

SIMATIC ET 200 distributed I/O

ET 200pro

I/O modules

Digital expansion modules

Overview



- Expansion modules with digital inputs/outputs for connection of actuators/sensors
- With scalable diagnostics
 - Standard modules with module-specific diagnostics
 - High-feature module with channel-specific diagnostics and parameterizable input delay or hardware interrupts
- Double or single assignment can be implemented for each M12 in the case of the 8DI and 8DO module by selecting CM IO 4 x M12 or CM IO 8 x M12

Technical specifications

	6ES7 141-4BF00-0AA0	6ES7 141-4BF00-0AB0	6ES7 141-4BH00-0AA0
Supply voltages			
Rated value			
• 24 V DC	Yes	Yes	Yes
• permissible range, lower limit (DC)	20.4 V	20.4 V	20.4 V
• permissible range, upper limit (DC)	28.8 V	28.8 V	28.8 V
• Reverse polarity protection	Yes; against destruction; encoder power supply outputs applied with reversed polarity	Yes; against destruction; load increasing	Yes; against destruction; encoder power supply outputs applied with reversed polarity
Current consumption			
from backplane bus 3.3 V DC, max.	20 mA	40 mA	20 mA
from supply voltage 1L+, max.	20 mA	20 mA	30 mA
Power losses			
Power loss, typ.	2.5 W	2.5 W	3 W
Address area			
Occupied address area			
• Inputs	1 byte	1 byte	2 byte
FH technology			
Module for fail-safe applications	No	No	
Isochronous mode			
Isochronous mode	No	No	
Digital inputs			
Number of digital inputs	8	8	16
Number of simultaneously controllable inputs			
• all mounting positions			
- up to 55 °C, max.	8	8	16
Input characteristic curve acc. to IEC 1131, Type 1	Yes	No	Yes
Input characteristic curve acc. to IEC 1131, Type 2	No	Yes	
Input voltage			
• Rated value, DC	24 V	24 V	24 V
• for signal "0"	-3 to +5 V	-3 to +5 V	-3 to +5 V
• for signal "1"	13 to 30 V	11 to 30 V	11 to 30 V
Input current			
• for signal "1", typ.	7 mA	7 mA	4 mA

Technical specifications (continued)

	6ES7 141-4BF00-0AA0	6ES7 141-4BF00-0AB0	6ES7 141-4BH00-0AA0
Input delay (for rated value of input voltage)			
• for standard inputs	No	Yes	No
- parameterizable	1.2 ms	0.5 ms; 0.5 ms/ 3ms/ 15 ms/ 20 ms	1.2 ms
- at "0" to "1", min.	4.8 ms	20 ms	4.8 ms
- at "0" to "1", max.	1.2 ms	0.5 ms; 0.5 ms/3 ms/15 ms/20 ms	0.7 ms
- at "1" to "0", min.	4.8 ms	20 ms	3 ms
- at "1" to "0", max.			
Cable length			
• Cable length, shielded, max.	30 m	30 m	30 m
• Cable length unshielded, max.	30 m	30 m	30 m
Encoder supply			
Number of outputs	8	8	8
Output current			
• up to 55 °C, max.	1 A	1 A	1 A
Encoder			
Connectable encoders			
• 2-wire BEROs	Yes	Yes	Yes
- permissible quiescent current (2-wire BEROs), max.	1.5 mA	1.5 mA	1.5 mA
Parameter			
Diagnostic alarm		yes	
Process alarm		for 6 channels	
Diagnostics: wire break		channel by channel	
Diagnostics: short circuit	Sensor supply to M; module by module	channel by channel	
Alarms/diagnostics/status information			
Diagnostics			
• Diagnostic functions	Yes	Yes; channel by channel, parameterizable	Yes
• Diagnostic information readable	Yes	Yes	Yes
• Wire break		Yes; monitoring, $I < 0.3 \text{ mA}$	
• Short circuit	Yes; Sensor supply to M; module by module	Yes	Yes; sensor supply to M; module by module
• Group error			Yes
diagnostic indication LED			
• Group error SF (red)	Yes	Yes	Yes
• Status indicator digital input (green)	Yes; per channel	Yes; per channel	Yes; per channel
Isolation			
Isolation checked with	500 V DC	500 V DC	500 V DC
Galvanic isolation			
Galvanic isolation digital inputs			
• between the channels	No	No	No
• between the channels and the backplane bus	Yes	Yes	Yes
Permissible potential difference between different circuits	75 V DC / 60 V AC	75 V DC / 60 V AC	75 V DC / 60 V AC
Degree of protection			
IP65	Yes	Yes	
IP66	Yes	Yes	
IP67	Yes	Yes	Yes
Dimensions and weight			
Dimensions			
• Width	45 mm	45 mm	45 mm
• Height	130 mm	130 mm	130 mm
• Depth	35 mm	35 mm; without terminal module	35 mm
Weight			
• Weight, approx.	140 g	140 g	140 g

Ordering data		Order No.	Order No.	
8 DI digital input module 24 V DC, with module-specific diagnostics, including bus module. Connection module must be ordered separately	6ES7 141-4BF00-0AA0	CM IO 8 x M12 connection module 8 M12 sockets for connecting digital sensors or actuators to ET 200pro	6ES7 194-4CB00-0AA0	
8 DI High Feature digital input module 24 V DC, with channel-specific diagnostics, including bus module Connection module must be ordered separately	6ES7 141-4BF00-0AB0	CM IO 8 x M12D connection module 8 M12 sockets for connecting digital sensors or actuators to ET 200pro	6ES7 194-4CB50-0AA0	
16 DI digital input module 24 V DC, with module-specific diagnostics, including bus module. Connection module 6ES7 194-4CB50-0AA0 must be ordered separately	6ES7 141-4BH00-0AA0	CM IO 8 x M8 connection module 8 sockets M8 for connection of digital sensors or actuators to ET 200pro	6ES7 194-4EB00-0AA0	
4 DO digital output module 24 V DC, 2 A, with module-specific diagnostics, including bus module. Connection module must be ordered separately	6ES7 142-4BD00-0AA0	CM IO 2 x M12 connection module 2 M12 8-pin sockets; for use with: EM 8 DI, 24 V DC and 8 DO, 24 V DC/0.5 A	6ES7 194-4FB00-0AA0	
4 DO High Feature digital output module 24 V DC, 2 A, with channel-specific diagnostics, including bus module. Connection module must be ordered separately	6ES7 142-4BD00-0AB0	CM IO 1 x M23 connection module 1 socket M23; for use with: EM 8 DI, 24 V DC and 8 DO, 24 V DC/0.5 A	6ES7 194-4FA00-0AA0	
8 DO digital output module 24 V DC, 0.5 A, with module-specific diagnostics, including bus module. Connection module must be ordered separately	6ES7 142-4BF00-0AA0	Module identification labels For color coding of the CM IOs in the colors of white, red, blue and green; pack with 100 units each	6ES7 194-4HA00-0AA0	
Digital input and output module 4 DIO / 4 DO 24 V DC, 0.5 A, with module-specific diagnostics, including bus module. Connection module must be ordered separately	6ES7 143-4BF00-0AA0	M12 sealing cap For protection of unused M12 connections with ET 200pro	3RX9 802-0AA00	
Accessories		Labels 20 x 7, pale turquoise, 340 units per pack	3RT1 900-1SB20	
CM IO 4 x M12 connection module 4 M12 sockets for connecting digital or analog sensors or actuators to ET 200pro	6ES7 194-4CA00-0AA0	Y circular connector M12 For double connection of sensors via a single cable, 5-pole; cannot be used for F DI 4/8	6ES7 194-1KA01-0XA0	
CM IO 4 x M12 inverse connection module 4 sockets M12 for connection of digital actuators to ET 200pro (4 DO and 4 DO HF); 2 x M12 singly occupied, 2 x M12 doubly occupied	6ES7 194-4CA50-0AA0	Y cable M12 For double connection of I/O by means of a single-cable on ET200, 5-pole	6ES7 194-6KA00-0XA0	
		M8 sealing cap For IP 67 modules	3RK1 901-1PN00	

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