

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



- 2- and 4-channel analog output modules for the ET 200SP
- Can be plugged into Type A0 or A1 BaseUnits (BU) 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 AQ: dark blue
 - 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

	6ES7135-6HD00-0BA1 AQ 4xU/I ST	6ES7135-6HB00-0DA1 AQ 2xU/I HS	6ES7135-6HB00-0CA1 AQ 2xU/I HF
General information			
Product function			
• I&M data	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	V5.5 SP3 / -	V12 SP1 / V13	V13 / V13
• STEP 7 can be configured/integrated as of version	V5.5 SP3 / -	V5.5 SP3 / -	V5.5 SP3 / -
• PROFIBUS as of GSD version/GSD revision	GSD Revision 5	GSD Revision 5	GSD Revision 5
• PROFINET as of GSD version/GSD revision	V2.3 / -	GSDML V2.3	GSDML V2.3
Operating mode			
• Oversampling		Yes	
- Values per cycle max.		16	
- Resolution min.		250 µs	
CiR - Configuration in RUN			
Reparameterization possible in RUN	Yes	Yes	Yes
Calibration possible in RUN		Yes	Yes
Supply voltage			
Type of supply voltage	DC	DC	DC
Rated value (DC)	24 V	24 V	24 V
Reverse polarity protection	Yes		
Analog outputs			
Number of analog outputs	4	2	2
Cycle time (all channels), min.	5 ms	125 µs	750 µs
Output ranges, voltage			
• 0 to 10 V	Yes; 15 bit	Yes; 15 bit	Yes; 15 bit
• 1 to 5 V	Yes; 13 bit	Yes; 13 bit	Yes; 13 bit
• -5 to +5 V	Yes; 15 bit incl. sign	Yes; 15 bit incl. sign	Yes; 15 bit incl. sign
• -10 to +10 V	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
Output ranges, current			
• 0 to 20 mA	Yes; 15 bit	Yes; 15 bit	Yes; 15 bit
• -20 to +20 mA	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign	Yes; 16 bit incl. sign
• 4 to 20 mA	Yes; 14 bit	Yes; 14 bit	Yes; 14 bit

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ET 200SP

I/O modules

Analog output modules

Technical specifications (continued)

	6ES7135-6HD00-0BA1 AQ 4xU/I ST	6ES7135-6HB00-0DA1 AQ 2xU/I HS	6ES7135-6HB00-0CA1 AQ 2xU/I HF
Connection of actuators			
• for voltage output 2-conductor connection	Yes	Yes	Yes
• for voltage output 4-conductor connection	Yes	Yes	Yes
• for current output 2-conductor connection	Yes	Yes	Yes
Load impedance (in rated range of output)			
• with voltage outputs, min.	2 k Ω	2 k Ω	2 k Ω
• with voltage outputs, capacitive load, max.	1 μ F	1 μ F	1 μ F
• with current outputs, max.	500 Ω	500 Ω	500 Ω
• with current outputs, inductive load, max.	1 mH	1 mH	1 mH
Cable length			
• Cable length, shielded, max.	1 000 m	200 m	1 000 m
Analog value creation			
Settling time			
• for resistive load	0.1 ms	0.05 ms	0.05 ms
• for capacitive load	1 ms	0.05 ms	0.05 ms
• for inductive load	0.5 ms	0.05 ms	0.05 ms
Errors/accuracies			
Basic error limit (operational limit at 25 °C)			
• Voltage, relative to output area, (+/-)	0.3 %	0.1 %	0.1 %
• Current, relative to output area, (+/-)	0.3 %	0.1 %	0.1 %
Isochronous mode			
Isochronous operation (application synchronized up to terminal)		Yes	Yes
Execution and activation time (TCO), min.		130 μ s	500 μ s
Bus cycle time (TDP), min.		250 μ s	750 μ s
Interrupts/diagnostics/status information			
Substitute values connectable	Yes	Yes	Yes
Alarms			
• Diagnostic alarm	Yes	Yes	Yes
Diagnostic messages			
• Diagnostics	Yes	Yes	Yes
• Monitoring the supply voltage	Yes	Yes	Yes
• Wire break	Yes	Yes; channel-by-channel, only for output type "current"	Yes; channel-by-channel, only for output type "current"
• Short circuit	Yes	Yes; channel-by-channel, only for output type "voltage"	Yes; channel-by-channel, only for output type "voltage"
• Overflow/underflow	Yes	Yes	Yes
Diagnostics indication LED			
• Monitoring the supply voltage	Yes; Green LED	Yes; green PWR LED	Yes; green PWR LED
• Channel status display	Yes; Green LED	Yes; Green LED	Yes; Green LED
• for channel diagnostics		Yes; Red LED	Yes; Red LED
• for module diagnostics	Yes; Green/red 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
Isolation			
Isolation checked with	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)

Technical specifications (continued)

	6ES7135-6HD00-0BA1 AQ 4xU/I ST	6ES7135-6HB00-0DA1 AQ 2xU/I HS	6ES7135-6HB00-0CA1 AQ 2xU/I HF
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
Weights			
Weight, approx.	31 g	31 g	31 g

Ordering data

	Article No.		Article No.
Analog output modules		BU15-P16+A0+12D/T	6ES7193-6BP40-0DA1
Analog output module AQ 4xU/I Standard, BU type A0 or A1, color code CC00, 16 bit, $\pm 0.3\%$	6ES7135-6HD00-0BA1	BU type A1; BaseUnit (light) with 16 process terminals (1...16) to the module and an additional 2x5 internally jumpered additional terminals (1 B to 5 B and 1 C to 5 C); for starting a new load group (max. 10 A)	
Analog output module AQ 2xU/I High Speed, BU type A0 or A1, color code CC00, 16 bit, $\pm 0.3\%$	6ES7135-6HB00-0DA1	BU15-P16+A0+12B/T	6ES7193-6BP40-0BA1
Analog output module AQ 2xU/I High Feature, BU type A0 or A1, color code CC00, 16 bit, $\pm 0.1\%$	6ES7135-6HB00-0CA1	BU type A1; BaseUnit (dark) with 16 process terminals (1...16) to the module and an additional 2x5 internally jumpered additional terminals (1 B to 5 B and 1 C to 5 C); for continuing the load group	
Usable type A0 BaseUnits		Accessories	
BU15-P16+A0+2D	6ES7193-6BP00-0DA0	Reference identification label	6ES7193-6LF30-0AW0
BU type A0; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)		10 sheets of 16 labels	
BU15-P16+A0+2B	6ES7193-6BP00-0BA0	Labeling strips	
BU type A0; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group		500 labeling strips on roll, light gray, for inscription with thermal transfer roll printer	6ES7193-6LR10-0AA0
BU15-P16+A10+2D	6ES7193-6BP20-0DA0	500 labeling strips on roll, yellow, for inscription with thermal transfer roll printer	6ES7193-6LR10-0AG0
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)		1000 labeling strips DIN A4, light gray, card, for inscription with laser printer	6ES7193-6LA10-0AA0
BU15-P16+A10+2B	6ES7193-6BP20-0BA0	1000 labeling strips DIN A4, yellow, card, for inscription with laser printer	6ES7193-6LA10-0AG0
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		BU cover	
Usable type A1 BaseUnits (temperature detection)		For covering empty slots (gaps); 5 units	
BU15-P16+A0+2D/T	6ES7193-6BP00-0DA1	• 15 mm	6ES7133-6CV15-1AM0
BU type A1; BaseUnit (light) with 16 process terminals to the module; for starting a new load group (max. 10 A)		• 20 mm	6ES7133-6CV20-1AM0
BU15-P16+A0+2B/T	6ES7193-6BP00-0BA1	Shield connection	6ES7193-6SC00-1AM0
BU type A1; BaseUnit (dark) with 16 process terminals to the module; for continuing the load group		5 shield supports and 5 shield terminals	
		Color-coded labels	
		• Color code CC71, for 10 AUX terminals, for BU type A0, with push-in terminals; 10 units	6ES7193-6CP71-2AA0
		• Color code CC72, for 10 AUX terminals, for BU type A0, with push-in terminals; 10 units	6ES7193-6CP72-2AA0
		• Color code CC73, for 10 AUX terminals, for BU type A0, with push-in terminals; 10 units	6ES7193-6CP73-2AA0
		• Color code CC74, for 2x5 additional terminals, for BU type A1, with push-in terminals; 10 units	6ES7193-6CP74-2AA0