

Technical specifications EM 223 (continued)

	6ES7 223-1HF22-0XA0	6ES7 223-1PH22-0XA0	6ES7 223-1PL22-0XA0	6ES7 223-1PM22-0XA0
Supply voltages				
Load voltage L+				
• Rated value (DC)	24 V	24 V	24 V	24 V
• Permissible range, lower limit (DC)	5 V	5 V	5 V	5 V
• Permissible range, upper limit (DC)	30 V	30 V	30 V	30 V
Load voltage L1				
• Rated value (AC)	230 V; 24 to 230 V AC	230 V; 24 to 230 V AC	230 V; 24 to 230 V AC	230 V; 24 to 230 V AC
• Permissible range, lower limit (AC)	5 V	5 V	5 V	5 V
• Permissible range, upper limit (AC)	250 V	250 V	250 V	250 V
Current consumption				
from backplane bus 5 V DC, max.	40 mA	80 mA	150 mA	205 mA
from coil current, max.	9 mA; for each output on signal "1"	9 mA; for each output on signal "1"	9 mA; for each output on signal "1"	9 mA; for each output on signal "1"
from sensor current supply or external current supply (24 V DC), max.	72 mA	72 mA	72 mA	128 mA
Power losses				
Power loss, typ.	2 W	3 W	6 W	13 W
Connection method				
Plug-in I/O terminals	Yes	Yes	Yes	Yes
Digital inputs				
Number of digital inputs	4	8	16	32
Input voltage				
• Rated value, DC	24 V	24 V	24 V	24 V
• for signal "0"	0 to 5 V	0 to 5 V	0 to 5 V	0 to 5 V
• for signal "1"	15 to 30 V DC	15 to 30 V DC	15 to 30 V DC	15 to 30 V DC
Input current				
• for signal "1", typ.	4 mA	4 mA	4 mA	4 mA
Input delay (for rated value of input voltage)				
• for standard inputs - at "0" to "1", max.	4.5 ms	4.5 ms	4.5 ms	4.5 ms
Digital outputs				
Number of digital outputs	4; Relay	8; Relay	16; Relay	32; Relay
Short-circuit protection	No; to be provided externally	No; to be provided externally	No; to be provided externally	No; to be provided externally
Output voltage				
• for signal "0" (DC), max.	0.1 V; with 10 kOhm load L+/L1	0.1 V; with 10 kOhm load L+/L1	0.1 V; with 10 kOhm load L+/L1	0.1 V; with 10 kOhm load L+/L1
• for signal "1", min.				
Output current				
• for signal "1" rated value	2 000 mA	2 000 mA	2 000 mA	2 000 mA
Aggregate current of outputs (per group)				
• Maximum current per conductor/group	8 A	8 A	8 A	2 A; 10 A per group
Cable length				
• Cable length, shielded, max.	500 m	500 m	500 m	500 m
• Cable length unshielded, max.	150 m	150 m	150 m	150 m

SIMATIC S7-200

Digital modules

EM 221, EM 222, EM 223

Technical specifications EM 223 (continued)

	6ES7 223-1HF22-0XA0	6ES7 223-1PH22-0XA0	6ES7 223-1PL22-0XA0	6ES7 223-1PM22-0XA0
Relay outputs				
Number of operating cycles	10 000 000; mechanically 10 million, at rated load voltage 100,000	10 000 000; mechanically 10 million, at rated load voltage 100,000	10 000 000; mechanically 10 million, at rated load voltage 100,000	10 000 000; mechanically 10 million, at rated load voltage 100,000
Switching capacity of contacts				
• with inductive load, max.	0.75 A; each output	0.75 A; each output	0.75 A; each output	0.75 A; each output
• on lamp load, max.	200 W; 30 W DC; 200 W AC	200 W; 30 W DC; 200 W AC	200 W; 30 W DC; 200 W AC	200 W; 30 W DC; 200 W AC
• with resistive load, max.	0.75 A; each output	0.75 A; each output	0.75 A; each output	2 A; each output
Encoder				
Connectable encoders				
• 2-wire BEROs	Yes	Yes	Yes	Yes
- permissible quiescent current (2-wire BEROs), max.	1 mA	1 mA	1 mA	1 mA
Isolation				
Isolation checked with	500 V AC	500 V AC	500 V AC	500 V AC
Galvanic isolation				
Galvanic isolation digital inputs				
• Galvanic isolation digital inputs	Yes; Optocoupler	Yes; Optocoupler	Yes; Optocoupler	Yes; Optocoupler
• between the channels, in groups of	4	4	8	16
Galvanic isolation digital outputs				
• Galvanic isolation digital outputs	Yes; Relay	Yes; Relay	Yes; Relay	Yes; Relay
• between the channels, in groups of	4	4	4	11; 11/11/10
Dimensions and weight				
Dimensions				
• Width	46 mm	71.2 mm	137.5 mm	196 mm
• Height	80 mm	80 mm	80 mm	80 mm
• Depth	62 mm	62 mm	62 mm	62 mm
Weight				
• Weight, approx.	160 g	300 g	400 g	580 g

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Ordering data	Order No.	Order No.
Digital input module EM 221 for CPU 221/222/224/224 XP/226 <ul style="list-style-type: none"> • 8 inputs, 24 V DC, isolated, current sourcing/sinking • 16 inputs, 24 V DC, isolated, current sourcing/sinking • 8 inputs, 120/230 V AC, isolated, current sourcing/sinking 	6ES7 221-1BF22-0XA0 6ES7 221-1BH22-0XA0 6ES7 221-1EF22-0XA0	Front flap set contains various cover flaps for CPUs and EMs; spare part Pluggable terminal block (spare part) <ul style="list-style-type: none"> • With 7 terminals (for EM 221/222) • With 12 terminals (for EM 223)
Digital output module EM 222 for CPU 221/222/224/224 XP/226 <ul style="list-style-type: none"> • 4 outputs, 24 V DC; 5A, isolated • 8 outputs, 24 V DC; 0.75 A, isolated • 4 outputs, 24 V DC, 24 to 230 V AC; 10 A, isolated, relay outputs • 8 outputs, 24 V DC, 24 to 230 V AC; 2 A, isolated, relay outputs • 8 outputs, 120/230 V AC; 0.5 A, isolated 	6ES7 222-1BD22-0XA0 6ES7 222-1BF22-0XA0 6ES7 222-1HD22-0XA0 6ES7 222-1HF22-0XA0 6ES7 222-1EF22-0XA0	SIM 274 simulator (optional) with 8 terminals for EM 221 and EM 223 S7-200 programmable controller, System Manual for CPU 221/222/224/224 XP/226 and STEP 7 Micro/Win V4 German English French Spanish Italian Chinese
Digital input/output module EM 223 for CPU 221/222/224/224 XP/226 <ul style="list-style-type: none"> • 4 inputs 24 V DC, 4 outputs 24 V DC; 0.75 A, isolated • 8 inputs, 24 V DC, 8 outputs 24 V DC; 0.75 A, isolated • 16 inputs, 24 V DC, 16 outputs 24 V DC; 0.75 A, isolated • 32 inputs, 24 V DC, 32 outputs 24 V DC; 0.75 A, isolated • 4 inputs, 24 V DC; 4 outputs, relays • 8 inputs, 24 V DC; 8 outputs, relays • 16 inputs, 24 V DC; 16 outputs, relays • 32 inputs, 24 V DC; 32 outputs, relays 	6ES7 223-1BF22-0XA0 6ES7 223-1BH22-0XA0 6ES7 223-1BL22-0XA0 6ES7 223-1BM22-0XA0 6ES7 223-1HF22-0XA0 6ES7 223-1PH22-0XA0 6ES7 223-1PL22-0XA0 6ES7 223-1PM22-0XA0	6ES7 291-3AX20-0XA0 6ES7 292-1AD20-0AA0 6ES7 292-1AE20-0AA0 6ES7 274-1XF00-0XA0 6ES7 298-8FA24-8AH0 6ES7 298-8FA24-8BH0 6ES7 298-8FA24-8CH0 6ES7 298-8FA24-8DH0 6ES7 298-8FA24-8EH0 6ES7 298-8FA24-8FH0

I: Subject to export regulations AL: N and ECCN: EAR99H