

Technical specifications (continued)

Article number	6ES7141-5BF00-0BA0 ET 200AL, DI 8X24VDC, 8XM8	6ES7141-5AF00-0BA0 ET 200AL, DI 8X24VDC, 4XM12	6ES7141-5AH00-0BA0 ET 200AL, DI 16X24VDC, 8XM12
Dimensions			
Width	30 mm	30 mm	45 mm
Height	159 mm	159 mm	159 mm
Depth	40 mm	40 mm	40 mm
Weights			
Weight, approx.	145 g	145 g	184 g

Article number	6ES7142-5AF00-0BA0 ET 200AL, DQ 8X24VDC/2A, 8XM12
General information	
Product type designation	DQ 8X24VDC/2A, 8XM12
HW functional status	E01
Firmware version	V1.0.x
Product function	
• I&M data	Yes; I&M0 to I&M3
Engineering with	
• STEP 7 TIA Portal configurable/ integrated as of version	STEP 7 V13 SP1 or higher
• STEP 7 configurable/integrated as of version	V5.5 SP4 Hotfix 7 or higher
• PROFIBUS as of GSD version/ GSD revision	GSD as of Revision 5
• PROFINET as of GSD version/ GSD revision	GSDML V2.3.1
Supply voltage	
Load voltage 1L+	
• Rated value (DC)	24 V
• Reverse polarity protection	Yes; against destruction; load increasing
Load voltage 2L+	
• Rated value (DC)	24 V
• Reverse polarity protection	Yes; against destruction; load increasing
Input current	
Current consumption (rated value)	40 mA; without load
from load voltage 1L+ (unswitched voltage)	4 A; Maximum value
from load voltage 2L+, max.	4 A; Maximum value
Power loss	
Power loss, typ.	4 W
Digital outputs	
Number of digital outputs	8
• in groups of	4; 2 load groups for 4 outputs each
Short-circuit protection	Yes; per channel, electronic
• Response threshold, typ.	2.8 A
Limitation of inductive shutdown voltage to	2L+ (-47 V)
Switching capacity of the outputs	
• on lamp load, max.	10 W

Article number	6ES7142-5AF00-0BA0 ET 200AL, DQ 8X24VDC/2A, 8XM12
Load resistance range	
• lower limit	12 Ω
• upper limit	4 kΩ
Output voltage	
• for signal "1", min.	L+ (-0.8 V)
Output current	
• for signal "1" rated value	2 A
• for signal "1" permissible range, max.	2 A; with inductive load to IEC 60947-5-1, DC-13 / AC-15
• for signal "0" residual current, max.	0.5 mA
Switching frequency	
• with resistive load, max.	100 Hz
• with inductive load, max.	0.1 Hz; 0.25 Hz at 25 °C
• on lamp load, max.	1 Hz
Total current of the outputs	
• Current per group, max.	4 A; For inductive load max. 2 channels per group
Cable length	
• unshielded, max.	30 m
Interrupts/diagnostics/ status information	
Substitute values connectable	Yes; channel by channel, parameterizable
Alarms	
• Diagnostic alarm	Yes; Parameterizable
Diagnostic messages	
• Short-circuit	Yes; Outputs to ground; module by module
Diagnostics indication LED	
• Channel status display	Yes; Green LED
• for module diagnostics	Yes; Green/red LED
• For load voltage monitoring	Yes; Green LED
Potential separation	
between the load voltages	Yes
Potential separation channels	
• between the channels, in groups of	4
• between the channels and backplane bus	Yes
• between the channels and the power supply of the electronics	No; 4 channels are non-isolated and 4 channels are isolated from supply voltage 1L+
Isolation	
Isolation tested with	707 V DC (type test)
Degree and class of protection	
Degree of protection acc. to EN 60529	
• IP65	Yes
• IP67	Yes

I/O systems

SIMATIC ET 200 systems without control cabinet

SIMATIC ET 200AL

I/O modules > Digital I/O modules

Technical specifications (continued)

Article number	6ES7142-5AF00-0BA0 ET 200AL, DQ 8X24VDC/2A, 8XM12
Ambient conditions	
Ambient temperature during operation	
• min.	-25 °C
• max.	55 °C
Connection method	
Design of electrical connection for the inputs and outputs	M12, 5-pole
Power supply	M8, 4-pole
ET-Connection	
• ET-Connection	M8, 4-pin, shielded

Article number	6ES7142-5AF00-0BA0 ET 200AL, DQ 8X24VDC/2A, 8XM12
Dimensions	
Width	45 mm
Height	159 mm
Depth	40 mm
Weights	
Weight, approx.	192 g

Article number	6ES7143-5BF00-0BA0 ET 200AL, DIQ 4+DQ 4X24VDC/0.5A, 8XM8	6ES7143-5AF00-0BA0 ET 200AL, DIQ 4+DQ 4X24VDC/0.5A, 4XM12	6ES7143-5AH00-0BA0 ET 200AL, DIQ 16x24VDC/0.5A, 8XM12
General information			
Product type designation	DIQ 4+DQ 4X24VDC/0.5A, 8xM8	DIQ 4+DQ 4X24VDC/0.5 A, 4XM12	DIQ 16X24VDC/0.5A, 8XM12
HW functional status	E01	E01	E01
Firmware version	V1.0.x	V1.0.x	V1.0.x
Product function			
• I&M data	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3
Engineering with			
• STEP 7 TIA Portal configurable/integrated as of version	STEP 7 V13 SP1 or higher	STEP 7 V13 SP1 or higher	STEP 7 V14 or higher
• STEP 7 configurable/integrated as of version	From V5.5 SP4 Hotfix 3	V5.5 SP4 Hotfix 7 or higher	V5.5 SP4 Hotfix 7 or higher
• PROFIBUS as of GSD version/GSD revision	GSD as of Revision 5	GSD as of Revision 5	GSD as of Revision 5
• PROFINET as of GSD version/GSD revision	GSDML V2.3.1	GSDML V2.3.1	GSDML V2.3.1
Operating mode			
• DI			Yes
• Counter			Yes
• DQ			Yes
Supply voltage			
Load voltage 1L+			
• Rated value (DC)	24 V	24 V	24 V
• Reverse polarity protection	Yes; Against destruction; encoder power supply outputs applied with reversed polarity, loads pick up	Yes; Against destruction; encoder power supply outputs applied with reversed polarity, loads pick up	Yes; Against destruction; encoder power supply outputs applied with reversed polarity, loads pick up
Load voltage 2L+			
• Rated value (DC)	24 V	24 V	24 V
• Reverse polarity protection	Yes; against destruction; load increasing	Yes; against destruction; load increasing	Yes; Against destruction; encoder power supply outputs applied with reversed polarity, loads pick up
Input current			
Current consumption (rated value) from load voltage 1L+ (unswitched voltage)	40 mA; without load 4 A; Maximum value	40 mA; without load 4 A; Maximum value	75 mA; without load 4 A; Maximum value
from load voltage 2L+, max.	4 A; Maximum value	4 A; Maximum value	4 A; Maximum value
Encoder supply			
Number of outputs	4	4	8
24 V encoder supply			
• Short-circuit protection	Yes; per module, electronic	Yes; per module, electronic	Yes; Per load voltage, electronic
• Output current, max.	0.7 A; Total current of all encoders	0.7 A; Total current of all encoders	1.4 A; Total current of all encoders, max. 0.7 A per load voltage

Technical specifications (continued)

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	ET 200AL, DIQ 4+DQ 4X24VDC/0.5A, 8XM8	ET 200AL, DIQ 4+DQ 4X24VDC/0.5A, 4XM12	ET 200AL, DIQ 16x24VDC/0.5A, 8xM12
Connection method			
Design of electrical connection for the inputs and outputs	M8, 3-pole	M12, 5-pole	M12, 5-pole
Power supply	M8, 4-pole	M8, 4-pole	M8, 4-pole
ET-Connection			
• ET-Connection	M8, 4-pin, shielded	M8, 4-pin, shielded	M8, 4-pin, shielded
Dimensions			
Width	30 mm	30 mm	45 mm
Height	159 mm	159 mm	159 mm
Depth	40 mm	40 mm	40 mm
Weights			
Weight, approx.	145 g	145 g	195 g

Ordering data

Article No.	Article No.
Digital input modules	M8 power cable
DI 8X24VDC, 8XM8	4-pin
DI 8X24VDC, 4XM12	Pre-assembled at both ends, M8 connector and M8 socket
DI 16X24VDC, 8XM12	0.19 m
Digital output modules	0.3 m
DQ 8X24VDC/2A, 8XM12	1 m
Digital input/output modules	2 m
4 DIO / 4 DO, 24 V DC, 0.5 A	5 m
DIQ 4+DQ 4X24VDC/0.5A, 4XM12	10 m
DIQ 16X24VDC/0.5A, 8XM12	15 m
Accessories	Pre-assembled at both ends, angled M8 connector and angled M8 socket
Bus cable for backplane bus (ET connection)	0.3 m
4-pin, shielded	1 m
Pre-assembled at both ends, 2 M8 connectors	2 m
0.19 m	5 m
0.3 m	10 m
1 m	15 m
2 m	Pre-assembled at one end, M8 socket
5 m	2 m
10 m	5 m
15 m	10 m
Pre-assembled at both ends, two M8 connectors, angled	15 m
0.3 m	M8 connector for ET connection
1 m	4-pin, shielded
2 m	M8 power connector
5 m	Male contact insert, 4-pin
10 m	Female contact insert, 4-pin
15 m	ET connection FastConnect stripping tool
Pre-assembled at one end, one M8 connector	Stripping tool for stripping the ET connection bus cable
2 m	Labels
5 m	10 x 5 mm, RAL 9016;
10 m	5 frames with 40 labels each
15 m	