

I/O systems

SIMATIC ET 200 systems without control cabinet

SIMATIC ET 200eco PN

Technical specifications (continued)

Article number	6ES7141-6BF00-0AB0 ET 200ECO PN, 8DI, DC24V, 4XM12	6ES7141-6BG00-0AB0 ET 200ECO PN, 8DI, DC24V, 8XM12	6ES7141-6BH00-0AB0 ET 200ECO PN, 16DI, DC24V, 8XM12
Potential separation			
between the load voltages	Yes	Yes	Yes
between load voltage and all other switching components	No	No	No
between Ethernet and electronics	Yes	Yes	Yes
Potential separation digital inputs			
• between the channels	No	No	No
Isolation			
tested with			
• 24 V DC circuits	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)
• Interface	1 500 V; According to IEEE 802.3	1 500 V; According to IEEE 802.3	1 500 V; According to IEEE 802.3
Degree and class of protection			
IP degree of protection	IP65/67	IP67	IP67
Connection method			
Design of electrical connection	4/5-pin M12 circular connectors	4/5-pin M12 circular connectors	4/5-pin M12 circular connectors
Dimensions			
Width	30 mm	60 mm	60 mm
Height	200 mm	175 mm	175 mm
Depth	49 mm	49 mm	49 mm
Weights			
Weight (without packaging)	550 g	910 g	910 g

Article number	6ES7142-6BF50-0AB0 ET 200ECO PN, 8DO, DC24V/0.5A, 4XM12	6ES7142-6BF00-0AB0 ET 200ECO PN, 8DO, DC24V/1.3A, 4XM12	6ES7142-6BG00-0AB0 ET 200ECO PN, 8DO, DC24V/1.3A, 8XM12	6ES7142-6BR00-0AB0 ET 200ECO PN, 8 DO, DC24V/2A, 8XM12	6ES7142-6BH00-0AB0 ET 200ECO PN, 16DO, DC24V/1.3A, 8XM12
General information					
Vendor identification (VendorID)	002AH	002AH	002AH	002AH	002AH
Device identifier (DeviceID)	0306H	0306H	0306H	0306H	0306H
Supply voltage					
Rated value (DC)	24 V	24 V	24 V	24 V	24 V
Reverse polarity protection	Yes	Yes	Yes	Yes	Yes
Load voltage 2L+					
• Rated value (DC)	24 V	24 V	24 V	24 V	24 V
• Reverse polarity protection	Yes	Yes	Yes	Yes	Yes
Input current					
Current consumption, typ.	100 mA	100 mA	100 mA	100 mA	100 mA
from supply voltage 1L+, max.	4 A	4 A	4 A	4 A	4 A
from load voltage 2L+, max.	4 A	4 A	4 A	4 A	4 A
Power loss					
Power loss, typ.	3 W	5.5 W	5.5 W	5 W	5.5 W
Digital outputs					
Number of digital outputs	8	8	8	8	16
• in groups of	8	4	4	4	8
Short-circuit protection	Yes	Yes	Yes	Yes	Yes
• Response threshold, typ.	0.7 A	1.8 A	1.8 A	2.8 A	1.8 A
Limitation of inductive shutdown voltage to	Typ. (L1+, L2+) -47 V	Typ. (L1+, L2+) -47 V	Typ. (L1+, L2+) -47 V	Typ. (L1+, L2+) -47 V	Typ. (L1+, L2+) -47 V
Controlling a digital input	Yes	Yes	Yes	Yes	Yes
Switching capacity of the outputs					
• on lamp load, max.	5 W	5 W	5 W	10 W	5 W
Output current					
• for signal "1" rated value	0.5 A	1.3 A; Maximum	1.3 A; Maximum	2 A	1.3 A; Maximum
• for signal "0" residual current, max.	1.5 mA	1.5 mA	1.5 mA	1.5 mA	1.5 mA

Technical specifications (continued)

Article number	6ES7142-6BF50-0AB0 ET 200ECO PN, 8DO, DC24V/0.5A, 4XM12	6ES7142-6BF00-0AB0 ET 200ECO PN, 8DO, DC24V/1.3A, 4XM12	6ES7142-6BG00-0AB0 ET 200ECO PN, 8DO, DC24V/1.3A, 8XM12	6ES7142-6BR00-0AB0 ET 200ECO PN, 8 DO, DC24V/2A, 8XM12	6ES7142-6BH00-0AB0 ET 200ECO PN, 16DO DC24V/1.3A, 8XM12
Parallel switching of two outputs					
• for uprating	No	No	No	No	No
• for redundant control of a load	Yes	Yes	Yes	Yes	Yes
Switching frequency					
• with resistive load, max.	100 Hz	100 Hz	100 Hz	100 Hz	100 Hz
• with inductive load, max.	0.5 Hz	0.5 Hz	0.5 Hz	0.5 Hz	0.5 Hz
• on lamp load, max.	1 Hz	1 Hz	1 Hz	1 Hz	1 Hz
Total current of the outputs (per group)					
all mounting positions					
- up to 55 °C, max.		3.9 A			
- up to 60 °C, max.	4 A	2.6 A	3.9 A	3.9 A	3.9 A
Cable length					
• unshielded, max.	30 m	30 m	30 m	30 m	30 m
Interfaces					
Transmission procedure	100BASE-TX	100BASE-TX	100BASE-TX	100BASE-TX	100BASE-TX
Number of PROFINET interfaces	1	1	1	1	1
PROFINET IO					
• Autocrossing	Yes	Yes	Yes	Yes	Yes
• automatic detection of transmission rate	Yes	Yes	Yes	Yes	Yes
• Transmission rate, max.	100 Mbit/s	100 Mbit/s	100 Mbit/s	100 Mbit/s	100 Mbit/s
• integrated switch	Yes	Yes	Yes	Yes	Yes
PROFINET IO Device					
- IRT with the option "high flexibility"	Yes	Yes	Yes	Yes	Yes
- Prioritized startup	Yes	Yes	Yes	Yes	Yes
Protocols					
Supports protocol for PROFINET IO	Yes	Yes	Yes	Yes	Yes
PROFINET CBA	No	No	No	No	No
PROFIsafe	No	No	No	No	No
Protocols (Ethernet)					
• TCP/IP	No	No	No	No	No
• SNMP	Yes	Yes	Yes	Yes	Yes
• DCP	Yes	Yes	Yes	Yes	Yes
• LLDP	Yes	Yes	Yes	Yes	Yes
• ping	Yes	Yes	Yes	Yes	Yes
• ARP	Yes	Yes	Yes	Yes	Yes
Interrupts/diagnostics/status information					
Status indicator	Yes; Green LED	Yes; Green LED	Yes; Green LED	Yes; Green LED	Yes; Green LED
Diagnostic functions	Yes	Yes	Yes	Yes	Yes
Alarms					
• Diagnostic alarm	Yes	Yes	Yes	Yes	Yes
Diagnostic messages					
• Diagnostic information readable	Yes	Yes	Yes	Yes	Yes
• Monitoring the supply voltage	Yes; Green "ON" LED	Yes; Green "ON" LED	Yes; Green "ON" LED	Yes; Green "ON" LED	Yes; Green "ON" LED
• Wire-break in actuator cable	Yes	Yes	Yes	Yes	Yes
• Short-circuit	Yes	Yes	Yes	Yes	Yes
• Group error	Yes; Red/yellow "SF/MT" LED	Yes; Red/yellow "SF/MT" LED	Yes; Red/yellow "SF/MT" LED	Yes; Red/yellow "SF/MT" LED	Yes; Red/yellow "SF/MT" LED

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Potential separation					
between the load voltages	Yes	Yes	Yes	Yes	Yes
between load voltage and all other switching components	No	No	No	No	No
between Ethernet and electronics	Yes	Yes	Yes	Yes	Yes
Potential separation digital outputs					
• between the channels	No	No	No	No	No
Isolation					
tested with					
• 24 V DC circuits	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)
• Interface	1 500 V; According to IEEE 802.3	1 500 V; According to IEEE 802.3	1 500 V; According to IEEE 802.3	1 500 V; According to IEEE 802.3	1 500 V; According to IEEE 802.3
Degree and class of protection					
IP degree of protection	IP67	IP65/67	IP67	IP67	IP67
Connection method					
Design of electrical connection	4/5-pin M12 circular connectors	4/5-pin M12 circular connectors	4/5-pin M12 circular connectors	4/5-pin M12 circular connectors	4/5-pin M12 circular connectors
Dimensions					
Width	30 mm	30 mm	60 mm	60 mm	60 mm
Height	200 mm	200 mm	175 mm	175 mm	175 mm
Depth	49 mm	49 mm	49 mm	49 mm	49 mm
Weights					
Weight (without packaging)	550 g	550 g	910 g	910 g	910 g

Article number	6ES7147-6BG00-0AB0 ET 200ECO PN, 8 DIO, DC24V/1.3A, 8XM12
General information	
Vendor identification (VendorID)	002AH
Device identifier (DeviceID)	0306H
Supply voltage	
Rated value (DC)	24 V
Reverse polarity protection	Yes
Load voltage 2L+	
• Rated value (DC)	24 V
• Reverse polarity protection	Yes
Input current	
Current consumption, typ.	100 mA
from supply voltage 1L+, max.	4 A
from load voltage 2L+, max.	4 A
Encoder supply	
Number of outputs	8
Short-circuit protection	Yes; Electronic
Output current	
• Rated value	100 mA; per output
Power loss	
Power loss, typ.	6.5 W
Digital inputs	
Number of digital inputs	8
• in groups of	4
Input characteristic curve in accordance with IEC 61131, type 3	Yes
Number of simultaneously controllable inputs	
all mounting positions	
- up to 60 °C, max.	8

Article number	6ES7147-6BG00-0AB0 ET 200ECO PN, 8 DIO, DC24V/1.3A, 8XM12
Input voltage	
• Type of input voltage	DC
• Rated value (DC)	24 V
• for signal "0"	-3 to +5V
• for signal "1"	+11 to +30V
Input current	
• for signal "1", typ.	7 mA
Input delay (for rated value of input voltage) for standard inputs	
- at "0" to "1", max.	typically 3 ms
- at "1" to "0", max.	typically 3 ms
Cable length	
• unshielded, max.	30 m
Digital outputs	
Number of digital outputs	8
• in groups of	4
Short-circuit protection	Yes; Electronic
• Response threshold, typ.	1.8 A
Limitation of inductive shutdown voltage to	Typ. (L1+, L2+) -47 V
Controlling a digital input	Yes
Switching capacity of the outputs	
• on lamp load, max.	5 W
Output current	
• for signal "1" rated value	1.3 A; Maximum
• for signal "0" residual current, max.	1.5 mA

Ordering data	Article No.		Article No.
ET 200eco PN digital input modules		PROFINET M12 connector, for user assembly	
• 8 DI 24 V DC; 4 x M12, dual assignment, IP67 degree of protection	6ES7141-6BF00-0AB0	IE FC M12 PRO connector, for user assembly	
• 8 DI 24 V DC; 8 x M12, IP67 degree of protection	6ES7141-6BG00-0AB0	• 1 unit	6GK1901-0DB20-6AA0
• 16 DI 24 V DC; 8 x M12, dual assignment, IP67 degree of protection	6ES7141-6BH00-0AB0	• 8 units	6GK1901-0DB20-6AA8
ET 200eco PN digital output modules		PROFINET M12 connecting cables	
• 8 DO 24 V DC/0.5 A; 4 x M12, dual assignment, 1 load voltage supply DO; IP67 degree of protection	6ES7142-6BF50-0AB0	Pre-assembled connecting cables with 2 M12 connectors (D-coded) in various lengths:	
• 8 DO 24 V DC/1.3 A; 4 x M12, dual assignment, IP67 degree of protection	6ES7142-6BF00-0AB0	0.3 m	6XV1870-8AE30
• 8 DO 24 V DC/1.3 A; 8 x M12, IP67 degree of protection	6ES7142-6BG00-0AB0	0.5 m	6XV1870-8AE50
• 8 DO 24 V DC/2 A; 8 x M12, IP67 degree of protection	6ES7142-6BR00-0AB0	1.0 m	6XV1870-8AH10
• 16 DO 24 V DC/1.3 A; 8 x M12, dual assignment, IP67 degree of protection	6ES7142-6BH00-0AB0	1.5 m	6XV1870-8AH15
		2.0 m	6XV1870-8AH20
		3.0 m	6XV1870-8AH30
		5.0 m	6XV1870-8AH50
		10.0 m	6XV1870-8AN10
		15.0 m	6XV1870-8AN15
ET 200eco PN digital input/output modules		M12 connector for 24 V DC load power supply	
• 8 DI/DO 24 V DC/1.3 A; 8 x M12, IP67 degree of protection	6ES7147-6BG00-0AB0	Connection socket for 24 V DC incoming supply; 4-pin, A-coded, 3 units	6GK1907-0DC10-6AA3
ET 200eco PN analog input modules		Connector for loop-through of 24 V DC; 4-pin, A-coded, 3 units	6GK1907-0DB10-6AA3
• 8 AI 4 U/I + 4 RTD/TC; 8 x M12, IP67 degree of protection	6ES7144-6KD00-0AB0		
• 8 AI RTD/TC; 8 x M12, IP67 degree of protection	6ES7144-6KD50-0AB0	M12 plug-in power cables	
ET 200eco PN analog output modules		Pre-assembled plug-in power cables, fitted at each end with M12 socket and plug 4 x 0.75 mm ² , in various lengths:	
• 4 AO U/I; 4 x M12, IP67 degree of protection	6ES7145-6HD00-0AB0	0.3 m	6XV1801-5DE30
ET 200eco PN IO-Link master modules		0.5 m	6XV1801-5DE50
• 4 IO-L + 8 DI + 4 DO, 24 V DC/1.3 A; 8 x M12, IP67 degree of protection, enclosure width 60 mm; for connecting up to 4 IO-Link devices according to IO-Link Specification V1.0 and port Class A as well as 8 digital inputs and 4 digital outputs	6ES7148-6JA00-0AB0	1.0 m	6XV1801-5DH10
		1.5 m	6XV1801-5DH15
• 4 IO-L; 4 x M12, IP67 degree of protection, enclosure width 30 mm; for con- necting up to 4 IO-Link devices according to IO-Link Specification V1.0 and V1.1 and port Class B	6ES7148-6JD00-0AB0	2.0 m	6XV1801-5DH20
		3.0 m	6XV1801-5DH30
		5.0 m	6XV1801-5DH50
		10.0 m	6XV1801-5DN10
		15.0 m	6XV1801-5DN15
Accessories		M12 coupler plug	
• PD voltage distributor, 24 V DC; 1 X 7/8", 4 X M12	6ES7148-6CB00-0AA0	Can be assembled, for connecting actuators or sensors, 5-pin	3RK1902-4BA00-5AA0
• Terminal block for ET 200eco PN, 10 A insulation displacement terminals	6ES7194-6CA00-0AA0	M12 Y cable	
• Spare fuses for terminal block, 10 units	6ES7194-6HB00-0AA0	For double connection of I/O by means of single cable to ET 200, 5-pin	6ES7194-6KA00-0XA0
• DIN rail 0.5 m	6ES7194-6GA00-0AA0		
• Profile screw for DIN rail, 50 units	6ES7194-6MA00-0AA0		
• M12 sealing cap for IP67 modules, 10 units	3RX9802-0AA00		
• Labels 10 x 7 mm, pastel turquoise, 816 units	3RT1900-1SB10		