

# Fully modular connection

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## Selection overview SIMATIC S7-300 Compact CPU

Modules SIMATIC S7-300 Compact CPU		Front connector modules								Connection cables				
		Con- nec- tor		for digital modules		for Compact CPU modules				Round-sheath ribbon cable sold by the meter			Round cable assembled with IDC connectors	
				Spring terminals	Screw terminals	CPU 312C		CPU 313C/314C-2		16- pole un- shielded	2x16- pole un- shielded	16- pole shielded	16- pole un- shielded	16- pole shielded
Order No. 6ES731-...	Poles	4 x I/O	Spring terminals	Screw terminals	Spring terminals	Screw- terminals	Spring terminals	Screw- terminals	16- pole un- shielded	2x16- pole un- shielded	16- pole shielded	16- pole un- shielded	16- pole shielded	
Compact CPU 312C	2-5BD01-0AB0	X1	40			✓	✓			✓	✓	✓ <sup>③</sup>	✓	✓ <sup>③</sup>
Compact CPU 313C	3-5BE01-0AB0	X1	40					✓	✓	✓ <sup>④</sup>		✓ <sup>③</sup>	✓ <sup>④</sup>	✓ <sup>③</sup>
		X2	40	✓	✓					✓	✓	✓ <sup>③</sup>	✓	✓ <sup>③</sup>
Compact CPU 313C-2PtP	3-6BE01-0AB0	X1	40											
		X2	40	✓	✓					✓	✓	✓ <sup>③</sup>	✓	✓ <sup>③</sup>
Compact CPU 313C-2DP	3-6CE01-0AB0	X1	40											
		X2	40	✓	✓					✓	✓	✓ <sup>③</sup>	✓	✓ <sup>③</sup>
Compact CPU 314C-2PtP	4-6BF02-0AB0	X1	40					✓	✓	✓ <sup>④</sup>		✓ <sup>③</sup>	✓ <sup>④</sup>	✓ <sup>③</sup>
		X2	40	✓	✓					✓	✓	✓ <sup>③</sup>	✓	✓ <sup>③</sup>
Compact CPU 314C-2DP	4-6CF02-0AB0	X1	40					✓	✓	✓ <sup>④</sup>		✓ <sup>③</sup>	✓ <sup>④</sup>	✓ <sup>③</sup>
		X2	40	✓	✓					✓	✓	✓ <sup>③</sup>	✓	✓ <sup>③</sup>
Order No.:				6ES7921-3AA20-0AA0	6ES7921-3AB20-0AA0	6ES7921-3AJ20-0AA0	6ES7921-3AK20-0AA0	6ES7921-3AL20-0AA0	6ES7921-3AM20-0AA0	6ES7923-0 00-0AA0	6ES7923-2 00-0AA0	6ES7923-0 00-0BA0	6ES7923-0 00-0CB0	6ES7923-0 00-0DB0
										Lengths		Lengths		
										■ CD = 30 m ■ CG = 60 m		■ BA5 = 0.5 m <sup>1)</sup> ■ BB0 = 1.0 m ■ BB5 = 1.5 m <sup>1)</sup> ■ BC0 = 2.0 m ■ BC5 = 2.5 m ■ BD0 = 3.0 m ■ BE0 = 4.0 m ■ BF0 = 5.0 m <sup>1)</sup> only unshielded		

✓ Module can be used

① Only for the digital outputs (max. 2 units)

② Only for the digital outputs (max. 1 unit)

③ The shielded cable must be used for the analog signals.

If necessary, it can also be used for the digital signals – a shield connection must be provided on the user side.

④ Only for the digital inputs (max. 2 units)

Connection modules											Accessories						
max. number of required connection modules per module	for inputs/outputs digital								Relay, output and 8 NO contacts		analog	Crimping tool insulation displacement connectors	8 connectors and 8 strain-relief assemblies insulation displacement connectors	Labeling strip for connection modules, inserted	Labeling strip for connection modules, self-adhesive	Shield plate for analog connection module	Shield connection terminal for shield plate
	8 I/O	CPU	TP1 <sup>1)</sup>		TPK <sup>1)</sup>		TP3 <sup>2)</sup>		TPRo	TPRI							
digital	analog	without LED	with LED	without LED	with LED	without LED	with LED	with LED	with LED	without LED							
3		✓	✓	✓	✓	✓	✓	✓ <sup>②</sup>	✓ <sup>④</sup>		✓	✓	✓	✓	✓		
1	2	✓	✓			✓	✓		✓	✓	✓	✓	✓	✓	✓		
4		✓	✓	✓	✓	✓	✓	✓ <sup>①</sup>	✓ <sup>④</sup>		✓	✓	✓	✓	✓		
4		✓	✓	✓	✓	✓	✓	✓ <sup>①</sup>	✓ <sup>④</sup>		✓	✓	✓	✓	✓		
4		✓	✓	✓	✓	✓	✓	✓ <sup>①</sup>	✓ <sup>④</sup>		✓	✓	✓	✓	✓		
1	2	✓	✓			✓	✓		✓	✓	✓	✓	✓	✓	✓		
4		✓	✓	✓	✓	✓	✓	✓ <sup>①</sup>	✓ <sup>④</sup>		✓	✓	✓	✓	✓		
1	2	✓	✓			✓	✓		✓	✓	✓	✓	✓	✓	✓		
4		✓	✓	✓	✓	✓	✓	✓ <sup>①</sup>	✓ <sup>④</sup>		✓	✓	✓	✓	✓		
		6ES7924-0AA10-0A	6ES7924-0AA10-0B	6ES7924-1AA10-0A	6ES7924-1AA10-0B	6ES7924-0CA10-0A	6ES7924-0CA10-0B	6ES7924-0BD10-0B	6ES7924-0BE10-0B	6ES7924-0CC10-0A	6ES7928-0AA00-0AA0	6ES7921-3BE10-0AA0	6ES7928-2AB00-0AA0	6ES7928-2BB00-0AA0	6ES7928-1BA00-0AA0	6ES7390-5AB00-0AA0 6ES7390-5BA00-0AA0 6ES7390-5CA00-0AA0	

Type

- A = Screw terminals
- B = Spring terminals

Important:  
When counting the connection modules, the connection module TPK counts as 2. <sup>1)</sup> TP1, TPK = 1-wire connection  
<sup>2)</sup> TP3 = 3-wire connection

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## Selection overview SIMATIC S7-300 digital

Modules SIMATIC S7-300 digital		Front connector modules						Connection cables					
		Poles	for digital modules				for 2 ampere digital outputs		Round-sheath ribbon cable sold by the meter			Round cable assembled with IDC connectors	
			2x8 I/O		4x8 I/O		Spring terminals	Screw terminals	16-pole unshielded	2x16-pole unshielded	16-pole shielded	16-pole unshielded	16-pole shielded
Order No. 6ES732-...	Spring terminals	Screw terminals	Spring terminals	Screw terminals									
<b>SM 321</b>	DI 32 x 24 V DC	1-1BL00-0AA0	40			✓	✓			✓	✓	✓ <sup>③</sup>	✓ <sup>③</sup>
	DI 16 x 24 V DC	1-1BH02-0AA0	20	✓	✓					✓	✓	✓ <sup>③</sup>	✓ <sup>③</sup>
	DI 16 x 24 V DC High Speed	1-1BH10-0AA0	20	✓	✓					✓	✓	✓ <sup>③</sup>	✓ <sup>③</sup>
	DI 16 x 24 V DC source input	1-1BH50-0AA0	20	✓	✓					✓	✓	✓ <sup>③</sup>	✓ <sup>③</sup>
<b>SM 322</b>	DO 32 x 24 V DC/0.5 A	2-1BL00-0AA0	40			✓	✓			✓	✓	✓ <sup>③</sup>	✓ <sup>③</sup>
	DO 16 x 24 V DC/0.5 A can be made redundant	2-8BH01-0AB0	40			✓	✓			✓	✓	✓ <sup>③</sup>	✓ <sup>③</sup>
	DO 16 x 24 V DC/0.5 A	2-1BH01-0AA0	20	✓	✓					✓	✓	✓ <sup>③</sup>	✓ <sup>③</sup>
	DO 16 x 24 V DC/0.5 A High Speed	2-1BH10-0AA0	20	✓	✓					✓	✓	✓ <sup>③</sup>	✓ <sup>③</sup>
	DO 8 x 24 V DC/0.5 A	2-8BF00-0AB0	20	✓	✓					✓	✓	✓ <sup>③</sup>	✓ <sup>③</sup>
	DO 8 x 24 V DC/2 A	2-1BF01-0AA0	20					✓	✓		✓	✓ <sup>③</sup>	✓ <sup>③</sup>
<b>SM 323</b>	DI 16/DO 16 x 24 V DC/0.5 A	3-1BL00-0AA0	40			✓	✓			✓	✓	✓ <sup>③</sup>	✓ <sup>③</sup>
	DI 8/DO 8 x 24 V DC/0.5 A	3-1BH01-0AA0	20	✓	✓					✓	✓	✓ <sup>③</sup>	✓ <sup>③</sup>
<b>Order No.:</b>		6ES7921-3AA00-0AA0	6ES7921-3AB00-0AA0	6ES7921-3AA20-0AA0	6ES7921-3AB20-0AA0	6ES7921-3AC00-0AA0	6ES7921-3AD00-0AA0	6ES7923-0 00-0AA0	6ES7923-2 00-0AA0	6ES7923-0 00-0BA0	6ES7923-0 0-0CB0	6ES7923-0 0-0DB0	
								Lengths ■ CD = 30 m ■ CG = 60 m		Lengths ■ BA5 = 0.5 m <sup>1)</sup> ■ BB0 = 1.0 m ■ BB5 = 1.5 m <sup>1)</sup> ■ BC0 = 2.0 m ■ BC5 = 2.5 m ■ BD0 = 3.0 m ■ BE0 = 4.0 m ■ BF0 = 5.0 m <sup>1)</sup> only unshielded			

✓ Module can be used

① Only for the outputs

② Only for the inputs

③ If necessary, the shielded cable can be used – a shield connection must be provided on the user side.

Connection modules											Accessories			
max. number of required 8 I/O connection modules per module	For inputs/outputs digital						Relais, output and 8 NO contacts		2 ampere, 8 digital outputs		Crimping tool insulation displacement connectors	8 connectors and 8 strain-relief assemblies insulation displacement connectors	Labeling strip for connection modules, inserted	Labeling strip for connection modules, self-adhesive
	1x8 I/O		2x8 I/O		1x8 I/O		Input 24 V DC	Input 230 V AC	TP2					
	TP1 <sup>1)</sup>		TPK <sup>1)</sup>		TP3 <sup>2)</sup>									
	without LED	with LED	without LED	with LED	without LED	with LED	with LED	with LED	without LED	with LED				
4	✓	✓	✓	✓	✓	✓		✓			✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓		✓			✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓		✓			✓	✓	✓	✓
2	✓		✓		✓						✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓
1										✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓	✓ <sup>①</sup>	✓ <sup>②</sup>			✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓	✓ <sup>①</sup>	✓ <sup>②</sup>			✓	✓	✓	✓
	6ES7924-0AA10-0A <span style="color:blue">■</span> 0	6ES7924-0AA10-0B <span style="color:blue">■</span> 0	6ES7924-1AA10-0A <span style="color:blue">■</span> 0	6ES7924-1AA10-0B <span style="color:blue">■</span> 0	6ES7924-0CA10-0A <span style="color:blue">■</span> 0	6ES7924-0CA10-0B <span style="color:blue">■</span> 0	6ES7924-0BD10-0B <span style="color:blue">■</span> 0	6ES7924-0BE10-0B <span style="color:blue">■</span> 0	6ES7924-0BB10-0A <span style="color:blue">■</span> 0	6ES7924-0BB10-0B <span style="color:blue">■</span> 0	6ES7928-0AA00-0AA0	6ES7921-3BE10-0AA0	6ES7928-2AB00-0AA0	6ES7928-2BB00-0AA0
<p>Type</p> <p><span style="color:blue">■</span> A = Screw terminals</p> <p><span style="color:blue">■</span> B = Spring terminals</p> <p>Important:</p> <p>When counting the connection modules, the connection module TPK counts as 2.</p> <p><sup>1)</sup> TP1, TPK = 1-wire connection</p> <p><sup>2)</sup> TP3 = 3-wire connection</p>														

# Fully modular connection

## Selection overview SIMATIC S7-300 analog

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Modules SIMATIC S7-300 analog		Front connector modules					Connection cables	
		Poles	for analog modules				Round-sheath ribbon cable sold by the meter	Round cable assembled with IDC connectors
			20-pole		40-pole			
Order No. 6ES733-...		Spring terminals	Screw terminals	Spring terminals	Screw terminals	16-pole shielded	16-pole shielded	
<b>SM 331</b> AI 8 x 13 bits	1-1KF01-0AB0	40			✓	✓	✓	✓
AI 2 x 9/12/14 bits	1-7KB02-0AB0	20	✓	✓			✓	✓
AI 8 x 9/12/14 bits	1-7KF02-0AB0	20	✓	✓			✓	✓
AI 8 x 16 bits	1-7NF00-0AB0	40			✓	✓	✓	✓
AI 8 x 16 bits	1-7NF10-0AB0	40			✓	✓	✓	✓
AI 8 x RTD x 16 bits (internal 24 bits)	1-7PF01-0AB0	40			✓	✓	✓	✓
8 x TC x 16 bits	1-7PF11-0AB0	40			✓	✓	✓	✓
<b>SM 332</b> AO 2 x 11/12 bits	2-5HB01-0AB0	20	✓	✓			✓	✓
AO 4 x 11/12 bits	2-5HD01-0AB0	20	✓	✓			✓	✓
AO 8 x 11/12 bits	2-5HF00-0AB0	40			✓	✓	✓	✓
AO 4 x 15 bits	2-7ND02-0AB0	20	✓	✓			✓	✓
<b>SM 334</b> AI 4/AO 2 x 8/8 bits	4-0CE01-0AA0	20	✓	✓			✓	✓
AI 4/AO 2 x 12/12 bits	4-0KE00-0AB0	20	✓	✓			✓	✓
<b>SM 335</b> AI 4 x 14 bits	5-7HG01-0AB0	20	✓	✓			✓	✓
<b>Order No.:</b>			6ES7921-3AF00-0AA0	6ES7921-3AG00-0AA0	6ES7921-3AF20-0AA0	6ES7921-3AG20-0AA0	6ES7923-0 00-0BA0	6ES7923-0 00-0DB0
			Lengths		Lengths		■ CD = 30 m ■ CG = 60 m	■ BB0 = 1.0 m ■ BC0 = 2.0 m ■ BC5 = 2.5 m ■ BD0 = 3.0 m ■ BE0 = 4.0 m ■ BF0 = 5.0 m

✓ Module can be used

# Fully modular connection

Connection module		Accessories					
max. number of required connection modules per module	for inputs/outputs	Crimping tool insulation displacement connectors	8 connectors and 8 strain-relief assemblies insulation displacement connectors	Labeling strip for connection modules, inserted	Labeling strip for connection modules, self-adhesive	Shield plate for analog connection module	Shield connection terminal for shield plate
	analog						
	TPA without LED						
4	✓	✓	✓	✓	✓	✓	✓
1	✓	✓	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓	✓
1	✓	✓	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓	✓
	6ES7924-0CC10-0A <span style="color: blue;">■</span> 0	6ES7928-0AA00-0AA0	6ES7921-3BE10-0AA0	6ES7928-2AB00-0AA0	6ES7928-2BB00-0AA0	6ES7928-1BA00-0AA0	6ES7390-5AB00-0AA0 6ES7390-5BA00-0AA0 6ES7390-5CA00-0AA0
Type <span style="color: blue;">■</span> A = Screw terminals <span style="color: blue;">■</span> B = Spring terminals							

# Fully modular connection

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## Selection overview SIMATIC S7-400

Modules SIMATIC S7-400		Front connector modules			Connecting cables					
		Poles	for digital modules		for analog modules	Round-sheath ribbon cable sold by the meter			Round cable assembled with IDC connectors	
			4 x I/O	2 x 8 A 2 ampere		16-pole unshielded	2x16-pole unshielded	16-pole shielded	16-pole unshielded	16-pole shielded
Order No. 6ES74...-...	Screw terminals	Screw terminals	Screw terminals							
<b>SM 421</b> DI 32 x 24 V DC	21-1BL01-0AA0	48	✓			✓	✓	✓ <sup>③</sup>	✓	✓ <sup>③</sup>
<b>SM 422</b> DO 16 x 24 V DC/2 A	22-1BH11-0AA0	48		✓		✓	✓	✓ <sup>③</sup>	✓	✓ <sup>③</sup>
DO 32 x 24 V DC/0.5 A	22-1BL00-0AA0	48	✓			✓	✓	✓ <sup>③</sup>	✓	✓ <sup>③</sup>
DO 32 x 24 V DC/0.5 A	22-7BL00-0AB0	48	✓			✓	✓	✓ <sup>③</sup>	✓	✓ <sup>③</sup>
<b>SM 431</b> AI 8 x 13 bits	31-1KF00-0AB0	48			✓			✓		✓
AI 8 x 16 bits	31-7KF10-0AB0	48			✓			✓		✓
AI 8 x 14 bits	31-1KF20-0AB0	48			✓			✓		✓
AI 16 x 13 bits	31-0HH00-0AB0	48			✓			✓		✓
<b>SM 432</b> AO 8 x 13 bits	32-1HF00-0AB0	48			✓			✓		✓
<b>Order No.:</b>		6ES7921-4AB00-0AA0	6ES7921-4AD00-0AA0	6ES7921-4AG00-0AA0	6ES7923-0 00-0AAA	6ES7923-2 00-0AAA	6ES7923-0 00-0BA0	6ES7923-0 0-0CBO	6ES7923-0 0-0DB0	
					<b>Lengths</b> ■ CD = 30 m ■ CG = 60 m			<b>Lengths</b> ■ BA5 = 0.5 m <sup>1)</sup> ■ BB0 = 1.0 m ■ BB5 = 1.5 m <sup>1)</sup> ■ BC0 = 2.0 m ■ BC5 = 2.5 m ■ BD0 = 3.0 m ■ BE0 = 4.0 m ■ BF0 = 5.0 m <sup>1)</sup> only unshielded		

✓ Module can be used

① Only for the outputs

③ If necessary, the shielded cable can be used – a shield connection must be provided on the user side.

Connection module												Accessories					
max. number of required 8 I/O connection modules per module	for inputs/outputs digital						Relais, output and 8 NO contacts		2 ampere, 8 digital outputs		analog	Crimping tool insulation displacement connectors	8 connectors and 8 strain-relief assemblies insulation displacement connectors	Labeling strip for connection modules, inserted	Labeling strip for connection modules, self-adhesive	Shield plate for analog connection module	Shield connection terminal for shield plate
	1x8 I/O		2x8 I/O		1x8 I/O		Input 24 V DC	Input 230 V AC									
	TP1 <sup>1)</sup>		TPK <sup>1)</sup>		TP3 <sup>2)</sup>		TPRo	TPRi	TP2		TPA						
	with-out LED	with LED	with-out LED	with LED	with-out LED	with LED	with LED	with LED	with-out LED	with LED	without LED						
4	✓	✓	✓	✓	✓	✓		✓			✓	✓	✓	✓			
2									✓	✓	✓	✓	✓				
4	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓			
4	✓	✓	✓	✓	✓	✓	✓				✓	✓	✓	✓			
4											✓	✓	✓	✓	✓	✓	
4											✓	✓	✓	✓	✓	✓	
4											✓	✓	✓	✓	✓	✓	
4											✓	✓	✓	✓	✓	✓	
4											✓	✓	✓	✓	✓	✓	
4											✓	✓	✓	✓	✓	✓	
	6ES7924-0AA10-0A	6ES7924-0AA10-0B	6ES7924-1AA10-0A	6ES7924-1AA10-0B	6ES7924-0CA10-0A	6ES7924-0CA10-0B	6ES7924-0BD10-0B	6ES7924-0BE10-0B	6ES7924-0BB10-0A	6ES7924-0BB10-0B	6ES7924-0CC10-0A	6ES7928-0AA00-0AA0	6ES7921-3BE10-0AA0	6ES7928-2AB00-0AA0	6ES7928-2BB00-0AA0	6ES7928-1BA00-0AA0	6ES7390-5AB00-0AA0 6ES7390-5BA00-0AA0 6ES7390-5CA00-0AA0
<p>Type</p> <p>■ A = Screw terminals</p> <p>■ B = Spring terminals</p> <p>Important:</p> <p>When counting the connection modules, the connection module TPK counts as 2.</p> <p><sup>1)</sup> TP1, TPK = 1-wire connection <sup>2)</sup> TP3 = 3-wire connection</p>																	