

I/O systems

SIMATIC ET 200 systems without control cabinet

SIMATIC ET 200eco PN

Technical specifications (continued)

Article number	6ES7145-6HD00-0AB0 ET 200ECO PN, 4AO U/I 4XM12
Potential separation	
between the load voltages	Yes
between load voltage and all other switching components	No
between Ethernet and electronics	Yes
Potential separation analog outputs	
• between the channels	No
Permissible potential difference	
between M internally and the outputs	10 Vpp AC

Article number	6ES7145-6HD00-0AB0 ET 200ECO PN, 4AO U/I 4XM12
Isolation	
tested with	
• 24 V DC circuits	707 V DC (type test)
• Interface	1 500 V; According to IEEE 802.3
Degree and class of protection	
IP degree of protection	IP65/67
Connection method	
Design of electrical connection	4/5-pin M12 circular connectors
Dimensions	
Width	60 mm
Height	175 mm
Depth	49 mm
Weights	
Weight (without packaging)	930 g

Article number	6ES7148-6JA00-0AB0 ET 200ECO PN: IO-LINK MASTER	6ES7148-6JD00-0AB0 ET 200eco PN: IO-Link master
General information		
Vendor identification (VendorID)	002AH	002AH
Device identifier (DeviceID)	0306H	0306H
Supply voltage		
Rated value (DC)	24 V	24 V
Reverse polarity protection	Yes	Yes
Load voltage 2L+		
• Rated value (DC)	24 V	24 V
• Reverse polarity protection	Yes	Yes; against destruction; load increasing
Input current		
Current consumption, typ.	200 mA	100 mA
from supply voltage 1L+, max.	4 A	4 A
from load voltage 2L+, max.	4 A	4 A
Encoder supply		
Number of outputs	6	4
Short-circuit protection	Yes	Yes; per channel, electronic
Output current		
• Rated value	200 mA; 100 mA per output to X5-X6	500 mA; Per channel
Power loss		
Power loss, typ.	8 W	4.8 W
Digital inputs		
Number of digital inputs	8	
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	
Input voltage		
• Rated value (DC)	24 V	
• for signal "0"	-3 to +5V	
• for signal "1"	+11 to +30V	
Input current		
• for signal "0", max. (permissible quiescent current)	1.5 mA	
• for signal "1", typ.	7 mA	

Technical specifications (continued)

Article number	6ES7148-6JA00-0AB0 ET 200ECO PN: IO-LINK MASTER	6ES7148-6JD00-0AB0 ET 200eco PN: IO-Link master
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	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	
Parallel switching of two outputs		
• for uprating	No	
• for redundant control of a load	Yes	
Switching frequency		
• with resistive load, max.	100 Hz	
• with inductive load, max.	0.5 Hz	
• on lamp load, max.	1 Hz	
Total current of the outputs (per group) all mounting positions		
- up to 60 °C, max.	3.9 A	
Cable length		
• unshielded, max.	30 m	
IO-Link		
Number of ports	4	4
• of which simultaneously controllable	4	4
IO-Link protocol 1.0	Yes	Yes
IO-Link protocol 1.1		Yes
Transmission rate	4.8 kBd (COM1); 38.4 kBd (COM2)	4.8 kBaud (COM1); 38.4 kBaud (COM2), 230 kBaud (COM3)
Size of process data, input per port	32 byte	32 byte
Size of process data, input per module	32 byte	128 bytes + 4 bytes PQI
Size of process data, output per port	32 byte	32 byte
Size of process data, output per module	32 byte	128 byte
Memory size for device parameter		2 kbyte; for each port
Master backup		Possible with function block IO_LINK_MASTER
Configuration without S7-PCT		Possible; autostart function
Cable length unshielded, max.	20 m	20 m
Operating modes		
• IO-Link	Yes	Yes
• DI	Yes	Yes
• DQ	Yes	Yes; max. 100 mA
Connection of IO-Link devices		
• Port type A	Yes	Yes; via 3-core cable
• Port type B		Yes; Additional device supply: max. 2 A per port, max. 4 A per module
• via three-wire connection	Yes	

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SIMATIC ET 200eco PN

Technical specifications (continued)

Article number	6ES7148-6JA00-0AB0 ET 200ECO PN: IO-LINK MASTER	6ES7148-6JD00-0AB0 ET 200eco PN: IO-Link master
Interfaces		
Transmission procedure	100BASE-TX	100BASE-TX
Number of PROFINET interfaces	1	1
PROFINET IO		
• Autocrossing	Yes	Yes
• automatic detection of transmission rate	Yes	Yes
• Transmission rate, max.	100 Mbit/s	100 Mbit/s
• integrated switch	Yes	Yes
PROFINET IO Device		
- IRT with the option "high flexibility"	Yes	Yes
Protocols		
Supports protocol for PROFINET IO	Yes	Yes
PROFINET CBA	No	No
PROFIsafe	No	No
Protocols (Ethernet)		
• SNMP	Yes	Yes
• DCP	Yes	Yes
• LLDP	Yes	Yes
• ping	Yes	Yes
• ARP	Yes	Yes
Interrupts/diagnostics/status information		
Status indicator	Yes; Green LED	Yes; Green LED
Diagnostic functions	Yes	Yes
Alarms		
• Diagnostic alarm	Yes	Yes
Diagnostic messages		
• Diagnostic information readable	Yes	Yes
• Monitoring the supply voltage	Yes; Green "ON" LED	Yes; Green "ON" LED
• Wire-break in actuator cable	Yes	
• Wire-break in signal transmitter cable	Yes	
• Short-circuit	Yes	Yes; Device supply to M
• Short-circuit encoder supply	Yes	
• Group error	Yes; Red/yellow "SF/MT" LED	Yes; Red/yellow "SF/MT" LED
Potential separation		
between the load voltages	Yes	Yes
between load voltage and all other switching components	No	No
between Ethernet and electronics	Yes	Yes
Potential separation digital inputs		
• between the channels	No	
Potential separation digital outputs		
• between the channels	No	
Isolation		
tested with		
• 24 V DC circuits	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
Degree and class of protection		
IP degree of protection	IP65/67	IP65/67
Connection method		
Design of electrical connection		3/5-pin M12 round connectors
Dimensions		
Width	60 mm	30 mm
Height	175 mm	200 mm
Depth	49 mm	49 mm
Weights		
Weight (without packaging)	910 g	550 g

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

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ET 200eco PN IO-Link master

Overview



The ET 200eco PN IO-Link master module is part of the ET 200eco PN compact block I/O range and is characterized by:

- Compact block I/O for connection to IO-Link devices and the PROFINET bus system
- Cabinet-free installation in IP67 degree of protection with M12 connection system
- Extremely rugged and resistant metal enclosure and casting
- Compact module with enclosure width of 30 mm or 60 mm
- PROFINET connection: 2 x M12 and automatic PROFINET address assignment
- 100 Mbps data transmission rate
- LLDP proximity detection without the need for a programming device
- Supply and load voltage connection: 2 x M12
- Channel-specific diagnostics

Technical specifications

Article number	6ES7148-6JA00-0AB0 ET 200ECO PN: IO-LINK MASTER	6ES7148-6JD00-0AB0 ET 200eco PN: IO-Link master
General information		
Vendor identification (VendorID)	002AH	002AH
Device identifier (DeviceID)	0306H	0306H
Supply voltage		
Rated value (DC)	24 V	24 V
Reverse polarity protection	Yes	Yes
Load voltage 2L+		
• Rated value (DC)	24 V	24 V
• Reverse polarity protection	Yes	Yes; against destruction; load increasing
Input current		
Current consumption, typ.	200 mA	100 mA
from supply voltage 1L+, max.	4 A	4 A
from load voltage 2L+, max.	4 A	4 A
Encoder supply		
Number of outputs	6	4
Short-circuit protection	Yes	Yes; per channel, electronic
Output current		
• Rated value	200 mA; 100 mA per output to X5-X6	500 mA; Per channel
Power loss		
Power loss, typ.	8 W	4.8 W
Digital inputs		
Number of digital inputs	8	
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	
Input voltage		
• Rated value (DC)	24 V	
• for signal "0"	-3 to +5V	
• for signal "1"	+11 to +30V	
Input current		
• for signal "0", max. (permissible quiescent current)	1.5 mA	
• 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	

Technical specifications (continued)

Article number	6ES7148-6JA00-0AB0 ET 200ECO PN: IO-LINK MASTER	6ES7148-6JD00-0AB0 ET 200eco PN: IO-Link master
Cable length • unshielded, max.	30 m	
Digital outputs Number of digital outputs Short-circuit protection • Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input	4 Yes; Electronic 1.8 A Typ. (L1+, L2+) -47 V Yes	
Switching capacity of the outputs • on lamp load, max.	5 W	
Output current • for signal "1" rated value • for signal "0" residual current, max.	1.3 A; Maximum 1.5 mA	
Parallel switching of two outputs • for uprating • for redundant control of a load	No Yes	
Switching frequency • with resistive load, max. • with inductive load, max. • on lamp load, max.	100 Hz 0.5 Hz 1 Hz	
Total current of the outputs (per group) all mounting positions - up to 60 °C, max.	3.9 A	
Cable length • unshielded, max.	30 m	
IO-Link Number of ports • of which simultaneously controllable IO-Link protocol 1.0 IO-Link protocol 1.1 Transmission rate Size of process data, input per port Size of process data, input per module Size of process data, output per port Size of process data, output per module Memory size for device parameter Master backup Configuration without S7-PCT Cable length unshielded, max.	4 4 Yes Yes 4.8 kBd (COM1); 38.4 kBd (COM2) 32 byte 32 byte 32 byte 32 byte 2 kbyte; for each port Possible with function block IO_LINK_MASTER Possible; autostart function 20 m	4 4 Yes Yes 4.8 kBaud (COM1); 38.4 kBaud (COM2), 230 kBaud (COM3) 32 byte 128 bytes + 4 bytes PQI 32 byte 128 byte Possible with function block IO_LINK_MASTER Possible; autostart function 20 m
Operating modes • IO-Link • DI • DQ	Yes Yes Yes	Yes Yes Yes; max. 100 mA
Connection of IO-Link devices • Port type A • Port type B • via three-wire connection	Yes Yes	Yes; via 3-core cable Yes; Additional device supply: max. 2 A per port, max. 4 A per module

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ET 200eco PN IO-Link master

Technical specifications (continued)

Article number	6ES7148-6JA00-0AB0 ET 200ECO PN: IO-LINK MASTER	6ES7148-6JD00-0AB0 ET 200eco PN: IO-Link master
Interfaces		
Transmission procedure	100BASE-TX	100BASE-TX
Number of PROFINET interfaces	1	1
PROFINET IO		
• Autocrossing	Yes	Yes
• automatic detection of transmission rate	Yes	Yes
• Transmission rate, max.	100 Mbit/s	100 Mbit/s
• integrated switch	Yes	Yes
PROFINET IO Device		
- IRT with the option "high flexibility"	Yes	Yes
Protocols		
Supports protocol for PROFINET IO	Yes	Yes
PROFINET CBA	No	No
PROFIsafe	No	No
Protocols (Ethernet)		
• SNMP	Yes	Yes
• DCP	Yes	Yes
• LLDP	Yes	Yes
• ping	Yes	Yes
• ARP	Yes	Yes
Interrupts/diagnostics/ status information		
Status indicator	Yes; Green LED	Yes; Green LED
Diagnostic functions	Yes	Yes
Alarms		
• Diagnostic alarm	Yes	Yes
Diagnostic messages		
• Diagnostic information readable	Yes	Yes
• Monitoring the supply voltage	Yes; Green "ON" LED	Yes; Green "ON" LED
• Wire-break in actuator cable	Yes	
• Wire-break in signal transmitter cable	Yes	
• Short-circuit	Yes	Yes; Device supply to M
• Short-circuit encoder supply	Yes	
• Group error	Yes; Red/yellow "SF/MT" LED	Yes; Red/yellow "SF/MT" LED
Potential separation		
between the load voltages	Yes	Yes
between load voltage and all other switching components	No	No
between Ethernet and electronics	Yes	Yes
Potential separation digital inputs		
• between the channels	No	
Potential separation digital outputs		
• between the channels	No	
Isolation		
tested with		
• 24 V DC circuits	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
Degree and class of protection		
IP degree of protection	IP65/67	IP65/67
Connection method		
Design of electrical connection		3/5-pin M12 round connectors
Dimensions		
Width	60 mm	30 mm
Height	175 mm	200 mm
Depth	49 mm	49 mm
Weights		
Weight (without packaging)	910 g	550 g

Ordering data	Article No.		Article No.
ET 200eco PN IO-Link master • 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 • 4 IO-L; 4 x M12, IP67 degree of protection, enclosure width 30 mm; for connecting up to 4 IO-Link devices according to IO-Link Specification V1.0 and V1.1 and port Class B	6ES7148-6JA00-0AB0	M12 connector for 24 V DC load power supply Connection socket for 24 V DC incoming supply; 4-pin, A-coded, 3 units Connector for loop-through of 24 V DC; 4-pin, A-coded, 3 units	6GK1907-0DC10-6AA3 6GK1907-0DB10-6AA3
Accessories • PD voltage distributor, 24 V DC; 1 X 7/8", 4 X M12 • Terminal block for ET 200eco PN, 10 A insulation displacement terminals • Spare fuses for terminal block, 10 units • DIN rail 0.5 m • Profile screw for DIN rail, 50 units • M12 sealing cap for IP67 modules, 10 units • Labels 10 x 7 mm, pastel turquoise, 816 units	6ES7148-6CB00-0AA0 6ES7194-6CA00-0AA0 6ES7194-6HB00-0AA0 6ES7194-6GA00-0AA0 6ES7194-6MA00-0AA0 3RK1901-1KA00 3RT1900-1SB10	M12 plug-in power cables Pre-assembled plug-in power cables, fitted at each end with M12 socket and plug 4 x 0.75 mm², in various lengths: 0.3 m 0.5 m 1.0 m 1.5 m 2.0 m 3.0 m 5.0 m 10.0 m 15.0 m	6XV1801-5DE30 6XV1801-5DE50 6XV1801-5DH10 6XV1801-5DH15 6XV1801-5DH20 6XV1801-5DH30 6XV1801-5DH50 6XV1801-5DN10 6XV1801-5DN15
PROFINET M12 connector, for user assembly IE FC M12 PRO connector, for user assembly • 1 unit • 8 units	6GK1901-0DB20-6AA0 6GK1901-0DB20-6AA8	M12 Y cable For double connection of I/O by means of single cable to ET 200, 5-pin	6ES7194-6KA00-0XA0
PROFINET M12 connecting cables Pre-assembled connecting cables with 2 M12 connectors (D-coded), in various lengths: 0.3 m 0.5 m 1.0 m 1.5 m 2.0 m 3.0 m 5.0 m 10.0 m 15.0 m	6XV1870-8AE30 6XV1870-8AE50 6XV1870-8AH10 6XV1870-8AH15 6XV1870-8AH20 6XV1870-8AH30 6XV1870-8AH50 6XV1870-8AN10 6XV1870-8AN15		