Analog electronic modules

Overview

- Analog inputs and outputs for the ET 200S
- Can be plugged onto TM-E terminal modules with automatic coding
- High-feature variants with enhanced performance, precision and resolution
- High-speed variants with extremely fast, isochronous cycle times.
- Hot swapping of modules possible

Note:

Consult the configuring guide for selection of the appropriate TM-E terminal modules.

Technical specifications

Article number	**6ES7134-4FB01-0AB0**	**6ES7134-4LB02-0AB0**	**6ES7134-4GB01-0AB0**	**6ES7134-4GB52-0AB0**
	ET200S, EL-MOD., 2AI STD U, +/-10V,1-5V	ET200S, EL-MOD., 2AI U HF, +/-10V, 1..5V	ET200S, EL-MOD., 2AI STD I-2DMU, 0-20MA,	ET200S, EL-MOD., 2AI HS I-2DMU, 0-20MA,
Product type designation				
Supply voltage				
Load voltage L+				
• Rated value (DC)	24 V; From power module	24 V	24 V; From power module	24 V
• short-circuit protection				Yes
• Reverse polarity protection	Yes	Yes	Yes; Destruction limit 35 mA per channel	Yes
Input current				
from load voltage L+ (without load), max.	30 mA	55 mA	80 mA	225 mA
from backplane bus 3.3 V DC, max.	10 mA	10 mA	10 mA	10 mA
Output voltage				
Power supply to the transmitters				
• present		No		Yes
• short-circuit proof				Yes
Power losses				
Power loss, typ.	0.6 W	0.85 W	0.6 W	2.5 W
Address area				
Address space per module				
• Address space per module, max.	4 byte	4 byte	4 byte	4 byte
Analog inputs				
Number of analog inputs	2	2	2	2
permissible input voltage for voltage input (destruction limit), max.	35 V; 35 V continuous; 75 V for max. 1 ms (mark to space ratio 1:20)	35 V; 35 V continuous; 75 V for max. 1 ms		
permissible input current for current input (destruction limit), max.			40 mA	
Cycle time (all channels) max.	Number of active channels per module x basic conversion time	0.5 ms; 0.5 ms for 2 channels without noise suppression, 18 / 21 ms per channel with noise suppression	Number of active channels per module x basic conversion time	0.25 ms
Input ranges				
• Voltage	Yes	Yes	No	No
• Current	No	No	Yes	Yes
• Thermocouple	No	No	No	No
• Resistance thermometer	No	No	No	No
• Resistance	No	No	No	No

Technical specifications (continued)

Article number	**6ES7134-4FB01-0AB0** ET200S, EL-MOD., 2AI STD U, +/-10V,1-5V	**6ES7134-4LB02-0AB0** ET200S, EL-MOD., 2AI U HF, +/-10V, 1..5V	**6ES7134-4GB01-0AB0** ET200S, EL-MOD., 2AI STD I-2DMU, 0-20MA,	**6ES7134-4GB52-0AB0** ET200S, EL-MOD., 2AI HS I-2DMU, 0-20MA,
Input ranges (rated values), voltages				
• 1 V to 5 V	Yes	Yes		
• Input resistance (1 V to 5 V)		800 kΩ		
• -10 V to +10 V	Yes	Yes		
• Input resistance (-10 V to +10 V)		800 kΩ		
• -5 V to +5 V	Yes	Yes		
• Input resistance (-5 V to +5 V)		800 kΩ		
Input ranges (rated values), currents				
• 0 to 20 mA				Yes
• Input resistance (0 to 20 mA)				106 Ω
• 4 mA to 20 mA			Yes; on 50 ohms	Yes
Cable length				
• shielded, max.	200 m	200 m	200 m	200 m
Analog value creation				
Measurement principle	integrating		integrating	
Integration and conversion time/ resolution per channel				
• Resolution with overrange (bit including sign), max.	14 bit; +/-10 V: 13 bits + sign, +/-5 V: 13 bits + sign; 1 to 5 V: 13 bits	16 bit; 0 to 5 V: 15 bits, +/-10 V: 16 bits, +/-5 V: 16 bits	13 bit; 4 to 20 mA: 13 bits	16 bit
• Integration time, parameterizable		Yes		
• Integration time (ms)	16,7 / 20 ms		16,7 / 20 ms	
• Interference voltage suppression for interference frequency f1 in Hz		60 / 50 Hz / no		
• Conversion time (per channel)	65 ms; 55 / 65 ms	0.04 ms; Without noise suppression 17/20 ms per channel with error	65 ms; 55 / 65 ms	
Smoothing of measured values				
• Parameterizable	Yes; In four stages by means of digital filtering	Yes; In 4 stages: 1 x, 4 x, 16 x, 32 x cycle time	Yes; In four stages by means of digital filtering	Yes
• Step: None	Yes; 1 x cycle time	Yes; 1 x	Yes; 1 x cycle time	Yes; 1
• Step: low	Yes; 4 x cycle time	Yes; 4 x	Yes; 4 x cycle time	Yes; 4
• Step: Medium	Yes; 32 x cycle time	Yes; 16 x	Yes; 32 x cycle time	Yes; 16
• Step: High	Yes; 64 x cycle time	Yes; 32 x	Yes; 64 x cycle time	Yes; 32
Encoder				
Connection of signal encoders				
• for voltage measurement		Yes		
• for current measurement as 2-wire transducer				Yes
- Burden of 2-wire transmitter, max.			750 Ω	
Errors/accuracies				
Linearity error (relative to input range), (+/-)	0.01 %	0.01 %	0.01 %	0.03 %
Temperature error (relative to input range), (+/-)	0.01 %/K	0.003 %/K	0.005 %/K	0.01 %/K
Crosstalk between the inputs, min.	-50 dB	-100 dB	-50 dB	50 dB
Repeat accuracy in steady state at 25 °C (relative to input area), (+/-)	0.05 %	0.01 %	0.05 %	0.1 %
Operational limit in overall temperature range				
• Voltage, relative to input area, (+/-)	0.6 %	0.1 %; 0.2% without interference frequency suppression		
• Current, relative to input area, (+/-)			0.6 %	0.3 %

Technical specifications (continued)

Article number	6ES7134-4FB01-0AB0 ET200S, EL-MOD., 2AI STD U, +/-10V,1-5V	6ES7134-4LB02-0AB0 ET200S, EL-MOD., 2AI U HF, +/-10V, 1..5V	6ES7134-4GB01-0AB0 ET200S, EL-MOD., 2AI STD I-2DMU, 0-20MA,	6ES7134-4GB52-0AB0 ET200S, EL-MOD., 2AI HS I-2DMU, 0-20MA,
Basic error limit (operational limit at 25 °C)				
• Voltage, relative to input area, (+/-)	0.4 %	0.05 %; 0.1% without interference frequency suppression		
• Current, relative to input area, (+/-)			0.4 %	0.2 %
Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency				
• Series mode interference (peak value of interference < rated value of input range), min.	70 dB	90 dB	70 dB	
• common mode voltage (USS < 2.5 V) , min.	90 dB	100 dB		
Isochronous mode				
Isochronous operation (application synchronized up to terminal)	No	Yes	No	Yes
Interrupts/diagnostics/ status information				
Alarms				
• Hardware interrupt		Yes		Yes
Diagnostic messages				
• Diagnostic functions		Yes		Yes
• Wire break	Yes; Measuring range 1 to 5 V only	Yes; Measuring range 1 to 5 V only	Yes	Yes; at 4 to 20 mA
• Group error	Yes	Yes	Yes	Yes
• Overflow/underflow	Yes	Yes	Yes	Yes
Diagnostics indication LED				
• Group error SF (red)	Yes	Yes	Yes	Yes
Parameter				
Remark	4 byte	12 bytes, 4 bytes in compatibility mode	4 byte	
Diagnosis: wire break	Disable / enable (only in measuring range 1 to 5 V)			At 4 to 20 mA
Measurement type/range	deactivated / +/-5 V / 1 to 5 V / +/-10 V	deactivated / +/-5 V / 1 to 5 V / +/-10 V	deactivated / 4 to 20 mA	4 to 20 mA, 0 to 20 mA
Interference frequency suppression				No
Group diagnostics	Disable / enable	Disable / enable	Disable / enable	1
Overflow/underflow	Disable / enable	Disable / enable	Disable / enable	1
Galvanic isolation				
Galvanic isolation analog inputs				
• between the channels	No	No; however, increased permissible potential difference between the inputs.	No	No
• between the channels and the backplane bus	Yes	Yes	Yes	Yes
• between the channels and the load voltage L+	Yes	Yes	No	Yes
Permissible potential difference				
between the inputs (UCM)		140V DC/100V AC		
between inputs and MANA (UCM)	2 V AC PP			
between MANA and M internally (UISO)	75V DC/60V AC			75V DC/60V AC
Isolation				
Isolation checked with	500 V DC	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.	40 g	45 g	40 g	

Ordering data

	Article No.
Analog input modules	
Ordering unit 1 item	
• 2 AI U High Speed	**6ES7134-4FB52-0AB0**
• 2 AI U Standard	**6ES7134-4FB01-0AB0**
• 2 AI U High Feature	**6ES7134-4LB02-0AB0**
• 2 AI I Standard 2-wire	**6ES7134-4GB01-0AB0**
• 2 AI I High Speed 2-wire	**6ES7134-4GB52-0AB0**
• 2 AI High Speed 4-wire	**6ES7134-4GB62-0AB0**
• 2 AI I Standard 4-wire	**6ES7134-4GB11-0AB0**
• 2 AI I High Feature 2-wire/4-wire (15 bits + sign)	**6ES7134-4MB02-0AB0**
• 2 AI RTD standard	**6ES7134-4JB51-0AB0**
• 2 AI TC Standard	**6ES7134-4JB01-0AB0**
• 2 AI RTD High Feature	**6ES7134-4NB51-0AB0**
• 2 AI TC High Feature	**6ES7134-4NB01-0AB0**
• 4 AI Standard 2-wire	**6ES7134-4GD00-0AB0**
• 4 AI TC Standard	**6ES7134-4JD00-0AB0**
Analog output modules	
Ordering unit 1 item	
• 2 AO U Standard	**6ES7135-4FB01-0AB0**
• 2 AO U High Speed	**6ES7135-4FB52-0AB0**
• 2 AO U High Feature	**6ES7135-4LB02-0AB0**
• 2 AO I Standard	**6ES7135-4GB01-0AB0**
• 2 AO I High Speed	**6ES7135-4GB52-0AB0**
• 2 AO I High Feature	**6ES7135-4MB02-0AB0**

	Article No.
Accessories for labeling	
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**
Accessories for system-integrated shield connection	
Shield connection element	**6ES7193-4GA00-0AA0**
Ordering unit 5 items	
For plugging into TM-E and TM-P	
Shield clamps	**6ES7193-4GB00-0AA0**
Ordering unit 5 items	
For 3 × 10 mm busbars	
Grounding terminal	**8WA2868**
Ordering unit 1 item	
For cable cross-sections up to 25 mm^2	
3 × 10 mm busbars	**8WA2842**
Ordering unit 1 item	

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SIPLUS analog electronic modules

Overview

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- Can be plugged onto TM-E terminal modules with automatic coding
- High-speed variants with extremely short isochronous cycle times
- Hot swapping of modules possible

Notes:

Consult the configuring guide for selection of the appropriate TM-E terminal modules.

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

	SIPLUS analog electronic module 2 AI U Standard
Article number	**6AG1134-4FB01-2AB0**
BasedOn Article No.	**6ES7134-4FB01-0AB0**
Ambient temperature range	-25 ... +60 °C
Ambient conditions	Suitable for exceptional exposure to media (e.g. in sulfur chloride atmosphere).
Technical data	The technical data are identical with those of the BasedOn modules.

	SIPLUS analog electronic module 2 AI High Speed
Article No.	**6AG1134-4GB52-2AB0**
BasedOn Article No.	**6ES7134-4GB52-0AB0**
Ambient temperature range	-25 ... +60 °C
Ambient conditions	Suitable for exceptional exposure to media (e.g. in sulfur chloride atmosphere).
Technical data	The technical data are identical with those of the BasedOn modules.

	SIPLUS analog electronic module 2 AI I Standard 2-wire
Article No.	**6AG1134-4GB01-2AB0**
BasedOn Article No.	**6ES7134-4GB01-0AB0**
Ambient temperature range	-25 ... +60 °C
Ambient conditions	Suitable for exceptional exposure to media (e.g. in sulfur chloride atmosphere).
Technical data	The technical data are identical with those of the BasedOn modules.

	SIPLUS analog electronic module 4 AI I Standard 2-wire
Article No.	**6AG1134-4GD00-2AB0**
BasedOn Article No.	**6ES7134-4GD00-0AB0**
Ambient temperature range	-25 ... +70 °C
Ambient conditions	Suitable for exceptional exposure to media (e.g. in sulfur chloride atmosphere).
Technical data	The technical data are identical with those of the BasedOn modules.

	SIPLUS analog electronic module 2 AI I Standard 4-wire
Article No.	**6AG1134-4GB11-2AB0**
BasedOn Article No.	**6ES7134-4GB11-0AB0**
Ambient temperature range	-25 ... +60 °C
Ambient conditions	Suitable for exceptional exposure to media (e.g. in sulfur chloride atmosphere).
Technical data	The technical data are identical with those of the BasedOn modules.

	SIPLUS analog electronic module 2 AI RTD
Article No.	**6AG1134-4JB51-7AB0**
BasedOn Article No.	**6ES7134-4JB51-0AB0**
Ambient temperature range	-25 ... +60 °C
Ambient conditions	Suitable for exceptional exposure to media (e.g. in sulfur chloride atmosphere).
Technical data	The technical data are identical with those of the BasedOn modules.

	SIPLUS analog electronic module 2 AI I High Feature
Article No.	**6AG1134-4MB02-2AB0**
BasedOn Article No.	**6ES7134-4MB02-0AB0**
Ambient temperature range	-25 ... +70 °C
Ambient conditions	Suitable for exceptional exposure to media (e.g. in sulfur chloride atmosphere).
Technical data	The technical data are identical with those of the BasedOn modules.

	SIPLUS analog electronic module 2 AI RTD High Feature
Article No.	**6AG1134-4NB51-2AB0**
BasedOn Article No.	**6ES7134-4NB51-0AB0**
Ambient temperature range	-25 ... +60 °C
Ambient conditions	Suitable for exceptional exposure to media (e.g. in sulfur chloride atmosphere).
Technical data	The technical data are identical with those of the BasedOn modules.