

I/O systems

ET 200 systems for the control cabinet

ET 200S - I/O modules

Digital electronic modules

Overview



- 2, 4 and 8-channel digital inputs and outputs for the ET 200S
- Can be plugged onto TM-E terminal modules with automatic coding.
- High-feature versions for enhanced plant availability, additional functions and comprehensive diagnostics
- Hot swapping of modules possible

Technical specifications

Article number	6ES7131-4BB01-0AA0	6ES7131-4BB01-0AB0	6ES7131-4BD01-0AA0	6ES7131-4BD01-0AB0	6ES7131-4BD51-0AA0	6ES7131-4BF00-0AA0
	ET200S, EL-MOD., 2DI ST, DC 24V, 5PCS.	ET200S, EL-MOD., 2DI HF, DC 24V, 5PCS.	ET200S, EL-MOD., 4DI ST., DC 24V, 5PCS.	ET200S, EL-MOD., 4DI HF, DC 24V, 5PC.	ET200S, EL-MOD., 4DI HF, DC 24V, 5PCS.	ET200S, ELEKTRONIC MODULE, 8DI DC 24V
Product type designation						
Supply voltage						
Rated value (DC)						
• 24 V DC	Yes; From power module	Yes; From power module	Yes; From power module	Yes; From power module	Yes; From power module	Yes
permissible range, lower limit (DC)	20.4 V	20.4 V	20.4 V	20.4 V	20.4 V	20.4 V
permissible range, upper limit (DC)	28.8 V	28.8 V	28.8 V	28.8 V	28.8 V	28.8 V
Reverse polarity protection	Yes	Yes	Yes	Yes	Yes	Yes
Input current						
from backplane bus 3.3 V DC, max.	10 mA	10 mA	10 mA	10 mA		10 mA
from supply voltage L+, max.	Dependent on encoder	Dependent on encoder	Dependent on encoder	Dependent on encoder	Dependent on encoder	Dependent on encoder
Encoder supply						
Number of outputs						0; no encoder supply
Type of output voltage	min. L+ (-0.5 V), under load	min. L+ (-0.5 V), under load	min. L+ (-0.5 V), under load	min. L+ (-0.5 V), under load	max. M +0.5 V, under load	
short-circuit protection		Yes; Electronic		Yes; Electronic		
Output current						
• nominal	500 mA	500 mA	500 mA	500 mA	500 mA	
Power losses						
Power loss, typ.	0.4 W	0.4 W	0.7 W	0.7 W	0.7 W	1.2 W
Address space per module						
• with packing	2 bit	2 bit	4 bit	4 bit	4 bit	
• without packing	1 byte	1 byte	1 byte	1 byte	1 byte	1 byte

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Technical specifications (continued)

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Galvanic isolation						
Galvanic isolation digital inputs						
• between the channels	No	No	No	No	No	No
• between the channels and the backplane bus	Yes	Yes	Yes	Yes	Yes	Yes
Permissible potential difference						
between different circuits	75V DC/60V AC	75V DC/60V AC	75V DC/60V AC	75V DC/60V AC	75V DC/60V AC	75V DC/60V AC
Isolation						
Isolation checked with	500 V DC	500 V DC	500 V DC	500 V DC	500 V DC	500 V DC
Dimensions						
Width	15 mm	15 mm	15 mm	15 mm	15 mm	15 mm
Height	81 mm	81 mm	81 mm	81 mm	81 mm	81 mm
Depth	52 mm	52 mm	52 mm	52 mm	52 mm	52 mm
Weights						
Weight, approx.	35 g	35 g	35 g	35 g	35 g	35 g

Article number	6ES7131-4CD02-0AB0 ET200S, EL-MOD., 4DI, UC 24-48V, 5 PCS	6ES7131-4EB00-0AB0 ET200S, EL-MOD., 2DI, AC 120V, 5PCS.	6ES7131-4FB00-0AB0 ET200S, EL-MOD., 2DI, AC 230V, 5PCS.	6ES7131-4RD02-0AB0 ET200S, EL-MOD., 4DI DC 24V NAMUR	6ES7131-4BF50-0AA0 ET200S, 8DI SOURCE OUTPUT DC24V
Product type designation					
Supply voltage					
Rated value (DC)					
• 24 V DC				Yes	Yes; From power module
permissible range, lower limit (DC)				20.4 V	20.4 V
permissible range, upper limit (DC)				28.8 V	28.8 V
Rated value (AC)					
• 120 V AC		Yes; From power module			
• 230 V AC			Yes		
Reverse polarity protection					Yes
Input current					
from backplane bus 3.3 V DC, max.		6 mA	6 mA		
from supply voltage L+, max.					
from supply voltage L1, max.		Dependent on encoder	Dependent on encoder		Dependent on encoder
Encoder supply					
Number of outputs				1	
Type of output voltage				min. 8.2 V, loaded	
short-circuit protection				Yes; Electronic	
Output current					
• nominal				45 mA	
Power losses					
Power loss, typ.		0.5 W	0.7 W	1.6 W	1.2 W
Address space per module					
• with packing		2 bit	2 bit	4 bit	
• without packing		1 byte	1 byte	1 byte	

Technical specifications (continued)

Article number	6ES7131-4CD02-0AB0 ET200S, EL-MOD., 4DI, UC 24-48V, 5 PCS	6ES7131-4EB00-0AB0 ET200S, EL-MOD., 2DI, AC 120V, 5PCS.	6ES7131-4FB00-0AB0 ET200S, EL-MOD., 2DI, AC 230V, 5PCS.	6ES7131-4RD02-0AB0 ET200S, EL-MOD., 4DI DC 24V NAMUR	6ES7131-4BF50-0AA0 ET200S, 8DI SOURCE OUTPUT DC24V
Digital inputs					
Number of digital inputs		2	2	4	8
Number of NAMUR inputs				4	
Parallel switching of inputs				No	
Input characteristic curve in accordance with IEC 61131, type 1		Yes	Yes		Yes
Number of simultaneously controllable inputs					
• Number of simultaneously controllable inputs				4	
Input voltage					
• Type of input voltage		AC	AC	DC	DC
• Rated value (AC)		120 V	230 V		
• Rated value (DC)					24 V
• for signal "0"		0V AC to 20V AC	0V AC to 40V AC		-5 to +30V
• for signal "1"		79 to 132 V AC	164V AC to 264V AC		-15 to -30 V
• Frequency range		47 ... 63 Hz	47 ... 63 Hz		
Input current					
• for signal "1", typ.		3 mA; 3 to 9 mA	5 mA; 5 to 15mA		6 mA; at 24 V
for 10 k switched contact					
- for signal "0"				0.35 to 1.2 mA	
- for signal "1"				2.1 to 7 mA	
for unswitched contact					
- for signal "0", max. (permissible quiescent current)				0.5 mA	
- for signal "1"				typ. 8 mA	
for NAMUR encoders					
- for signal "0"				0.35 to 1.2 mA	
- for signal "1"				2.1 to 7 mA	
Input delay (for rated value of input voltage)					
for standard inputs					
- Parameterizable					No
- at "0" to "1", min.		15 ms	15 ms		2 ms
- at "0" to "1", max.				4.6 µs	4.5 ms
- at "1" to "0", min.		25 ms	45 ms		2 ms
- at "1" to "0", max.				4.6 µs	4.5 ms
Cable length					
• shielded, max.		1 000 m	1 000 m	200 m	1 000 m
• Unshielded, max.		600 m	600 m		600 m
Encoder					
Connectable encoders					
• 2-wire sensor		No	No		Yes
- Permissible quiescent current (2-wire sensor), max.		1 mA	2 mA		1.5 mA
Isochronous mode					
Isochronous operation (application synchronized up to terminal)		No	No		Yes
Interrupts/diagnostics/status information					
Alarms					
• Diagnostic alarm				Yes; can be set	
• Hardware interrupt				No	
Diagnostic messages					
• Diagnostic functions		No	No	Yes; Diagnostic alarm	No
• Diagnostic information readable				Yes	
• Short circuit		No	No		
Diagnostics indication LED					
• Group error SF (red)				Yes	No
• Status indicator digital input (green)		Yes; per channel	Yes; per channel	Yes; per channel	Yes; per channel

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Technical specifications (continued)

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Parameter					
Remark		3 byte	3 byte	12 byte	3 byte
Galvanic isolation					
Galvanic isolation digital inputs					
• between the channels		No	No	No	No
• between the channels and the backplane bus		Yes	Yes	Yes	Yes
• between the channels and the load voltage L+				Yes	
Permissible potential difference					
between different circuits				75V DC/60V AC	75V DC/60V AC
between M internally and the inputs		1500 V AC	1500 V AC		
Isolation					
Isolation checked with		2500 V DC	4000 VDC	500 V DC	500 V DC
Dimensions					
Width		15 mm	15 mm	15 mm	15 mm
Height		81 mm	81 mm	81 mm	81 mm
Depth		52 mm	52 mm	52 mm	52 mm
Weights					
Weight, approx.		31 g	31 g	35 g	35 g

Article number	6ES7132-4BB01-0AB0 ET200S, EL-MOD., 2DO HF,DC24V, 0.5A, 5PC	6ES7132-4BB01-0AA0 ET200S, EL-MOD., 2DO ST,DC24V, 0.5A, 5PC	6ES7132-4BB31-0AB0 ET200S, EL-MOD., 2DO HF, DC 24V, 2A, 5PC	6ES7132-4BB31-0AA0 ET200S, EL-MOD., 2DO ST, DC 24V, 2A, 5PC	6ES7132-4BD00-0AB0 ET200S, EL-MOD., 4DO HF,DC24V, 0.5A,5PCS	6ES7132-4BD02-0AA0 ET200S, EL-MOD., 4DO ST,DC24V, 0.5A,5PCS
Product type designation						
Supply voltage						
Reverse voltage protection	Yes; when using the same load voltage as on the power module	Yes; when using the same load voltage as on the power module	Yes; when using the same load voltage as on the power module	Yes; when using the same load voltage as on the power module	Yes; when using the same load voltage as on the power module	Yes; when using the same load voltage as on the power module
Load voltage L+						
• Rated value (DC)	24 V; From power module	24 V; From power module	24 V; From power module	24 V; From power module	24 V; From power module	24 V; From power module
• Reverse polarity protection	Yes; polarity reversal can lead to the digital outputs being connected through	Yes; polarity reversal can lead to the digital outputs being connected through	Yes; polarity reversal can lead to the digital outputs being connected through	Yes; polarity reversal can lead to the digital outputs being connected through	Yes; polarity reversal can lead to the digital outputs being connected through	Yes; polarity reversal can lead to the digital outputs being connected through
Input current						
from load voltage L+ (without load), max.	5 mA; Per channel	5 mA; per module	5 mA; Per channel	5 mA; Per channel	5 mA; Per channel	10 mA; Per channel
from backplane bus 3.3 V DC, max.	10 mA	10 mA	10 mA	10 mA	10 mA	10 mA
Power losses						
Power loss, typ.	0.4 W	0.4 W	1.4 W	1.4 W		0.8 W
Address area						
Address space per module						
• with packing	2 bit	2 bit	2 bit	2 bit	4 bit	4 bit
• without packing	1 byte	1 byte	1 byte	1 byte	1 byte	1 byte

Technical specifications (continued)

Article number	6ES7132-4BB01-0AB0 ET200S, EL-MOD., 2DO HF, DC24V, 0.5A, 5PC	6ES7132-4BB01-0AA0 ET200S, EL-MOD., 2DO ST, DC24V, 0.5A, 5PC	6ES7132-4BB31-0AB0 ET200S, EL-MOD., 2DO HF, DC 24V, 2A, 5PC	6ES7132-4BB31-0AA0 ET200S, EL-MOD., 2DO ST, DC 24V, 2A, 5PC	6ES7132-4BD00-0AB0 ET200S, EL-MOD., 4DO HF, DC24V, 0.5A, 5PCS	6ES7132-4BD02-0AA0 ET200S, EL-MOD., 4DO ST, DC24V, 0.5A, 5PCS
Digital outputs						
Number of digital outputs	2	2	2	2	4	4
short-circuit protection	Yes	Yes	Yes	Yes	Yes	Yes
• Response threshold, typ.	1.5 A	0.7 to 1.8 A	4 A	2.8 to 7.2 A	0.7 to 1.5 A	1 to 1.5 A
Limitation of inductive shutdown voltage to	-55 to -60 V, typ. L+()	-55 to -60 V, typ. L+()	-55 to -60 V, typ. L+()	-55 to -60 V, typ. L+()	-55 to -60 V, L+()	(L+) -55 to -60 V
Controlling a digital input	Yes	Yes	Yes	Yes	Yes	Yes
Switching capacity of the outputs						
• on lamp load, max.	2.5 W	5 W	5 W	10 W	5 W	5 W
Load resistance range						
• lower limit	48 Ω	48 Ω	12 Ω	12 Ω	48 Ω	48 Ω
• upper limit	3 400 Ω	3 400 Ω	3 400 Ω	3 400 Ω	3 400 Ω	3 400 Ω
Output voltage						
• for signal "1", min.	L+ (-1 V)	L+ (-1 V)	L+ (-1 V)	L+ (-1 V)	L+ (-1 V)	L+ (-1 V)
Output current						
• for signal "1" rated value	0.5 A	0.5 A	2 A	2 A	0.5 A	0.5 A
• for signal "1" permissible range for 0 to 60 °C, min.	7 mA	7 mA	7 mA	7 mA	7 mA	7 mA
• for signal "1" permissible range for 0 to 60 °C, max.	600 mA	600 mA	2.4 A	2.4 A	600 mA	600 mA
• for signal "0" residual current, max.	0.3 mA	0.3 mA	0.5 mA	0.5 mA	0.3 mA	0.3 mA
Output delay with resistive load						
• "0" to "1", max.	100 µs	200 µs	100 µs	200 µs	100 µs	45 µs; Typical value
• "1" to "0", max.	400 µs	1.3 ms	400 µs	1.3 ms	300 µs	90 µs; Typical value
Parallel switching of 2 outputs						
• for increased power	No	No	No	No	No	No
• for redundant control of a load	Yes; per module	Yes; per module	Yes; per module	Yes; per module	Yes; per module	Yes; per module
Switching frequency						
• with resistive load, max.	100 Hz	100 Hz	100 Hz	100 Hz	100 Hz	800 Hz
• with inductive load, max.	2 Hz	2 Hz	2 Hz; 0.5 H	2 Hz; 0.5 H	2 Hz	2 Hz
• on lamp load, max.	10 Hz	10 Hz	10 Hz	10 Hz	10 Hz	10 Hz
Aggregate current of outputs (per group)						
all mounting positions						
- up to 60 °C, max.	1 A	1 A	4 A	4 A	2 A	2 A
Cable length						
• shielded, max.	1 000 m	1 000 m	1 000 m	1 000 m	1 000 m	1 000 m
• Unshielded, max.	600 m	600 m	600 m	600 m	600 m	600 m
Isochronous mode						
Isochronous operation (application synchronized up to terminal)	Yes	No	Yes	No	Yes	Yes
Interrupts/diagnostics/status information						
Substitute values connectable	Yes; 0/1		Yes; 0/1			
Diagnostic messages						
• Diagnostic functions	Yes; Can be read out	No	Yes; Can be read out	No	Yes	No
• Wire break	Yes; channel by channel		Yes; channel by channel			
• Short circuit	Yes; channel by channel		Yes; channel by channel		Yes; Module-wise	
Diagnostics indication LED						
• Group error SF (red)	Yes		Yes		Yes; SF-LED (red)	
• Status indicator digital output (green)	Yes	Yes	Yes	Yes	Yes; Per channel	Yes

Ordering data	Article No.	Article No.
Digital input modules		
Ordering unit 5 items		
• 2 DI 24 V DC Standard	6ES7131-4BB01-0AA0	
• 2 DI 24 V DC High Feature	6ES7131-4BB01-0AB0	
• 4 DI 24 V DC Standard	6ES7131-4BD01-0AA0	
• 4 DI 24 V DC High Feature	6ES7131-4BD01-0AB0	
• 2 DI 120 V AC	6ES7131-4EB00-0AB0	
• 2 DI 230 V AC	6ES7131-4FB00-0AB0	
• 4 DI 24 to 48 V UC	6ES7131-4CD02-0AB0	
• 4 DI 24 V DC SOURCE INPUT	6ES7131-4BD51-0AA0	
Ordering unit 1 item		
• 4 DI 24 V DC NAMUR	6ES7131-4RD02-0AB0	
• 8 DI 24 V DC Standard	6ES7131-4BF00-0AA0	
• 8 DI, 24 V DC, Standard SOURCE INPUT	6ES7131-4BF50-0AA0	
Ordering unit 100 items		
• 8 DI 24 V DC Standard	6ES7131-4BF00-4AA0	
Digital output modules		
Ordering unit 5 items		
• 2 DO 24 V DC/0.5 A Standard	6ES7132-4BB01-0AA0	
• 2 DO 24 V DC/0.5 A High Feature	6ES7132-4BB01-0AB0	
• 2 DO 24 V DC/2 A Standard	6ES7132-4BB31-0AA0	
• 2 DO 24 V DC/2 A High Feature	6ES7132-4BB31-0AB0	
• 4 DO 24 V DC/0.5 A Standard	6ES7132-4BD02-0AA0	
• 4 DO, 24 V DC/0.5 A, Standard SOURCE OUTPUT	6ES7132-4BD50-0AA0	
• 4 DO 24 V DC/0.5 A High Feature	6ES7132-4BD00-0AB0	
• 8 DO 24 V DC/0.5 A High Feature	6ES7132-4BF00-0AB0	
• 4 DO 24 V DC/2 A Standard	6ES7132-4BD32-0AA0	
• 4 DO 24 V DC/2 A High Feature	6ES7132-4BD30-0AB0	
• 2 DO 24 to 230 V AC/2 A	6ES7132-4FB01-0AB0	
• 2 DO 24 V DC to 230 V AC/5 A relay, NO contact	6ES7132-4HB01-0AB0	
• 2 DO 24...48 V DC/5 A, 24...230 V AC/5 A relay, changeover contact	6ES7132-4HB12-0AB0	
Ordering unit 1 item		
• 2 DO 24...48 V DC/5 A, 24...230 V AC/5 A relay, changeover contact, with manual operation	6ES7132-4HB50-0AB0	
• 8 DO 24 V DC/0.5 A Standard	6ES7132-4BF00-0AA0	
• 8 DO, 24 V DC/0.5 A, Standard SINK OUTPUT	6ES7132-4BF50-0AA0	
Ordering unit 100 items		
• 8 DO 24 V DC/0.5 A Standard	6ES7132-4BF00-4AA0	
Accessories		
Label sheets DIN A4 (10 pieces)		
Each sheet contains 60 labeling strips for I/O modules and 20 labeling strips for interface modules		
• petrol	6ES7193-4BH00-0AA0	
• red	6ES7193-4BD00-0AA0	
• yellow	6ES7193-4BB00-0AA0	
• light beige	6ES7193-4BA00-0AA0	