li>for signal "0" residual current, max.</li> </ul>	10 μΑ	10 μΑ		
Output delay with resistive load				
• "0" to "1", max.	50 μs	50 μs	10 ms	10 ms
• "1" to "0", max.	200 µs	200 μs	10 ms	10 ms
Total current of the outputs (per group) horizontal installation — up to 50 °C, max.	4 A; Current per mass	4 A; Current per mass	10 A; Current per mass	10 A; Current per mass
Relay outputs			0	
Number of relay outputs     Rated supply voltage of			8 24 V	8 24 V
relay coil L+ (DC)  • Number of operating			mechanically 10 million, at rated load	mechanically 10 million, at rated load
cycles, max.  Switching capacity of contacts			voltage 100 000	voltage 100 000
— with inductive load, max.			2 A	2 A
— on lamp load, max.			30 W with DC, 200 W with AC 2 A	30 W with DC, 200 W with AC 2 A
with resistive load, max.  Cable length				
shielded, max.	500 m	500 m	500 m	500 m
unshielded, max.	150 m	150 m	150 m	150 m
Interrupts/diagnostics/status information			-	
Alarms	Yes	Yes	Yes	Yes
Diagnostics function	Yes	Yes	Yes	Yes
Alarms  ■ Diagnostic alarm	Yes	Yes	Yes	Yes
Diagnoses  • Monitoring the supply voltage	Yes	Yes	Yes	Yes
Diagnostics indication LED		Yes	Voc	Voc
-			Yes	Yes
• for status of the inputs	Yes		Vac	Vac
-	Yes Yes	Yes Yes	Yes Yes	Yes Yes

Article number	6AG1223-1BH32- 2XB0 SIPLUS S7-1200 SM 1223 8DI/8DQ	6AG1223-1BH32- 4XB0 SIPLUS S7-1200 SM 1223 8DI/8DQ	6AG1223-1PH32- 2XB0 SIPLUS S7-1200 SM 1223 8DI/8DQ RLY	6AG1223-1PH32- 4XB0 SIPLUS S7-1200 SM 1223 8DI/8DQ RLY
Potential separation digital	1223 0D1/0DQ	1223 0D1/0DQ	1223 0D1/0DQ 11E1	1223 0D1/0DQ 1\C1
<ul> <li>between the channels, in groups of</li> </ul>	2	2	2	2
Potential separation digital outputs	,			,
between the channels			Relays	Relays
<ul> <li>between the channels, in groups of</li> </ul>	1	1	2	2
between the channels and	500 V AC	500 V AC	1 500 V AC for 1 minute	1 500 V AC for 1 minute
backplane bus  Permissible potential difference				
between different circuits  Degree and class of protection			750 V AC for 1 minute	750 V AC for 1 minute
IP degree of protection  Ambient conditions	IP20	IP20	IP20	IP20
Free fall  Fall height, max.	0.3 m; five times, in	0.3 m; five times, in	0.3 m; five times, in	0.3 m; five times, in
Ambient temperature during	product package	product package	product package	product package
operation  • min.	-40 °C; = Tmin (incl.	-20 °C; = Tmin (incl.	-40 °C; = Tmin (incl.	-20 °C; = Tmin (incl.
• max.	condensation/frost); start-up @ -25 °C 70 °C; = Tmax; Tmax > +60 °C number of simultaneously activated outputs 4, inputs 4 (no adjacent points) for horizontal mounting position	condensation/frost); start-up @ 0 °C 60 °C; = Tmax	condensation/frost); start-up @ -25 °C 70 °C; = Tmax; Tmax > +60 °C number of simultaneously activated outputs 4, inputs 4 (no adjacent points) for horizontal mounting position	condensation/frost); start-up @ 0 °C 60 °C; = Tmax
At cold restart, min.	-25 °C	0 °C	-25 °C	0 °C
Ambient temperature during storage/transportation				
• min.	-40 °C	-40 °C	-40 °C	-40 °C
• max.	70 °C	70 °C	70 °C	70 °C
Altitude during operation relating to sea level  Installation altitude above sea level, max.	5 000 m	5 000 m	2 000 m	2 000 m
Ambient air temperature- barometric pressure-altitude	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax -10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax -20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m)	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m) +2 000 m) // Tmin (Tmax -10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax -20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m)	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m) +2 000 m) // Tmin (Tmax -10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax -2 0K) at 658 hPa 540 hPa (+3 500 m +5 000 m); above 2 000 m max. 132 V AC	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m) // Tmin (Tmax -10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax - 20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m); above 2 000 m max. 132 V AC
Relative humidity	100 % . DH in al	100 % . DH incl	100 % DH incl	100 % . DH incl
With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance Coolants and lubricants			•	,
Resistant to     commercially available     coolants and lubricants  Use in stationary industrial	Yes	Yes	Yes	Yes
systems — to biologically active	Yes; Class 3B2 mold,	Yes; Class 3B2 mold,	Yes; Class 3B2 mold,	Yes; Class 3B2 mold,
substances according to EN 60721-3-3  — to chemically active substances according to EN	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-	75 %) incl. salt spray acc. to EN 60068-2-	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-
60721-3-3  — to mechanically active	52 (severity degree 3); * Yes; Class 3S4 incl. sand, dust, *	52 (severity degree 3); * Yes; Class 3S4 incl. sand, dust, *	52 (severity degree 3); * Yes; Class 3S4 incl. sand, dust, *	52 (severity degree 3); * Yes; Class 3S4 incl. sand, dust, *
substances according to EN 60721-3-3				
Use on ships/at sea	v a			
<ul> <li>to biologically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *			Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
<ul> <li>to mechanically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology				

- Against chemically active substances acc. to EM colored grace inclored grace in	Article number	6AG1223-1BH32- 2XB0 SIPLUS S7-1200 SM 1223 8DI/8DQ	6AG1223-1BH32- 4XB0 SIPLUS S7-1200 SM 1223 8DI/8DQ	6AG1223-1PH32- 2XB0 SIPLUS S7-1200 SM 1223 8DI/8DQ RLY	6AG1223-1PH32- 4XB0 SIPLUS S7-1200 SM 1223 8DI/8DQ RLY
Foreign   Procession against fouling acc. lo EN 6064-3	•	Yes; Class 3 (excluding	Yes; Class 3 (excluding	Yes; Class 3 (excluding	Yes; Class 3 (excluding
ABS (excluding and control systems ac. to ANSI/SA-71.04   ABS (excluding control systems ac. to ANSI/SA-71.04   be in limit of EN and the control of the c	60654-4			,	,
Answiss.A-7.1 of Answiss.B-2.1 of Answ		A/B (excluding	A/B (excluding	A/B (excluding	A/B (excluding
ANSI/ISA-71.04  ANSI/ISA-71.04  BOT-24-3 class 32 Commissible); loved   Commissible; loved	•	harmful gas	harmful gas	harmful gas	harmful gas
Conformation   Conf					
C3 (salt spray) and local spray) and local spray) and local spray and local		60721-3-3 class 3C4	60721-3-3 class 3C4	60721-3-3 class 3C4	60721-3-3 class 3C4
*The supplied plug overs must remain in disassification of environmental conditions acc. to EN 60721. EN 60664 and ANSI/ISA- 71.04  *Conformal coating over the unuse operation of control of the company of the company operation of the company oper		LC3 (salt spray) and	LC3 (salt spray) and	LC3 (salt spray) and	LC3 (salt spray) and
classification of environmental conditions act. to EN 60721.EN 60664 and ANSI/ISA- 71.04  Conformal coating				* The supplied plug	* The supplied plug
Interfaces during operation   Inte					
acc. to EN 60721, EN 60654-4 and ANSIISA-71.04  Conformar coating  • Coatings for printed circuit borard assemblies acc. to EN 60664-3  • Protection against fouling to EN 61098  • Protection against fouling service life vies; Conformal coating, Class A   **Yes, Discoloration of coating possible during service life vies; Conformal coating, Class A   **Yes, Corloral coating, Class A  **Yes  **Yes  **Yes  **Yes  **Yes  **Yes  **Yes  **Protection Against fouling to En 7098  **Yes  **Yes  **Yes  **Yes  **Yes  **Yes  **Yes  **Protection Against fouling to En 7098  **Yes  **Yes  **Yes  **Yes  **Yes  **Yes  **Yes  **Protection Against fouling service life vies; Conformal coating, Class A  **Yes  **Yes  **Protection of Conformal coating, Class A  **Yes  **Supply voltage  **Reted value (C)  **Op 16x relay  **Yes		interfaces during	interfaces during	interfaces during	interfaces during
Conformal coating  - Coatings for printed circuit band assemblies acc. to EN 60864-3  - Protection against fouling acc. to EN 60864-3  - Protection against fouling acc. to EN 60864-3  - Millarly reting according to Mill-A6058C, Amendment 7 Coating possible during service life very performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A  Connection method / header required front commettor was been been been been been been been bee	acc. to EN 60721, EN	operation!	operation!	operation!	operation!
Conformal costing         Coadings for printed circuit board assemblise act. to EN 61086         Yes; Class 2 for high reliability r	60654-4 and ANSI/ISA-				
• Coasings for printed circuit borard assemblies acc. to EN R 1988 of	71.04				
Perspective of the production against fouling acc. to EN 660864-3   Perspective or production against fouling acc. to EN 660864-3   Perspective or production against fouling acc. to EN 660864-3   Perspective or production acc. to EN 660864-3   Perspective or productio	Conformal coating			•	•
Section   Production against fouling   Acc. to EN 606643   Protection   Protecti	<ul> <li>Coatings for printed circuit</li> </ul>				
acc. to EN 60864-3  • Millary testing according to Mill-1400862, Amendment 7  • Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A connection method / header required front connector Mechanics/material Enclosure material (front)  • Plastic  • Plastic  • Plastic  • Power loss propound for Printed Board Assemblies according to IPC-CC-830A conformal coating, Class A  • Plastic  • Plastic  • Propound for Printed Board Assemblies according to IPC-CC-830A conformal coating, Class A  • Plastic  • Plastic  • Plastic  • Propound Front Printed Board Assemblies according to IPC-CC-830A conformal coating, Class A  • Plastic  • Plastic  • Plastic  • Plastic  • Propound Front Printed Board Assemblies according to IPC-CC-830A conformal coating, Class A  • String Propound Front Printed Board Assemblies according to IPC-CC-830A conformal coating, Class A  • Plastic  • Propound Front Printed Board Assemblies according to IPC-CC-830A conformal coating, Class A   • String Printed Front Connector Res Pres Pres Pres Pres Pres Pres Pres Pr		· onabinty	· onabinty	· onazmi,	· onabinty
Military testing according to MILI-46058C, Amendment 7     MILI-46058C, Amendment 7     Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A      Connection method / header required front connector Mechanics/material Enclosure material (front)     Plastic     Plastic     Plastic     Military testing according to IPC-CC-830A      Connection method / header required front connector     Plastic     Plastic     Plastic     Military testing according to IPC-CC-830A      Connection method / header required front connector     Plastic     Plastic     Plastic     Military testing according to IPC-CC-830A      Connection method / header required front connector     Plastic     Plastic     Yes     Yes     Yes     Yes     Yes     Yes     Plastic     Midh    45 mm    45 mm    45 mm    45 mm    45 mm    100 mm   100		Yes; Type 1 protection	Yes; Type 1 protection	Yes; Type 1 protection	Yes; Type 1 protection
MIL-1-46058C, Amendment 7  • Qualification and level (Psc. Conformal coating possible during service life vers. Conformal coating, Class A coating possible during service life vers. Conformal coating, Class A coating possible during service life vers. Conformal coating, Class A coating possible during service life vers. Conformal coating, Class A coating possible during service life vers. Conformal coating, Class A coating, Cla					Yes; Discoloration of
● Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A Conformal coaling, Class A Pes Ves Ves Ves Ves Mechanics/material Enclosure material (front) ● Plastic Ves Ves Ves Ves Ves Ves Ves Ves Ves Mechanics/material Enclosure material (front) ● Plastic Ves Ves Ves Ves Ves Ves Ves Ves Mechanics/material Enclosure material (front) ● Plastic Ves		coating possible		coating possible	coating possible
Description		-	Yes; Conformal	-	Yes; Conformal
Insulating Compound for Printed Board Assemblies according to IPC-CC-830A  Connection method / header required front connector Yes Yes Yes Yes Yes Yes Yes Yes Yes Pes Pes Pes Pes Pes Pes Pes Pes Pes P			coating, Class A		coating, Class A
Printed Board Assemblies according to IPC-CC-830A Connection method / header required front connector Pes Yes Yes Yes Yes Yes Pes Pes Pes Pes Pes Pes Pes Pes Pes P					
Second   Connection   Connec	- ·				
Tesquired front connector   Yes	according to IPC-CC-830A				
Mechanics/material   Enclosure material (front)   Plastic   Yes					
Enclosure material (front)		Yes	Yes	Yes	Yes
Plastic   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Yes   Public					
Width   45 mm   45 mm   45 mm   45 mm   45 mm   45 mm   100 mm	, ,	Yes	Yes	Yes	Yes
Height	Dimensions	•			
Depth   75 mm	Width	45 mm	45 mm	45 mm	45 mm
Weights   Weight, approx.	-				
Weight, approx.   210 g   210 g   230 g   230 g   230 g     Article number		75 mm	/5 mm	75 mm	75 mm
ARD   SYRD   S	-	210 g	210 g	230 g	230 g
SIPLUS S7-1200 SM   SIPLUS S7-1200 SM   1223 16DI/16DQ RLY   1223 16DI	Article number				
Sem   Information   Product type designation					SIPLUS S7-1200 SM
Product type designation	Ganaral information	1223 16DI/16DQ RLY	1223 16DI/16DQ RLY	1223 16DI/16DQ	1223 16DI/16DQ
Rated value (DC)					SM 1223, DI 16x24 DC, DQ 16x24 V DC
Depth   Dept		•	•		
DC   permissible range, upper limit (DC)   permissible range, upper limit (DC)	* *				
Input current   Input curren		20.4 ¥	20.4 ¥	20.4 ¥	20.4 ¥
from backplane bus 5 V DC, max.  Digital inputs  • from load voltage L+ (without load), max.  Output voltage / header supply voltage of the transmitters / header  • product function / supply voltage for transmitters  Power loss Power loss, typ.  10 W  10 W  4.5 W  4.5 W  4.5 W  16  16  16  16  16  16  16  16  16  1		28.8 V	28.8 V	28.8 V	28.8 V
max.           Digital inputs         • from load voltage L+ (without load), max.         4 mA/input 11 mA/relay         4 mA/input 11 mA/relay         4 mA; per channel         4 mA; per channel           country voltage / header           supply voltage of the transmitters / header           • product function / supply voltage for transmitters         Yes         Ye		100 4	100 4	405 4	105 1
• from load voltage L+ (without load), max.  output voltage / header supply voltage of the transmitters / header  • product function / supply voltage for transmitters  Power loss Power loss, typ. 10 W 10 W 4.5 W 4.5 W  Digital inputs Number of digital inputs 16 16 16 16  • in groups of 2 2 2 2  Input characteristic curve in accordance with IEC 61131, type 1  Number of simultaneously controllable inputs all mounting positions  — up to 40 °C, max. 16 16 16 16 16  • in qu to 40 °C, max. 16 16 16 16 16 16  • in qu to 40 °C, max. 16 16 16 16 16 16 16  • in qu to 40 °C, max. 16 16 16 16 16 16 16 16 16 16 16 16 16	max.	180 MA	180 MA	185 MA	185 MA
(without load), max.         mA/relay         mA/relay         mA/relay         mA/relay         mA/relay         with relay         colspan="3">mA/relay         mA/relay         with relay         yes         Yes      <	-	4 mA/input 11	4 m A linnut 11	4 mA, per channel	1 m A : nor shannal
output voltage / header           supply voltage of the transmitters / header           ● product function / supply voltage for transmitters         Yes         Yes         Yes           Power loss, typ.         10 W         10 W         4.5 W         4.5 W           Digital inputs         16         16         16         16           ■ in groups of         2         2         2         2         2           Input characteristic curve in accordance with IEC 61131, type         Yes         Yes         Yes         Yes           Number of simultaneously controllable inputs         all mounting positions         — up to 40 °C, max.         16         16         16         16           — up to 40 °C, max.         16         16         16         16         16				4 ma, per channel	4 mA, per channer
supply voltage of the transmitters / header	output voltage / header				
● product function / supply voltage for transmitters  Power loss Power loss, typ. 10 W 10 W 4.5 W 4.5 W  Digital inputs Number of digital inputs 16 16 16 16 16 ● in groups of 2 2 2 2 2  Input characteristic curve in accordance with IEC 61131, type 1  Number of simultaneously controllable inputs 18 III mounting positions — up to 40 °C, max. 16 16 16 16 16 16 16 16 16 16 16 16 16	supply voltage of the				
voltage for transmitters         Power loss, typ.       10 W       10 W       4.5 W       4.5 W         Digital inputs         Number of digital inputs       16       16       16       16         • in groups of       2       2       2       2       2         Input characteristic curve in accordance with IEC 61131, type       Yes       Yes       Yes       Yes         Number of simultaneously controllable inputs       Number of simultaneously controllable inputs       Interview of the properties of the		Yes	Yes	Yes	Yes
Power loss, typ.         10 W         10 W         4.5 W         4.5 W           Digital inputs         16         16         16         16         16                • in groups of proper second and with IEC 67 131, type accordance with IEC 67 131, typ					
Digital inputs       Number of digital inputs     16     16     16       ● in groups of     2     2     2     2       Input characteristic curve in accordance with IEC 61131, type     Yes     Yes     Yes     Yes       Number of simultaneously controllable inputs       all mounting positions       — up to 40 °C, max.     16     16     16     16       horizontal installation       — up to 40 °C, max.     16     16     16     16	Power loss				
Number of digital inputs       16       16       16       16         • in groups of       2       2       2       2         Input characteristic curve in accordance with IEC 61131, type       Yes       Yes       Yes         Number of simultaneously controllable inputs       Simultaneously controllable inputs         all mounting positions       — up to 40 °C, max.       16       16       16       16       16         — up to 40 °C, max.       16       16       16       16       16	• • • • • • • • • • • • • • • • • • • •	10 W	10 W	4.5 W	4.5 W
in groups of 2 2 2 2 2 2 Input characteristic curve in accordance with IEC 61131, type 1  Number of simultaneously controllable inputs all mounting positions  — up to 40 °C, max. 16 16 16 16 16 16 16 16 16 16 16 16 16	-	16	16	16	16
The description of the descrip	- ·				
1 Number of simultaneously controllable inputs all mounting positions  — up to 40 °C, max. 16 16 16 16 16 16 16 16 16 16 16 16 16	Input characteristic curve in		Yes	Yes	Yes
controllable inputs         all mounting positions         — up to 40 °C, max.       16       16       16         horizontal installation         — up to 40 °C, max.       16       16       16	1				
— up to 40 °C, max. 16 16 16 16 16 16 16 16 16 16 16 16 16					
horizontal installation — up to 40 °C, max. 16 16 16 16	<del>-</del> -				
— up to 40 °C, max. 16 16 16 16	•	16	16	16	16
up to 40 C, max.		10	10	10	10
— up to 50 °C, max. 16 16 16	— up to 40 °C, max.				
	— up to 50 °C, max.	16	16	16	16

Article number	6AG1223-1PL32- 2XB0 SIPLUS S7-1200 SM 1223 16DI/16DQ RLY	6AG1223-1PL32- 4XB0 SIPLUS S7-1200 SM 1223 16DI/16DQ RLY	6AG1223-1BL32- 2XB0 SIPLUS S7-1200 SM 1223 16DI/16DQ	6AG1223-1BL32- 4XB0 SIPLUS S7-1200 SM 1223 16DI/16DQ
— up to 40 °C, max.	16	16	16	16
Input voltage	•	•		
<ul> <li>Type of input voltage</li> </ul>	DC	DC	DC	DC
<ul> <li>Rated value (DC)</li> </ul>	24 V	24 V	24 V	24 V
• for signal "0"	5 V DC at 1 mA			
• for signal "1"	15 V DC at 2.5 mA			
Input current	•	•	•	
<ul> <li>for signal "0", max.</li> <li>(permissible quiescent current)</li> </ul>	1 mA	1 mA	1 mA	1 mA
• for signal "1", min.	2.5 mA	2.5 mA	2.5 mA	2.5 mA
• for signal "1", typ.	4 mA	4 mA	4 mA	4 mA
Input delay (for rated value of				
input voltage)				
for standard inputs  — parameterizable	Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four	Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four	Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four	Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four
for interrupt inputs	Yes	Yes	Yes	Yes
— parameterizable			.55	
Shielded, max.	500 m	500 m	500 m	500 m
	300 m	300 m	300 m	300 m
unshielded, max.  Digital outputs				
Number of digital outputs	16 4	16 4	16 1	16 1
• in groups of				
Short-circuit protection  Limitation of inductive shutdown	No; to be provided externally	No; to be provided externally	No; to be provided externally L+ (-48 V)	No; to be provided externally L+ (-48 V)
voltage to				
Switching capacity of the outputs				
with resistive load, max.	2 A	2 A	0.5 A	0.5 A
on lamp load, max.	30 W with DC, 200 W		5 W	5 W
·	with AC	with AC		
Output voltage    Rated value (DC)	5 V DC to 30 V DC	5 V DC to 30 V DC	24 V	24 V
Rated value (AC)	5 V AC to 250 V AC	5 V AC to 250 V AC		
, ,	0 1710 to 200 1710	0 1710 10 200 1710	0.1 V; with 10 kOhm	0.1 V; with 10 kOhm
<ul><li>for signal "0", max.</li></ul>			load	load
• for signal "1", min.			20 V DC	20 V DC
Output current				
<ul> <li>for signal "1" rated value</li> </ul>	2 A	2 A	0.5 A	0.5 A
for signal "1" permissible  range may	2 A	2 A	0.5 A	0.5 A
range, max.			10 μΑ	10 μA
<ul> <li>for signal "0" residual current, max.</li> </ul>			το μ/τ	ΙΟμίτ
Output delay with resistive load				,
• "0" to "1", max.	10 ms	10 ms	50 μs	50 µs
• "1" to "0", max.	10 ms	10 ms	200 µs	200 μs
Total current of the outputs (per group) horizontal installation				
— up to 50 °C, max.	8 A; Current per mass			
Relay outputs	•			
Number of relay outputs	16	16		
Rated supply voltage of	24 V	24 V		
relay coil L+ (DC)				
<ul> <li>Number of operating</li> </ul>	mechanically 10 million, at rated load	mechanically 10 million, at rated load		
cycles, max.	voltage 100 000	voltage 100 000		
Switching capacity of contacts  — with inductive load, max.	2 A	2 A	0.5 A	0.5 A
	30 W with DC, 200 W	30 W with DC, 200 W	5 W	5 W
— on lamp load, max.	with AC	with AC		
— with resistive load, max.	2 A	2 A	0.5 A	0.5 A
Cable length	500 m	500 m	500 m	500 m
<ul> <li>shielded, max.</li> </ul>	500 m	500 m	500 m	500 m
unshielded, max.	150 m	150 m	150 m	150 m
Interrupts/diagnostics/status information				
Alarms	Yes	Yes	Yes	Yes
Diagnostics function	Yes	Yes	Yes	Yes
Alarms	Yes	Yes	Yes	Yes
<ul> <li>Diagnostic alarm</li> </ul>	100	.00		

2/25/23, 10:00 AM		SIF	PLUS SM 1223 (	digital input/outp
Article number	6AG1223-1PL32- 2XB0 SIPLUS S7-1200 SM	6AG1223-1PL32- 4XB0 SIPLUS S7-1200 SM	6AG1223-1BL32- 2XB0 SIPLUS S7-1200 SM	6AG1223-1BL32- 4XB0 SIPLUS S7-1200 SM
Monitoring the supply	1223 16DI/16DQ RLY Yes	1223 16DI/16DQ RLY Yes	1223 16DI/16DQ	1223 16DI/16DQ
voltage				
Diagnostics indication LED	Yes	Yes	Yes	Yes
<ul><li>for status of the inputs</li><li>for status of the outputs</li></ul>	Yes	Yes	Yes	Yes
for maintenance	Yes	Yes	Yes	Yes
Potential separation Potential separation digital inputs				
between the channels, in groups of	2	2	2	2
Potential separation digital outputs		-		-
between the channels	Relays	Relays		
• between the channels, in groups of	4	4	1	1
between the channels and backplane bus	1 500 V AC for 1 minute	1 500 V AC for 1 minute	500 V AC	500 V AC
Permissible potential difference between different circuits	750 V AC for 1 minute	750 V AC for 1 minute		
Degree and class of protection				
IP degree of protection  Ambient conditions  Free fall	IP20	IP20	IP20	IP20
Fall height, max.	0.3 m; five times, in	0.3 m; five times, in	0.3 m; five times, in	0.3 m; five times, in
Ambient temperature during	product package	product package	product package	product package
operation  • min.	-40 °C; = Tmin (incl.	-20 °C; = Tmin (incl.	-40 °C; = Tmin (incl.	-20 °C; = Tmin (incl.
• max.	condensation/frost); start-up @ -25 °C 70 °C; = Tmax; Tmax > +60 °C number of simultaneously	condensation/frost); start-up @ 0 °C 60 °C; = Tmax	condensation/frost); start-up @ -25 °C 70 °C; = Tmax; Tmax > +60 °C number of simultaneously	condensation/frost); start-up @ 0 °C
	activated outputs 8, inputs 8 (no adjacent points) for horizontal mounting position		activated outputs 8, inputs 8 (no adjacent points) for horizontal mounting position	
At cold restart, min.	-25 °C	0 °C	-25 °C	0 °C
Ambient temperature during storage/transportation				
• min.	-40 °C	-40 °C	-40 °C	-40 °C
• max.	70 °C	70 °C	70 °C	70 °C
Altitude during operation relating to sea level				
<ul> <li>Installation altitude above sea level, max.</li> </ul>	2 000 m	2 000 m	5 000 m	5 000 m
Ambient air temperature- barometric pressure-altitude  Relative humidity	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax - 20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m); above 2 000 m max.	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax - 20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m); above 2 000 m max.	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax -20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m)	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax -20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m)
With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance Coolants and lubricants  — Resistant to commercially available coolants and lubricants	Yes	Yes	Yes	Yes
Use in stationary industrial systems — to biologically active	Yes; Class 3B2 mold, fungus and dry rot	Yes; Class 3B2 mold, fungus and dry rot	Yes; Class 3B2 mold, fungus and dry rot	Yes; Class 3B2 mold, fungus and dry rot
substances according to EN 60721-3-3	spores (with the exception of fauna); Class 3B3 on request	spores (with the exception of fauna); Class 3B3 on request	spores (with the exception of fauna); Class 3B3 on request	spores (with the exception of fauna); Class 3B3 on request
<ul> <li>to chemically active</li> <li>substances according to EN</li> <li>60721-3-3</li> </ul>	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree
to mechanically active substances according to EN	3); * Yes; Class 3S4 incl. sand, dust, *	3); * Yes; Class 3S4 incl. sand, dust, *	3); * Yes; Class 3S4 incl. sand, dust, *	3); * Yes; Class 3S4 incl. sand, dust, *
60721-3-3				
Use on ships/at sea				

2/25/25, TU.UU AIVI		Sii	-LU3 3	1223	algital input/out
Article number	6AG1223-1PL32- 2XB0 SIPLUS S7-1200 SM 1223 16DI/16DQ RL			S7-1200 SM	6AG1223-1BL32- 4XB0 SIPLUS S7-1200 SN 1223 16DI/16DQ
<ul> <li>to chemically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6C3 (RH 75 %) incl. salt spray acc. to EN 60068-2- 52 (severity degree 3); *	y 75 %) incl. salt spray	75 %) incl. salt spray acc. to EN 60068-2- ee 52 (severity degree 3); *		Yes; Class 6C3 (RH 75 %) incl. salt spray acc. to EN 60068-2- 52 (severity degree 3); *
<ul> <li>to mechanically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Clas sand, dus	s 6S3 incl. st; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process					
technology  — Against chemically active	Yes; Class 3	Yes; Class 3	Yes; Clas	s 3	Yes; Class 3
substances acc. to EN 60654-4	(excluding trichlorethylene)	(excluding trichlorethylene)	(excluding trichloreth		(excluding trichlorethylene)
<ul> <li>Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04</li> </ul>	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 4 60721-3-3 class 3C4 permissible); level	A/B (excl trichloreth harmful g concentra the limits 60721-3- permissib	nylene; las ations up to of EN 3 class 3C4 ble); level spray) and	Yes; Level GX grou A/B (excluding trichlorethylene; harmful gas concentrations up t the limits of EN 60721-3-3 class 30 permissible); level LC3 (salt spray) an level LB3 (oil)
Remark				` ,	,
Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04		* The supplied plug in covers must remain in place over the unused interfaces during operation!	covers m	er the unused s during	* The supplied plug covers must remain place over the unus interfaces during operation!
Conformal coating	V 01 01 11	- V Cl	V- 2:	- 0.5	V 01
<ul> <li>Coatings for printed circuit board assemblies acc. to EN 61086</li> </ul>	Yes; Class 2 for high reliability	Yes; Class 2 for high reliability	Yes; Clas reliability	s 2 for high	Yes; Class 2 for hig reliability
<ul> <li>Protection against fouling acc. to EN 60664-3</li> </ul>	Yes; Type 1 protection	on Yes; Type 1 protection	Yes; Type	1 protection	Yes; Type 1 protect
<ul> <li>Mill-I-46058C, Amendment 7</li> </ul>	Yes; Discoloration of coating possible during service life	f Yes; Discoloration of coating possible during service life	Yes; Disc coating p during se		Yes; Discoloration of coating possible during service life
Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A	Yes; Conformal coating, Class A	Yes; Conformal coating, Class A	Yes; Concoating, C		Yes; Conformal coating, Class A
connection method / header					
required front connector  Mechanics/material  Enclosure material (front)	Yes	Yes	Yes		Yes
Plastic	Yes	Yes	Yes		Yes
Dimensions					
Width Height	70 mm 100 mm	70 mm 100 mm	70 mm 100 mm		70 mm 100 mm
Depth	75 mm	75 mm	75 mm		75 mm
Weights					
Weight, approx.	350 g	350 g	310 g		310 g
Article number		<b>6AG1223-1QH32-2XB0</b> SIPLUS S7-1200 SM 122 AC/8DQ RLY	3 8DI	SIPLUS S7- AC/8DQ RLY	1200 SM 1223 8DI
General information Product type designation		SM 1223, DI 8x120/230 V 8x relay	AC, DQ	SM 1223, DI 8x relay	8x120/230 V AC, D
Supply voltage Rated value (DC)		24.1/		24.1/	
permissible range, lower limit (DC)		24 V 20.4 V		24 V 20.4 V	
permissible range, upper limit (DC)		28.8 V		28.8 V	
Input current from backplane bus 5 V DC, max.		120 mA		120 mA	
output voltage / header supply voltage of the transmitter • product function / supply vol		Yes		Yes	
Power loss	J				
Power loss, typ.  Digital inputs		7.5 W		7.5 W	
Number of digital inputs		8		8	
<ul> <li>in groups of</li> <li>Input characteristic curve in accordance</li> <li>61131, type 1</li> </ul>		4 Yes		4 Yes	
Number of simultaneously contr	ollable inputs				
all mounting positions		8		8	
- ·				O	
— up to 40 °C, max.		•			
— up to 40 °C, max.		8		8	
— up to 40 °C, max.				8	

	6AG1223-1QH32-2XB0 SIPLUS S7-1200 SM 1223 8DI AC/8DQ RLY	6AG1223-1QH32-4XB0 SIPLUS S7-1200 SM 1223 8DI AC/8DQ RLY
— up to 40 °C, max.	8	8
Input voltage		<u> </u>
Type of input voltage	AC	AC
Rated value (AC)	120/230 V AC	120/230 V AC
• for signal "0"	20 V AC at 1 mA	20 V AC at 1 mA
• for signal "1"	79 V AC at 2.5 mA	79 V AC at 2.5 mA
Input current	<del></del>	•
<ul> <li>for signal "0", max. (permissible quiescent current)</li> </ul>	1 mA	1 mA
• for signal "1", min.	2.5 mA	2.5 mA
• for signal "1", typ.	9 mA	9 mA
Input delay (for rated value of input voltage)	-	•
for standard inputs		
— parameterizable	Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four	Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.1 ms, 3.2 ms, 6.4 ms and 12.8 ms selectable in groups of four
for interrupt inputs		
— parameterizable	Yes	Yes
Cable length		
• shielded, max.	500 m	500 m
• unshielded, max.	300 m	300 m
Digital outputs		
Number of digital outputs	8 4	8
• in groups of		
Short-circuit protection	No; to be provided externally	No; to be provided externally
with resistive load, max.	2 A	2 A
	30 W with DC, 200 W with AC	30 W with DC, 200 W with AC
on lamp load, max.  Output valters.	OU VV WILLI DO, ZOU VV WILLI AC	- OO VV WIGH DO, 200 W WIGH AC
Output voltage	5 V DC to 30 V DC	5 V DC to 30 V DC
Rated value (DC)	5 V AC to 250 V AC	5 V AC to 250 V AC
Rated value (AC)	J V AC 10 200 V AC	3 V AC (0 200 V AC
Output current	2 A	2 A
• for signal "1" rated value	2 A	2 A
for signal "1" permissible range, max.	<u> </u>	<u> </u>
Output delay with resistive load	10 ms	10 ms
• "0" to "1", max.		
• "1" to "0", max.	10 ms	10 ms
Total current of the outputs (per group) horizontal installation		
nonzontal installation	9 A. Current ner mass	8 A; Current per mass
<ul><li>up to 50 °C, max.</li></ul>	8 A; Current per mass	
— up to 50 °C, max.	o A, Current per mass	•
Relay outputs	8	8
Relay outputs  • Number of relay outputs	<del></del>	8 24 V
Relay outputs  • Number of relay outputs  • Rated supply voltage of relay coil L+ (DC)	8 24 V	24 V
Relay outputs  Number of relay outputs Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.	8	24 V
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts	8 24 V mechanically 10 million, at rated load voltage 100 000	24 V mechanically 10 million, at rater load voltage 100 000
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  — with inductive load, max.	8 24 V mechanically 10 million, at rated load voltage 100 000	24 V mechanically 10 million, at rated load voltage 100 000
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  — with inductive load, max.  — on lamp load, max.	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC	24 V mechanically 10 million, at rater load voltage 100 000  2 A 30 W with DC, 200 W with AC
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  — with inductive load, max.	8 24 V mechanically 10 million, at rated load voltage 100 000	24 V mechanically 10 million, at rater load voltage 100 000
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  — with inductive load, max.  — on lamp load, max.  — with resistive load, max.  Cable length	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A	24 V mechanically 10 million, at rater load voltage 100 000  2 A  30 W with DC, 200 W with AC 2 A
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  — with inductive load, max.  — on lamp load, max.	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A	24 V mechanically 10 million, at rater load voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A  500 m
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  — with inductive load, max.  — on lamp load, max.  — with resistive load, max.  Cable length	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A	24 V mechanically 10 million, at rater load voltage 100 000  2 A  30 W with DC, 200 W with AC 2 A
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  with inductive load, max.  on lamp load, max.  with resistive load, max.  Cable length  shielded, max.  unshielded, max.  Interrupts/diagnostics/status information	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m	24 V mechanically 10 million, at rater load voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A  500 m 150 m
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  with inductive load, max.  on lamp load, max.  with resistive load, max.  Cable length  shielded, max.  unshielded, max.  Interrupts/diagnostics/status information  Alarms	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m	24 V mechanically 10 million, at rater load voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A  500 m 150 m
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  with inductive load, max.  on lamp load, max.  with resistive load, max.  Cable length  shielded, max.  unshielded, max.  Interrupts/diagnostics/status information  Alarms  Diagnostics function	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m	24 V mechanically 10 million, at rater load voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A  500 m 150 m
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  with inductive load, max.  on lamp load, max.  with resistive load, max.  Cable length  shielded, max.  unshielded, max.  Interrupts/diagnostics/status information  Alarms  Diagnostics function  Alarms	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m	24 V mechanically 10 million, at rater load voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A  500 m 150 m
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  with inductive load, max.  on lamp load, max.  with resistive load, max.  Cable length  shielded, max.  unshielded, max.  Interrupts/diagnostics/status information Alarms Diagnostics function  Alarms Diagnostic alarm	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m  Yes Yes	24 V mechanically 10 million, at rater load voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A  500 m 150 m  Yes Yes
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  with inductive load, max.  on lamp load, max.  with resistive load, max.  Cable length  shielded, max.  unshielded, max.  linterrupts/diagnostics/status information Alarms Diagnostics function  Alarms Diagnostics alarm  Diagnostics indication LED	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m  Yes Yes	24 V mechanically 10 million, at rater load voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A  500 m 150 m  Yes Yes
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  with inductive load, max.  on lamp load, max.  with resistive load, max.  Shielded, max.  unshielded, max.  unshielded, max.  larms  Diagnostics function  Alarms  Diagnostics alarm  Diagnostics indication LED  for status of the inputs	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m  Yes Yes	24 V mechanically 10 million, at rated load voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A  500 m 150 m  Yes Yes
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  with inductive load, max.  on lamp load, max.  with resistive load, max.  Cable length  shielded, max.  unshielded, max.  Interrupts/diagnostics/status information Alarms Diagnostics function  Alarms Diagnostics indication LED  for status of the outputs	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m  Yes Yes Yes	24 V mechanically 10 million, at rated load voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A  500 m 150 m  Yes Yes
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  with inductive load, max.  on lamp load, max.  with resistive load, max.  shielded, max.  unshielded, max.  Interrupts/diagnostics/status information Alarms Diagnostics function  Alarms Diagnostics indication LED  for status of the outputs  for maintenance	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m  Yes Yes Yes Yes	24 V mechanically 10 million, at raterioad voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A  500 m 150 m  Yes Yes Yes
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  with inductive load, max.  on lamp load, max.  with resistive load, max.  Cable length  shielded, max.  unshielded, max.  Interrupts/diagnostics/status information Alarms Diagnostics function  Alarms Diagnostics indication LED  for status of the outputs	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m  Yes Yes Yes Yes	24 V mechanically 10 million, at rater load voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A  500 m 150 m  Yes Yes Yes Yes Yes
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  with inductive load, max.  on lamp load, max.  with resistive load, max.  Cable length  shielded, max.  unshielded, max.  linterrupts/diagnostics/status information  Alarms  Diagnostics function  Alarms  Diagnostics indication LED  for status of the inputs  for status of the outputs  for maintenance	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m  Yes Yes Yes Yes	24 V mechanically 10 million, at raterioad voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A  500 m 150 m  Yes Yes Yes
Relay outputs  Number of relay outputs Rated supply voltage of relay coil L+ (DC) Number of operating cycles, max.  Switching capacity of contacts — with inductive load, max. — on lamp load, max. — with resistive load, max.  Cable length Shielded, max.  unshielded, max.  larms Diagnostics function  Alarms Diagnostics indication LED for status of the inputs for maintenance  Potential separation  Potential separation digital inputs	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m  Yes Yes Yes Yes Yes	24 V mechanically 10 million, at rater load voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A  500 m 150 m  Yes Yes Yes Yes Yes
Relay outputs  Number of relay outputs Rated supply voltage of relay coil L+ (DC) Number of operating cycles, max.  Switching capacity of contacts — with inductive load, max. — on lamp load, max. — with resistive load, max.  Cable length Shielded, max.  unshielded, max.  Interrupts/diagnostics/status information Alarms Diagnostics function  Alarms Diagnostics indication LED  for status of the inputs for status of the outputs for maintenance  Potential separation Potential separation digital inputs between the channels, in groups of	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m  Yes Yes Yes Yes Yes	24 V mechanically 10 million, at rater load voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A  500 m 150 m  Yes Yes Yes Yes Yes
Relay outputs  Number of relay outputs Rated supply voltage of relay coil L+ (DC) Number of operating cycles, max.  Switching capacity of contacts — with inductive load, max. — on lamp load, max. — with resistive load, max.  Cable length Shielded, max.  unshielded, max.  Interrupts/diagnostics/status information Alarms Diagnostics function  Alarms Diagnostics indication LED  for status of the inputs for status of the outputs for maintenance  Potential separation Potential separation digital inputs between the channels, in groups of	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m  Yes Yes Yes Yes Yes Yes	24 V mechanically 10 million, at rater load voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A  500 m 150 m  Yes Yes Yes Yes Yes Yes
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  with inductive load, max.  on lamp load, max.  with resistive load, max.  Cable length  shielded, max.  unshielded, max.  linterrupts/diagnostics/status information  Alarms  Diagnostics function  Alarms  Diagnostics indication LED  for status of the inputs  for status of the outputs  for maintenance  Potential separation  Potential separation digital inputs  between the channels  between the channels  between the channels  between the channels, in groups of	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m  Yes Yes Yes Yes Yes Yes Relays	24 V mechanically 10 million, at raterioad voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A  500 m 150 m  Yes Yes Yes Yes Yes Yes Relays
Relay outputs  Number of relay outputs Rated supply voltage of relay coil L+ (DC) Number of operating cycles, max.  Switching capacity of contacts — with inductive load, max. — on lamp load, max. — with resistive load, max.  Cable length Shielded, max.  unshielded, max.  Interrupts/diagnostics/status information Alarms Diagnostics function  Alarms Diagnostics indication LED  for status of the inputs for status of the outputs for maintenance  Potential separation Potential separation digital inputs between the channels between the channels between the channels	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m  Yes Yes Yes Yes 2 Relays 2	24 V mechanically 10 million, at rater load voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m  Yes Yes Yes Yes Yes Yes Yes Yes Yes 2 Relays 2
Relay outputs  Number of relay outputs Rated supply voltage of relay coil L+ (DC) Number of operating cycles, max.  Switching capacity of contacts — with inductive load, max. — on lamp load, max. — with resistive load, max.  Cable length Shielded, max.  unshielded, max.  Interrupts/diagnostics/status information Alarms Diagnostics function  Alarms Diagnostics indication LED  for status of the inputs for status of the outputs for maintenance  Potential separation  Potential separation digital inputs  between the channels, in groups of  Potential separation digital outputs  between the channels between the channels between the channels, in groups of	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m  Yes Yes Yes Yes 2 Relays 2	24 V mechanically 10 million, at rater load voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m  Yes Yes Yes Yes Yes Yes Yes Yes Yes 2 Relays 2
Relay outputs  Number of relay outputs Rated supply voltage of relay coil L+ (DC) Number of operating cycles, max.  Switching capacity of contacts — with inductive load, max. — on lamp load, max. — with resistive load, max.  Cable length Shielded, max. Interrupts/diagnostics/status information Alarms Diagnostics function Alarms Diagnostics indication LED for status of the outputs for status of the outputs for maintenance  Potential separation Potential separation digital inputs between the channels, in groups of between the channels between the channels between the channels and backplane bus  Permissible potential difference between different circuits  Degree and class of protection	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m  Yes Yes Yes  Yes 2  Relays 2 1 500 V AC for 1 minute 750 V AC for 1 minute	24 V mechanically 10 million, at raterioad voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A  500 m 150 m  Yes Yes Yes  Yes  2  Relays 2 1 500 V AC for 1 minute  750 V AC for 1 minute
Relay outputs  Number of relay outputs  Rated supply voltage of relay coil L+ (DC)  Number of operating cycles, max.  Switching capacity of contacts  with inductive load, max.  on lamp load, max.  with resistive load, max.  Cable length  shielded, max.  unshielded, max.  Interrupts/diagnostics/status information Alarms  Diagnostics function Alarms  Diagnostics indication LED  for status of the inputs  for status of the outputs  for maintenance  Potential separation  Potential separation digital inputs  between the channels, in groups of  Potential separation digital outputs  between the channels, in groups of  Potential separation digital outputs  between the channels, in groups of  Potential separation digital outputs  between the channels, in groups of  Potential separation digital outputs  between the channels, in groups of  between the channels and backplane bus  Permissible potential difference  between different circuits	8 24 V mechanically 10 million, at rated load voltage 100 000 2 A 30 W with DC, 200 W with AC 2 A 500 m 150 m  Yes Yes Yes 2 Relays 2 1 500 V AC for 1 minute	24 V mechanically 10 million, at rated load voltage 100 000  2 A 30 W with DC, 200 W with AC 2 A  500 m 150 m  Yes Yes Yes  Yes  Yes  Yes 2  Relays 2 1 500 V AC for 1 minute

/25/23, 10:00 AM	SIPLUS	SM 1223 digital input/outp
Article number	6AG1223-1QH32-2XB0 SIPLUS S7-1200 SM 1223 8DI AC/8DQ RLY	6AG1223-1QH32-4XB0 SIPLUS S7-1200 SM 1223 8DI AC/8DQ RLY
• min.	-40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C	-20 °C; = Tmin (incl. condensation/frost); start-up @ 0 °C
• max.	70 °C; = Tmax; Tmax > +60 °C number of simultaneously activated outputs 4, inputs 4 (no adjacent points) for horizontal mounting position	60 °C; = Tmax
Ambient temperature during storage/transportation		
• min.	-40 °C	-40 °C
• max.	70 °C	70 °C
Altitude during operation relating to sea level  ■ Installation altitude above sea level, max.	5 000 m	
Ambient air temperature-barometric pressure- altitude	Tmin Tmax at 1 080 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax - 20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m)	Tmin Tmax at 1 080 hPa 795 hPa (-1 000 m +2 000 m) // Tmir (Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmir (Tmax - 20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m)
Relative humidity	05.0/	05.0/
Operation at 25 °C without condensation, max.	95 %	95 %
With condensation, tested in accordance with	100 %; RH incl. condensation/frost (no commissioning under	100 %; RH incl. condensation/frost (no commissioning under
IEC 60068-2-38, max.	condensation conditions)	condensation conditions)
Resistance Coolants and lubricants		
— Resistant to commercially available coolants	Yes; Incl. diesel and oil droplets in the air	Yes; Incl. diesel and oil droplets in the air
and lubricants		<del></del>
Jse in stationary industrial systems	Yes; Class 3B2 mold, fungus and	Yes; Class 3B2 mold, fungus and
<ul> <li>to biologically active substances according to EN 60721-3-3</li> </ul>	dry rot spores (with the exception	dry rot spores (with the exception of
to chemically active substances according to	of fauna); Class 3B3 on request Yes; Class 3C4 (RH < 75 %) incl.	fauna); Class 3B3 on request Yes; Class 3C4 (RH < 75 %) incl.
EN 60721-3-3	salt spray acc. to EN 60068-2-52 (severity degree 3); *	salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
lse on ships/at sea		
— to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
— to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Jsage in industrial process technology  — Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
<ul> <li>Environmental conditions for process,</li> </ul>	Yes; Level GX group A/B (excluding	Yes; Level GX group A/B (excludin
measuring and control systems acc. to ANSI/ISA-71.04	trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray)	trichlorethylene, harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray)
Remark	and level LB3 (oil)	and level LB3 (oil)
Note regarding classification of	* The supplied plug covers must	* The supplied plug covers must
environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	remain in place over the unused interfaces during operation!	remain in place over the unused interfaces during operation!
Conformal coating		
<ul> <li>Coatings for printed circuit board assemblies acc. to EN 61086</li> </ul>	Yes; Class 2 for high reliability	Yes; Class 2 for high reliability
Protection against fouling acc. to EN 60664-3	Yes; Type 1 protection	Yes; Type 1 protection
Military testing according to MIL-I-46058C,	Yes; Discoloration of coating possible during service life	Yes; Discoloration of coating possible during service life
Amendment 7		
Qualification and Performance of Electrical Insulating Compound for Printed Board  Accomplian according to IDC CC 830A	Yes; Conformal coating, Class A	Yes; Conformal coating, Class A
Assemblies according to IPC-CC-830A	•	
required front connector	Yes	Yes
Mechanics/material		
Enclosure material (front)  • Plastic	Yes	Yes
Dimensions		
Width	45 mm	45 mm
Height	100 mm 75 mm	100 mm 75 mm
Denth		r v milli
Depth Veights		,