## S7-300 analog inputs

Module type	Analog ir	puts SM 3	3x										
Special features of this module	ing the most common measurement ranges and therefore greatly simplifying spare parts handling		High-resolut high-precisi for detecting and voltage	on module g currents	univ hybr mod the a tion outp curre	lule for acquisi- and out of	Unive hybric modu meast voltag resista and te peratt by me of resi tance-transr ters (F and fc outpu voltag	lle for uring les, ances em- ures eans les- ears etype enit- extra transfer	Hybrid module high-spe applica- tions, ss. as plasti machine integrat compara tor	for modeed that all place lent cs sure es; ranged TC range and sim spa	versal dule t covers oreva- t mea- ement ges (no mea- ement) I thus plifies re parts idling	ates ac- cording to the princi- ple of cur- rent value encryp- tion; suitable for	dundancy
Voltage measuring range Sensors	± 250 mV ±		±5 V ±10 V 1 5 V		0	0 10 V			± 1 V ± 2.5 V ± 10 V 0 2 V 0 10 V	± 50 1 V ± 1 ± 5	0 mV 00 mV . 5 V V	± 1 V ± 5 mV ± 10 V 1 5 V	± 25 mV, ± 50 mV, ± 80 mV, ± 250 mV, ± 500 mV, ± 1 V
Diagnostics capability	•			•					•			•	•
Interrupt capability	•			•					•			•	•
Operating error	± 1%		± 0.1%	± 0.1%	± 0.9	9%	± 0.79	6	± 0.15%		.6%	± 0.4%	± 0.12%
Number of channels	8	2	8	8	4		2		4	8		8	6
Galvanic isolation: Number of groups	4	1	4	4	1		1		4	1		1	6
Resolution	max. 14 bits + sign	max. 14 bits + sign	15 bits + sign	15 bits + sign	8 bit		12 bit sign	S +	13 bits - sign	+ 12 l sigr	bits + า	13 bits + sign	15 bits + sign
Conversion time per channel (at 50 Hz)	22 ms	22 ms	65 ms	83 ms <sup>2)</sup>	100	μs	85 ms		200 µs	60 1	ms	52 μs <sup>1)</sup>	20 ms
Order No. group: 6ES7	331-7KF0.	331-7KB0.	331-7NF0.	331-7NF1.	334	-0CE0.	334-0 3)	KEO.	335-7H	GO. 331	-1KF0.	331-7HF0.	337-7PF1.
Module type	Analog in	puts SM 3	3x										
Special features of this module	the most con	nges and ther implifying	g High-resolution and precision module for		etect-	brid m for the acquis and ou of curi	sal hy- lodule e ition utput	high- appli tions as pla mach integ	ule for speed ca- , such	Universa module covers a prevalen measure ment rai (no TC n suremen and thus simplifie spare pa handling	that rill of the second	Very fast module that operates according to the principle of current value encryption; suitable for sochronous applications	Supports communica- tions with HART-capa- ble field de- vices; high channel density and thus a low price
Current measuring range Sensors	± 3.2 mA, ± 1 ± 20 mA, 0 4 40 mA		0 20 m 4 20 m ± 20 mA		0 20 mA ± 10 mA 0 20 r 4 40 r		20 mA	± 20 mA 0 20 mA 4 20 mA			± 20 mA 0 20 mA 4 20 mA HART		
Type of connection	2-wire and 4	-wire transdu	cers		4-wire transduce		ucers	s 2-wire and		nd 4-wi	ire transducer	s	
Diagnostics capability	•			•				•				•	•
Interrupt capability	•			•				•				•	•
Operating error	± 1%		± 0.3%	± 0.1%		± 0.8%	o o	± 0,2	5%	± 0.5%		± 0.3%	± 0.15%
Number of channels	8	2	8	8		4		4		8	8	8	8
Galvanic isolation: Number of groups	4	1	4 (8)	4		1		1		1		1	1
Resolution	max. 14 bits + sign	max. 14 bits + sign	15 bits + sign	15 bits sign		8 bit		13 bi sign	ts +	12 bits + sign	9	13 bits + sign	15 bits + sign
Conversion time per channel (at 50 Hz)	22 ms	22 ms	65 ms	83 ms <sup>2</sup>		100 μ		200 ן		60 ms		52 μs <sup>1)</sup>	65 ms
Order No. group: 6ES7	331-7KF0. <sup>3)</sup>	331-7KB0.	331-7NF	). <sup>3)</sup> 331-7N	IF1. <sup>3)</sup>	334-0	CEO.	335-	7HG0.	331-1KF	0.3)	331-7HF0.	331-7TF0. <sup>3)</sup>

 $<sup>^{1)}</sup>$  Independently of the set interference frequency suppression

<sup>2)</sup> in 4-channel mode 10 ms

<sup>3)</sup> As SIPLUS extreme component also for extended temperature range -25 ... +60/+70 °C and corrosive atmosphere/condensation (for further details, see page 98 or www.siemens.com/siplus-extreme)

## S7-300 analog inputs

Module type	Analog inputs SM 33x								
Special features of this module	Universal module cove measurement ranges a simplifying spare parts		High-resolution and high-precision module for recording tempera- tures via resistance- type transmitters (RTD) including char- acteristic-curve linear- ization based on the Russian GOST standard	Universal hybrid mod- ule for measuring voltages, resistances and temperatures by means of resistance- type transmitters (RTD) and for the out- put of voltages	Universal module that covers all prevalent measurement ranges (no TC measurement) and thus considerably simplifies spare parts handling				
Resistance measuring range Sensors	150 Ω, 300 Ω, 600 Ω		10 kΩ	600 Ω, 6 kΩ					
Type of connection	2-/3-/4-wire connection								
Diagnostics capability	•								
Interrupt capability	•								
Operating error	± 1%		± 3.5%	± 0.5%					
Number of channels	4	1	8	4	8				
Galvanic isolation: Number of groups	4	1	4	2	1				
Resolution	max. 14 bits + sign	max. 14 bits + sign	max. 15 bits + sign	12 bits + sign	12 bits + sign				
Conversion time per channel (at 50 Hz)	23 ms 23 ms		80 ms	170 ms	132 ms				
Order No. group: 6ES7	331-7KF0. <sup>3)</sup>	331-7KB0. <sup>3)</sup>	331-7PF0. <sup>3)</sup>	334-0KE0. <sup>3)</sup>	331-1KF0. <sup>3)</sup>				

Module type	Analog ii	nputs SM 3	33x						
Special features of this module	Universal hybrid module for measuring voltages, resistances and tempera- tures by means of resistance- type trans- mitters (RTD) and for the out- ages	Universal m ing the mos measureme and therefor simplifying thandling	nt ranges re greatly	High-resolution and high-precision module for recording temperatures via resistance-type transmitters (RTD) including characteristic-curve linearization based on the Russian GOST standard	ing the most common measurement ranges and therefore greatly simplifying spare parts handling		High-resolution and high-precision module for recording temperatures via thermocouples (TC) including characteristic-curve linearization based on the Russian GOST standard	Universal module that covers all preva- lent mea- surement ranges (no TC mea- surement) and thus consider- ably simpli- fies spare parts han- dling	High-reso- lution, in- dividually floating module for voltage measure- ment and thermo- couples, two-chan- dancy for the in- creased de- mands of process en- gineering
Temperature measuring range Sensors	Pt 100 (-120 +130 °C)			Thermocouples types E, N, J, K, L		Thermo- couples type B, C, E, N, J, K, L, R, S, T, U	Pt 100 (-120 +130 °C); Ni 100; Ni 1 000; LG-Ni 1 000; (stan- dard or de- pending on climate)	Thermo- couples type T, U, E, J, L, K, N, R, S, B, C, TxK, XK (L) 2)	
Diagnostics capability		•							
Interrupt capability		•							
Operating error	± 1%			± 0.1%	± 1%		± 0.1%	± 1%	± 0.15%
Number of channels	4	4	1	8	8	2	8	8	6
Galvanic isolation: Number of groups	2	1	1	4	4	1	4	1	6
Resolution	max. 14 bits	:s + sign		15 bits + sign	max. 14 bit	s + sign	15 bits + sign	12 bits + sign	15 bits + sign
Conversion time per channel (at 50 Hz)	170 ms	23 ms		80 ms	22 ms 44 ms		95 ms	110 ms	20 ms
Order No. group: 6ES7	334-0KE0.	331-7KF0.	331-7KB0.	331-7PF0.	331-7KF0.	331-7KB0.	331-7PF1.	331-1KF0.	331-7PF1.

<sup>1)</sup> Characteristics according to GOST 6651-94

<sup>&</sup>lt;sup>2)</sup> Characteristics according to GOST P8.585.2001

<sup>3)</sup> As SIPLUS extreme component also for extended temperature range -25 ... +60/+70 °C and corrosive atmosphere/condensation (for further details, see page 98 or www.siemens.com/siplus-extreme)

<sup>4)</sup> As SIPLUS extreme component also for corrosive atmosphere/condensation (for further details, see page 98 or www.siemens.com/siplus-extreme)

## S7-300 analog outputs

Module type	Analog outputs SM 33x								
Special features of this module	Universal analog output module		Universal analog output module; economical thanks to high channel density	High-speed module with high resolu- tion and accu- racy; suitable for isochro- nous mode	Low-cost, universal hybrid module for the acquisition and output of currents and voltages	Universal hybrid module for measuring voltages, resistances and temperatures by means of resistance-type transmitters (RTD) and for the output of voltages	Hybrid mod- ule for high- speed applica- tions, such as plastics ma- chines; integrated comparator		
Output range	0 10 V, 1 !	5 V, ± 10 V		0 10 V	0 10 V ± 10 V				
Diagnostics capability	•			•					
Interrupt capability	•				•				
Operating error	± 0.5%			± 0.12%	± 0.6%	± 1%	± 0.5%		
Number of channels	2	4	8	4	2		4		
Galvanic isolation: Number of groups	1 1 1			4	1		1		
Resolution	11 bits + sign max. 8 bit 12 bit 15 bits + sign						max. 13 bits + sign		
Conversion time per channel	< 0.8 ms			> 1.6 ms	0.5 ms	0.5 ms	> 0.8 ms		
Order No. group: 6ES7	332-5HB0 <sup>2)</sup> 332-5HD0. <sup>1)</sup> 332-5HF0. <sup>2)</sup>			332-7ND0. 1)	334-0CE0.	334-0KE0. <sup>2)</sup>	335-7HG0.		
Module type	Analog outputs SM 33x								

Module type	Analog outp	uts SM 33x							
Special features of this module	Universal analog	output module	Universalanalog output module; economical thanks to high channel density suitable for isochronous mode		output module, module with versal hybric economical high resolution module for thanks to high and accuracy; acquisition channel density suitable for iso-output of cu		Low-cost, universal hybrid module for the acquisition and output of currents and voltages	Supports communi- cations with HART- capable field devices; low price per channel thanks to high chan- nel density	
Output range	± 20 mA, 0 20	mA, 4 20 mA	0 20 mA	0 20 mA HART 4 20 mA HART					
Diagnostics capability	•			•					
Interrupt capability	•				•				
Operating error	± 0.6%			± 0.18%	± 1%	± 0,2%			
Number of channels	2	4	8	4	2	8			
Galvanic isolation: Number of groups	1	1	1	4	1	1			
Resolution	11 bits + sign			max. 15 bits + sign	8 bit	15 bits + sign			
Conversion time per channel	< 0.8 ms			1.6 ms	0.5 ms	50 ms			
Order No. group: 6ES7	332-5HB0. <sup>2)</sup>	332-5HD0. 1)	332-5HF0. <sup>2)</sup>	332-7ND0. 1)	334-0CE0.	332-8TF0. <sup>2)</sup>			

<sup>1)</sup> As SIPLUS extreme component also for corrosive atmosphere/condensation (for further details, see page 98 or www.siemens.com/siplus-extreme)

<sup>&</sup>lt;sup>2)</sup> As SIPLUS extreme component also for extended temperature range -25 ... +60/+70 °C and corrosive atmosphere/condensation (for further details, see page 98 or www.siemens.com/siplus-extreme)