

SIMATIC ET 200 distributed I/O

ET 200SP

Interface modules without CPU
IM 155-6

Ordering data	Article No.	Article No.
Interface module Standard - IM 155-6PN ST, with server module and installed BusAdapter BA 2xRJ45 - IM 155-6PN ST, with server module, without BusAdapter	6ES7155-6AA00-0BN0 6ES7155-6AU00-0BN0	6ES7132-6HD00-0BB0 6ES7132-6GD50-0BA0
Interface module High Feature - IM 155-6DP HF, with server module, with multi-hot-swap, incl. PROFIBUS connector - IM 155-6PN HF, incl. server module, without BusAdapter	6ES7155-6BA00-0CN0 6ES7155-6AU00-0CN0	6ES7136-6DB00-0CA0 6ES7136-6RA00-0BF0
Accessories		
Digital input modules Digital input module DI 8x24 V DC Standard, BU type A0, color code CC01 Digital input module DI 16x24 V DC Standard, BU type A0, color code CC00 Digital input module DI 8x24 V DC High Feature, BU type A0, color code CC01, channel-specific diagnostics, isochronous mode, shared input (MSI) Digital input module DI 8x24 V DC Source Input, Basic, BU type A0, color code CC02 Digital input module DI 8xNAMUR High Feature, BU type A0, color code CC01 Digital input module DI 4x120 V AC-230 V AC Standard, BU type B1, color code CC41 Fail-safe digital input module F-DI 8x24 V DC High Feature, BU type A0, color code CC01, SIL3/Cat.4/PLe	6ES7131-6BF00-0BA0 6ES7131-6BH00-0BA0 6ES7131-6BF00-0CA0 6ES7131-6BF60-0AA0 6ES7131-6TF00-0CA0 6ES7131-6FD00-0BB1 6ES7136-6BA00-0CA0	6ES7132-6HD00-0BA1 6ES7134-6GD00-0BA1 6ES7134-6JD00-0CA1 6ES7134-6HB00-0DA1 6ES7134-6JF00-0CA1 6ES7134-6HB00-0CA1 6ES7134-6PA00-0BD0
Digital output modules Digital output module DQ 4x24 V DC/2 A Standard, BU type A0, color code CC02 Digital output module DQ 4x24 V DC/2 A High Feature, BU type A0, color code CC02, channel-precise diagnostics, isochronous mode, shared output (MSO) Digital output module DQ 4x24 V AC-230 V AC/2 A Standard for BU type B1, color code CC41 Digital output module DQ 8x24 V DC/0.5 A Standard, BU type A0, color code CC02 Digital output module DQ 8x24 V DC/0.5 A High Feature, BU type A0, color code CC02 Digital output module DQ 8x24 V DC/0.5 A Sink output, Basic, BU type A0, color code CC01 Digital output module DQ 16x24 V DC/0.5 A Standard, BU type A0, color code CC00	6ES7132-6BD20-0BA0 6ES7132-6BD20-0CA0 6ES7132-6FD00-0BB1 6ES7132-6BF00-0BA0 6ES7132-6BF00-0CA0 6ES7132-6BF60-0AA0 6ES7132-6BH00-0BA0	6ES7132-6HD00-0BA1 6ES7135-6HB00-0DA1 6ES7135-6HB00-0CA1
	Relay module RQ NO 4x120 V DC - 230 V AC/5 A Standard, normally-open, BU type B0, color code CC00 Signal relay module RQ CO 4x24 V UC/2 A Standard, changeover contact, BU type A0, color code CC00 Fail-safe digital output module F-DQ 4x24 V DC High Feature, BU type A0, color code CC01, SIL3/Cat.4/PLe Fail-safe digital F output module relay 1 F-RQ, BU type F0, relay output (2 NO contacts), total output current 5 A, load voltages 24 V DC and 24...230 V AC; can be used up to SIL3 /Category 4/PLe if controlled via F-DQ	
	Analog input modules Analog input module AI 4xU/I 2-wire Standard, BU type A0 or A1, color code CC03, 16 bit, $\pm 0.3\%$ Analog input module AI 4xI 2-/4-wire Standard, BU type A0 or A1, color code CC03, 16 bit, $\pm 0.3\%$ Analog input module AI 4xRTD/TC 2-, 3-, 4-wire High Feature, BU type A0 or A1, color code CC00, 16 bit, $\pm 0.1\%$, scalable measuring range Analog input module AI 2xU/I 2-/4-wire High Speed, BU type A0 or A1, color code CC00, 16 bit, $\pm 0.3\%$, isochronous mode above 250 μ s, oversampling above 50 μ s Analog input module AI 8xRTD/TC 2-wire High Feature, BU type A0 or A1, color code CC00, 16 bit, $\pm 0.1\%$, scalable measuring range Analog input module AI 2xU/I 2-/4-wire High Feature, BU type A0 or A1, color code CC05, 16 bit, $\pm 0.1\%$, independent channel isolation, isochronous mode above 1 ms Analog input module AI Energy Meter Standard, BU type D0, color code CC00	
	Analog output modules Analog output module AQ 4xU/I Standard, BU type A0 or A1, color code CC00, 16 bit, $\pm 0.3\%$ Analog output module AQ 2xU/I High Speed, BU type A0 or A1, color code CC00, 16 bit, $\pm 0.3\%$ Analog output module AQ 2xU/I High Feature, BU type A0 or A1, color code CC00, 16 bit, $\pm 0.1\%$	

Overview



- 4-, 8- and 16-channel digital input modules for the ET 200SP
- Can be plugged onto BaseUnits with automatic coding
- LED display for error, operation, supply voltage and status
- Clear labeling on front of module
 - Plain text identification of the module type and function class
 - 2D matrix code (order and serial number)
 - Connection diagram
 - Color coding of the module type DI: White
 - Hardware and firmware version
 - Color code CC for module-specific color coding of the potentials at the terminals of the BU
 - Complete Article No.
- Optional labeling accessories
 - Labeling Strips
 - Reference identification label
- Optional module-specific color identification of the terminals according to the color code CC
- Optional system-integrated shield connection

Technical specifications

	6ES731-6BF00-0BA0	6ES731-6BF60-0AA0	6ES731-6BH00-0BA0	6ES731-6BF00-0CA0	6ES731-6TF00-0CA0	6ES731-6FD00-0BB1
	DI 8x24VDC ST	DI 8x24VDC SRC BA	DI 16x24VDC ST	DI 8x24VDC HF	DI 8xNAMUR HF	DI 4x120 ... 230VAC ST
General information						
Product function						
• I&M data	Yes	Yes	Yes	Yes	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3
Engineering with						
• STEP 7 TIA Portal can be configured/integrated as of version		V13 / V13		V12 SP1 / V13	V13 / V13	V13 / V13
• STEP 7 can be configured/integrated as of version	V5.5 SP3 / -	V5.5 SP3 / -	V5.5 SP3 / -	V5.5 SP3 / -	V5.5 SP3 / -	V5.5 SP3 / -
• PROFIBUS as of GSD version/GSD revision	GSD as of Revision 5	GSD Revision 5	GSD as of Revision 5	GSD Revision 5	GSD Revision 5	GSD as of Revision 5
• PROFINET as of GSD version/GSD revision	V2.3 / -	V2.3 / -	V2.3 / -	V2.3 / -	V2.3	V2.3 / -
Operating mode						
• MSI				Yes		
Supply voltage						
Type of supply voltage	DC	24 V DC	DC	DC	24 V DC	
Rated value (DC)	24 V	24 V	24 V	24 V	24 V	
Rated value (AC)						230 V
Reverse polarity protection	Yes	Yes	Yes	Yes	Yes	Yes
Encoder supply						
Number of outputs		8		8	8	4
Short-circuit protection					Yes	No

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ET 200SP

I/O modules

Digital input modules

Technical specifications (continued)

	6ES731-6BF00-0BA0 DI 8x24VDC ST	6ES7131-6BF60-0AA0 DI 8x24VDC SRC BA	6ES7131-6BH00-0BA0 DI 16x24VDC ST	6ES7131-6BF00-0CA0 DI 8x24VDC HF	6ES7131-6TF00-0CA0 DI 8xNAMUR HF	6ES7131-6FD00-0BB1 DI 4x120 ... 230VAC ST
Output current • up to 60 °C, max.						10 A
24 V encoder supply • 24 V • Short-circuit protection • Output current, max.	Yes Yes 700 mA			Yes Yes 700 mA		
Digital inputs						
Number of digital inputs	8	8	16	8	8	4
Digital inputs, configurable					Yes	
Type					NAMUR	
m/p-reading		Yes; m-reading				No
Input characteristic curve in accordance with IEC 61131, type 1	Yes	Yes	Yes	Yes		
Input characteristic curve in accordance with IEC 61131, type 2		No				
Input characteristic curve in accordance with IEC 61131, type 3	Yes	Yes	Yes	Yes		Yes
Pulse extension • Length		No		Yes 50 ms, 100 ms, 200 ms, 500 ms, 1 s, 2 s	Yes; 0.5 s, 1 s, 2 s	No
Edge evaluation					Yes; rising edge, falling edge, edge change	
Signal change flutter					Yes; 2 to 32 signal changes	
Flutter observation window					Yes; 0.5 s, 1 s to 100 s in 1-s steps	
Input voltage • Type of input voltage • Rated value, AC • Rated value, DC • for signal "0" • for signal "1"	DC 24 V -30 to 5 V 11 to 30 V	DC 24 V	DC 24 V -30 to 5 V 11 to 30 V	DC 24 V -30 to +5 V 11 to 30 V	DC 8.2 V	230 V 0 to 40 V AC
Input current • for signal "1", typ. • for 10 k switched contact - for signal "0" - for signal "1" • for unswitched contact - for signal "0", max. (permissible quiescent current) - for signal "1" • for NAMUR encoders - for signal "0" - for signal "1"	2.5 mA	6 mA	2.5 mA	2.5 mA	0.35 to 1.2 mA 2.1 to 7 mA 0.5 mA typ. 8 mA 0.35 to 1.2 mA 2.1 to 7 mA	10.8 mA

Technical specifications (continued)

	6ES731-6BF00-0BA0 DI 8x24VDC ST	6ES7131-6BF60-0AA0 DI 8x24VDC SRC BA	6ES7131-6BH00-0BA0 DI 16x24VDC ST	6ES7131-6BF00-0CA0 DI 8x24VDC HF	6ES7131-6TF00-0CA0 DI 8xNAMUR HF	6ES7131-6FD00-0BB1 DI 4x120 ... 230VAC ST
Input delay (for rated value of input voltage)					300 ms	
- Tolerated changeover time for changeover contacts - for standard inputs - Parameterizable	Yes; 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms (in each case + delay of 30 to 500 µs, depending on line length)	Yes; 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms (in each case + delay of 30 to 500 µs, depending on line length)	Yes; 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms (in each case + delay of 30 to 500 µs, depending on line length)	Yes; 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms (in each case + delay of 30 to 500 µs, depending on line length)		No
- for interrupt inputs - Parameterizable - for counter/technological functions - Parameterizable - for NAMUR inputs - at "0" to "1", max. - at "1" to "0", max.		No		Yes	12 ms 12 ms	
Cable length						
• Cable length, shielded, max.	1 000 m	1 000 m	1 000 m	1 000 m	200 m	1 000 m
• Cable length unshielded, max.	600 m	200 m	600 m	600 m		600 m
Encoder						
Connectable encoders						
• 2-wire sensor	Yes	Yes	Yes	Yes		Yes
- Permissible quiescent current (2-wire sensor), max.	1.5 mA	1.5 mA	1.5 mA	1.5 mA		
Isochronous mode						
Isochronous operation (application synchronized up to terminal)		No		Yes		No
Filtering and processing time (TCI), min.				420 µs		
Bus cycle time (TDP), min.				500 µs		
Interrupts/diagnostics/status information						
Alarms						
• Diagnostic alarm	Yes	Yes	Yes	Yes	Yes; channel by channel	No
• Hardware interrupt		No		Yes	Yes; Parameterizable, channels 0 to 7	No

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I/O modules

Digital input modules

Technical specifications (continued)

	6ES731-6BF00-0BA0 DI 8x24VDC ST	6ES7131-6BF60-0AA0 DI 8x24VDC SRC BA	6ES7131-6BH00-0BA0 DI 16x24VDC ST	6ES7131-6BF00-0CA0 DI 8x24VDC HF	6ES7131-6TF00-0CA0 DI 8xNAMUR HF	6ES7131-6FD00-0BB1 DI 4x120 ... 230VAC ST
Diagnostic messages					Yes	
• Diagnostic information readable					Yes	
• Diagnostics	Yes	Yes	Yes	Yes	Yes	
• Monitoring the supply voltage	Yes	Yes	Yes	Yes	Yes	
• Wire break	Yes		Yes	Yes	Yes	
• Short circuit	Yes			Yes	Yes	
• Group error					Yes	
Diagnostics indication LED						
• Monitoring the supply voltage	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED	Yes; green PWR LED
• Channel status display for channel diagnostics	Yes; Green LED	Yes; Green LED	Yes; Green LED	Yes; Green LED	Yes; Green LED	Yes; Green LED
• for module diagnostics	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; Red LED	Yes; Red LED	No
				Yes; green/red DIAG LED	Yes; green/red DIAG LED	Yes; green/red DIAG LED
Galvanic isolation						
Electrical isolation channels						
• between the channels and the backplane bus	Yes	Yes	Yes	Yes	Yes	Yes
Isolation						
Isolation checked with	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)	
Ambient conditions						
Operating temperature						
• horizontal installation, min.	0 °C		0 °C			
• horizontal installation, max.	60 °C		60 °C			
• vertical installation, min.	0 °C		0 °C			
• vertical installation, max.	50 °C		50 °C			
Dimensions						
Width	15 mm	15 mm	15 mm	15 mm	15 mm	20 mm
Weights						
Weight, approx.	28 g	28 g	28 g	28 g	32 g	36 g

Ordering data	Article No.	Article No.
Digital input modules		Accessories
Digital input module DI 8x24 V DC Standard, BU type A0, color code CC01	6ES7131-6BF00-0BA0	Reference identification label 6ES7193-6LF30-0AW0 10 sheets of 16 labels
Digital input module DI 16x24 V DC Standard, BU type A0, color code CC00	6ES7131-6BH00-0BA0	Labeling strips 500 labeling strips on roll, light gray, for inscription with thermal transfer roll printer 6ES7193-6LR10-0AA0 500 labeling strips on roll, yellow, for inscription with thermal transfer roll printer 6ES7193-6LR10-0AG0
Digital input module DI 8x24 V DC High Feature, BU type A0, color code CC01, channel-specific diagnostics, isochronous mode, shared input (MSI)	6ES7131-6BF00-0CA0	1000 labeling strips DIN A4, light gray, card, for inscription with laser printer 6ES7193-6LA10-0AA0
Digital input module DI 8x24 V DC Source Input, Basic, BU type A0, color code CC02	6ES7131-6BF60-0AA0	1000 labeling strips DIN A4, yellow, card, for inscription with laser printer 6ES7193-6LA10-0AG0
Digital input module DI 8xNAMUR High Feature, BU type A0, color code CC01	6ES7131-6TF00-0CA0	BU cover For covering empty slots (gaps); 5 units • 15 mm wide 6ES7133-6CV15-1AM0
Digital input module DI 4x120 V AC-230 V AC Standard, BU type B1, color code CC41	6ES7131-6FD00-0BB1	Shield connection 5 shield supports and 5 shield terminals 6ES7193-6SC00-1AM0
Usable BaseUnits		Color-coded labels • Color code CC01, module- specific, for 16 push-in terminals; for BaseUnit type A0, A1; 10 units 6ES7193-6CP01-2MA0 • Color code CC71, for 10 AUX terminals 1 A to 10 A, for BU type A0, yellow/green, with push-in terminals; 10 units 6ES7193-6CP71-2AA0 • Color code CC72, for 10 AUX terminals 1 A to 10 A, for BU type A0, red, with push-in terminals; 10 units 6ES7193-6CP72-2AA0 • Color code CC73, for 10 AUX terminals 1 A to 10 A, for BU type A0, blue, with push-in terminals; 10 units 6ES7193-6CP73-2AA0 • Color code CC41, module-specific, for 12 push-in terminals; for BaseUnit type B1; 10 units 6ES7193-6CP41-2MB0
BU15-P16+A0+2D BU type A0; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)	6ES7193-6BP00-0DA0	
BU15-P16+A0+2B BU type A0; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group	6ES7193-6BP00-0BA0	
BU15-P16+A10+2D BU type A0; BaseUnit (light) with 16 process terminals (1...16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for starting a new load group (max. 10 A)	6ES7193-6BP20-0DA0	
BU15-P16+A10+2B BU type A0; BaseUnit (dark) with 16 process terminals (1...16) to the module and an additional 10 internally jumpered AUX terminals (1 A to 10 A); for continuing the load group	6ES7193-6BP20-0BA0	
BU20-P12+A0+4B BU type B1; BaseUnit (dark) with 12 process terminals to the module; for continuing the load group	6ES7193-6BP20-0BB1	