

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

SIMATIC ET 200 distributed I/O

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 kΩ	2 kΩ	2 kΩ
• with voltage outputs, capacitive load, max.	1 μF	1 μF	1 μF
• 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 μs	500 μs
Bus cycle time (TDP), min.		250 μs	750 μs
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