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Information about export: Standard/export versions

Overview

As a consequence of the prevailing export restrictions applicable to the CNC software of numerical controls in relation to particular control functions in accordance with the European/German Export List (export list item 2D002), the SINUMERIK 840D sl is available in two versions.

The **standard versions** of the SINUMERIK 840D sl offer the full scope of CNC functions, but **require official approval** according to the export list item 2D002 when exported to countries outside the EU.

The **export versions** of the SINUMERIK 840DE sl have restricted functionality in accordance with the export list restrictions, and therefore **do not require official approval** as a result of their type in accordance with EU or German law.

The approval status for the complete CNC system is correspondingly dependent on the hardware or software version used.

General note:

If any particular components require official re-export approval according to US law, this must be duly filed for. Information about official approval requirements for supplied components is given in the delivery documentation: Goods marked here with "AL not equal to N" are subject to European or German export authorization when being exported out of the EU. Goods marked with "ECCN not equal to N" are subject to US re-export authorization. Even if goods are not labeled or labeled with "AL:N" or "ECCN:N", they may still be subject to export authorization depending on the final destination and end use of the goods.

If a purchase contract is concluded, fulfillment of this contract by Siemens shall be subject to the proviso that there are no impediments arising from any national or international regulations on foreign trade and that there are no embargos and/or other sanctions.

Important export information

Export of standard versions of components or systems can be subjected to a time-consuming official authorization process, so it is recommended that the **export version is used where applicable**.

"Information on classification verification (Auskunft zur Güterliste (AZG))" pertaining to the official export authorization process is available for export versions (e.g. Federal Office of Economics and Export Control (BAFA), Customs). You can obtain a copy of this verification from your local Siemens sales office.

When the standard versions are used, it is important to note that the official authorization is also required for the export of components subject to export approval within the framework of service provision, the supply of spare parts and delivery of software upgrades/updates. This is especially relevant in cases where the CNC is exported after the machine manufacturer has installed it in a machine tool. The lengthy official approval procedure can severely restrict after-sales service.

When an application for an export permit for a system is made, we therefore recommend that spare parts supplies for any components requiring approval are included in the application as a matter of course to avoid future delays.

If the CNC is to be exported as an installed component in a machine tool, we recommend that machine manufacturers include any spare parts requiring approval in the export permit application for the machine. If the machine itself does not require official export approval, but contains components which do, we recommend that an export permit for the replacement supply of such spare parts is applied for in advance, in case this is necessary.

Spare part supplies requiring official approval can then be exported quickly and easily by the machine manufacturer himself, or by Siemens if the manufacturer can make the original export permit available to Siemens.

Restricted functionality of export versions

The designation "E" in the name of the CNC indicates that it is the export version, i.e. the relevant control software is classified as not requiring official approval (AL=N) with the functional restrictions specified in the table according to export list item 2D002.

You will find further information about "restricted functionality" for the export versions in the glossary for Catalog NC 62 in the Siemens Industry Mall at:

www.siemens.com/sinumerik-840dsl-glossary

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Overview (continued)

Restricted functionality of export versions (continued)

Description ✓ Basic version | – Not available | ⊞ Restricted functionality of export versions	Article No.	Order code	SINUMERIK 840DE sl
SINAMICS S120 TM17 Terminal Module	6SL3055-0AA00-3HA0		–
Scalable analog setpoint Run MyCC /SANS	6FC5800-0AN48-0YB0	N48	–
Multi-axis interpolation > 4 interpolating axes	6FC5800-0AM15-0YB0	M15	–
Crank interpolation[1] Run MyCC /CRIP	6FC5800-0AN04-0YB0	N04	–
Motion control:			
• Model-based (engineered motion control) Run MyCC /EMC	6FC5800-0AN47-0YB0	N47	–
Generic couplings:			
• CP-Basic	6FC5800-0AM72-0YB0	M72	⊞ [2]
• CP-Comfort	6FC5800-0AM73-0YB0	M73	⊞ [2]
• CP-Expert	6FC5800-0AM74-0YB0	M74	⊞ [2]
Compensation of a forced mechanical coupling in the machine coordinate system[1] Run MyCC /AXCO	6FC5800-0AM81-0YB0	M81	–
Transformation: Redundant and spatially distributed axes at workpiece in Cartesian coordinate system[1] Run MyCC /RDCC	6FC5800-0AN26-0YB0	N26	–
Generic transformation	✓		–
Transformation: Rotating workpiece and tool[1] Run MyCC /2RPT	6FC5800-0AN43-0YB0	N43	–
Transformation: DOUBLETRANSMIT[1] Run MyCC /2TRA	6FC5800-0AM25-0YB0	M25	–
Transformation: Double generic[1] Run MyCC /DGEN	6FC5800-0AN34-0YB0	N34	–
Transformation: Dynamic Swivel TRIPOD[1] Run MyCC /DSTT	6FC5800-0AM84-0YB0	M84	–
Transformation: Eccentric axis[1] Run MyCC /ECCA	6FC5800-0AN44-0YB0	N44	–
Transformation: Eccentric[1] Run MyCC /ECCE	6FC5800-0AN41-0YB0	N41	–
Transformation: HEXAPOD Run MyCC /HEX	6FC5800-0AM71-0YB0	M71	–
Transformation: Machining with virtual Y axis Run MyCC /MAVY	6FC5800-0AN56-0YB0	N56	–
Transformation: PARACOP[1] Run MyCC /PACO	6FC5800-0AM44-0YB0	M44	–
Transformation: Swivel axis[1] Run MyCC /PIVA	6FC5800-0AN52-0YB0	N52	–
Transformation: Handling Run MyCC /RCTRA	6FC5800-0AM31-0YB0	M31	–
Transformation: Robotic extended[1] Run MyCC /ROBX	6FC5800-0AN54-0YB0	N54	–
Transformation: Rotating eccentric[1] Run MyCC /ROTE	6FC5800-0AN37-0YB0	N37	–
Transformation: Pantograph kinematics[1] Run MyCC /SCIS	6FC5800-0AM51-0YB0	M51	–
Transformation: TRIPOD hybrid kinematics[1] Run MyCC /THYK	6FC5800-0AN36-0YB0	N36	–
Transformation: TRICEPT Run MyCC /TRIC	6FC5800-0AM46-0YB0	M46	–
Machining package 5 axes	6FC5800-0AM30-0YB0	M30	–
Machining package 5 axes, additional function 7th axis	6FC5800-0AS01-0YB0	S01	–
Milling technology package, SINUMERIK MDynamics 5 axes	6FC5800-0AS33-0YB0	S33	–
Cartesian travel to fixed stop Run MyCC /FXSC	6FC5800-0AN38-0YB0	N38	–

[1] Not generally released compile cycle; requires machine-specific release process. Please contact your Siemens sales office or Regional Company.
[2] The number of simultaneously traversing axes is restricted to 4.

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Information about export: Standard/export versions

Overview (continued)

Restricted functionality of export versions (continued)

Description ✓ Basic version | – Not available | ⊞ Restricted functionality of export versions	Article No.	Order code	SINUMERIK 840DE sl
Velocity adaptation for water jet cutting Run MyCC /VADA	6FC5800-0AN05-0YB0	N05	–
Extrapolated switching signals[1] Run MyCC /XOUT	6FC5800-0AN51-0YB0	N51	–
Synchronous motion Run MyCC /SYMO	6FC5800-0AN66-0YB0	N66	–
Grinding:			
• Fast braking during grinding Run MyCC /FABS	6FC5800-0AN81-0YB0	N81	–
Handling package	6FC5800-0AS31-0YB0	S31	–
Linking KUKA robots into the SINUMERIK 840D sl for operation, programming and diagnostics SINUMERIK Integrate Run MyRobot /Handling	6FC5800-0AP74-0YB0	P74	–
Use a KUKA robot with a SINUMERIK 840D sl as the CNC control SINUMERIK Integrate Run MyRobot /Machining	6FC5800-0AP73-0YB0	P73	–
Communication interface to a KUKA robot Run MyCC /RODI	6FC5800-0AN65-0YB0	N65	–
Electronic transfer CP	6FC5800-0AM76-0YB0	M76	⊞ [2]
SINUMERIK plastics package IME	6FC5800-0AS40-0YB0	S40	–
Synchronized actions and fast auxiliary function output incl. 3 synchronous functions	✓		⊞ [2]
Synchronized actions stage 2	6FC5800-0AM36-0YB0	M36	⊞ [3]
1D/3D clearance control in position control cycle Run MyCC /CLC	6FC5800-0AM40-0YB0	M40	⊞ [4]
1D/3D clearance control in position control cycle in any direction Run MyCC /CLC-FD	6FC5800-0AM65-0YB0	M65	⊞ [4]
Tool orientation interpolation	✓		–
Axis collision protection Run MyCC /PROT	6FC5800-0AN06-0YB0	N06	–
Leadscrew error compensation, bidirectional	6FC5800-0AM54-0YB0	M54	⊞ [5]
Sag compensation, multi-dimensional	6FC5800-0AM55-0YB0	M55	⊞ [5]
Nodding compensation Run MyCC /NOCO	6FC5800-0AN63-0YB0	N63	–
Volumetric error compensation:			
• Spatial compensation for 3 axes Run MyCC /VCS-A3	6FC5800-0AN15-0YB0	N15	–
• Spatial compensation for 5 axes Run MyCC /VCS-A5	6FC5800-0AN16-0YB0	N16	–
• Spatial compensation for 5 axes plus Run MyCC /VCS-A5 plus	6FC5800-0AN17-0YB0	N17	–
• Spatial compensation for 2 axes[1] Run MyCC /VCS-ROT	6FC5800-0AN31-0YB0	N31	–
Vibration extinction Run MyCC /VIBX	6FC5800-0AN11-0YB0	N11	–
Magnetic cogging torque compensation[1] Run MyCC /COCO	6FC5800-0AN46-0YB0	N46	–
Integrate OEM-specific solutions in the NC kernel SINUMERIK Integrate Create MyCC:			
• Openness in the NC kernel Create MyCC	On request.		–
• Execute compile cycles Run MyCC	6FC5800-0AM04-0YB0	M04	–
• Spatial compensation interface Run MyCCI /VCI	6FC5800-0AN74-0YB0	N74	–
• Universal spatial compensation interface Run MyCCI /UCI	6FC5800-0AN75-0YB0	N75	–

[1] Not generally released compile cycle; requires machine-specific release process. Please contact your Siemens sales office or Regional Company.
[2] The number of simultaneously traversing axes is restricted to 4.
[3] The number of simultaneously traversing path and positioning axes is restricted to 4.
[4] Clearance control can be applied to only one axis because 5-axis transformation is not available. The number of interpolating axes is restricted to 4 without Run MyCC /CLC and to 3 with Run MyCC /CLC.
[5] The correctable tolerance band is restricted to 1 mm (0.04 in).

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Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Control structure and configuration					
SINUMERIK 840D sl BASIC:					
• NCU 710.3B PN + SINAMICS S120 Combi				O	O
SINUMERIK 840D sl:					
• NCU 710.3B PN with PLC 317-3PN/DP		**6FC5371-0AA30-0AB0**		O	O
• NCU 720.3B PN with PLC 317-3PN/DP		**6FC5372-0AA30-0AB0**		O	O
• NCU 730.3B PN with PLC 317-3PN/DP		**6FC5373-0AA30-0AB0**		O	O
• Numeric Control Extension NX10.3		**6SL3040-1NC00-0AA0**		O	O
• Numeric Control Extension NX15.3		**6SL3040-1NB00-0AA0**		O	O
• Maximum configuration NX:					
- NCU 710.3B PN + SINAMICS S120 Combi				–	–
- NCU 710.3B PN				2	2
- NCU 720.3B PN				5	5
- NCU 730.3B PN				5	5
• Maximum configuration NCU + NX + CU3x0-2:					
- NCU 710.3B PN				9	9
- NCU 720.3B PN				13	13
- NCU 730.3B PN				15	15
• Maximum configuration CU3x0-2:					
- NCU 710.3B PN	x = no. of NX			8-x	8-x
- NCU 720.3B PN	x = no. of NX			12-x	12-x
- NCU 730.3B PN	x = no. of NX			14-x	14-x
• SINUMERIK COM01.3 module	As an alternative to CBE30-2 module.	**6FC5312-0FA01-1AA0**		O	O
• CBE30-2 communication module with PROFINET IO	As an alternative to COM01.3 module.	**6FC5312-0FA00-2AA0**		O	O
Software for SINUMERIK NCUs:					
• CNC software 31-3 export version:					
- On CompactFlash card	Single license Current software version	**6FC5851-1YG00-0YA0**		O	–
	Single license Software version 4.7 SP4	**6FC5851-1YG44-4YA0**		O	–
	Without license Software version 4.7 SP4	**6FC5851-1YG44-4YA8**		O	–
- Without data storage medium	Single license	**6FC5851-1YF00-0YB0**		O	–
• CNC software 31-3 standard version:	Export approval required.				
- On CompactFlash card	Single license Current software version	**6FC5851-1XG00-0YA0**		–	O
	Single license Software version 4.7 SP4	**6FC5851-1XG44-4YA0**		–	O
	Without license Software version 4.7 SP4	**6FC5851-1XG44-4YA8**		–	O
- Without data storage medium	Single license	**6FC5851-1XF00-0YB0**		–	O

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Control structure and configuration

Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Control structure and configuration (continued)					
Software for SINUMERIK NCUs (continued):					
• CNC software 31-3 export version and SINUMERIK Operate for PCU:					
- On DVD-ROM	Without license Update on order Software version 4.7 SP4	**6FC5851-1YC44-4YA8**		O	–
- Contract	Software update service	**6FC5851-1YP00-0YL8**		O	–
• CNC software 31-3 standard version and SINUMERIK Operate for PCU:	Export approval required.				
- On DVD-ROM	Without license Update on order Software version 4.7 SP4	**6FC5851-1XC44-4YA8**		–	O
- Contract	Software update service	**6FC5851-1XP00-0YL8**		–	O
Machining channels/mode groups:				✓ 1	✓ 1
• Mode group, each additional		**6FC5800-0AC00-0YB0**	**C01 ... C09**	O	O
• Machining channel, each additional		**6FC5800-0AC10-0YB0**	**C11 ... C19**	O	O
• Maximum configuration:					
- CNC software 31-3				10	10
- NCU 710.3B PN + SINAMICS S120 Combi				4	4
- NCU 710.3B PN				4	4
- NCU 720.3B PN				10	10
- NCU 730.3B PN				10	10
CNC user memory, buffered for programs and OEM cycles				✓ 10 MB	✓ 10 MB
• Expansion by increments of 2 MB		**6FC5800-0AD00-0YB0**	**D01 ... D06**	O	O
• Maximum configuration:					
- NCU 710.3B PN				16 MB	16 MB
- NCU 720.3B PN				22 MB	22 MB
- NCU 730.3B PN				22 MB	22 MB
CNC user memory, expanded for programs and OEM cycles		**6FC5800-0AP77-0YB0**	**P77**	O 100 MB	O 100 MB
CNC user memory, expanded for programs and OEM cycles With option P77 the HMI user memory becomes a CNC user memory.	Requirement: CNC user memory, expanded (option P77) Not in combination with the PCU 50.5.	**6FC5800-0AP12-0YB0**	**P12**	O 6 GB	O 6 GB
CNC user memory, expanded for programs and OEM cycles on the SSD of the PCU 50.5	Only in combination with the PCU 50.5.	**6FC5800-0AP77-0YB0**	**P77**	O 40 GB	O 40 GB
HMI user memory, additional on CompactFlash card of the NCU	Not in combination with the PCU 50.5	**6FC5800-0AP12-0YB0**	**P12**	O	O
Axes/spindles or positioning axes/auxiliary spindle CNC software 31-3:				✓ 3	✓ 3
• Axis/spindle, each additional		**6FC5800-0AA00-0YB0**	**A01 ... A28**	O	O
• Positioning axis/auxiliary spindle, each additional		**6FC5800-0AB00-0YB0**	**B01 ... B28**	O	O
• Multi-axis package Expansion to 31 axes/spindles and 10 machining channels		**6FC5800-0AM10-0YB0**	**M10**	O	O
• Maximum configuration of axes:					
- NCU 710.3B PN + SINAMICS S120 Combi				6	6
- NCU 710.3B PN				8	8
- NCU 720.3B PN/NCU 730.3B PN				31	31

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Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK** **840DE sl**	 **840D sl**
Control structure and configuration (continued)					
Axes/spindles or positioning axes/auxiliary spindle CNC software 31-3 (continued):					
• Maximum configuration of spindles:					
- NCU 710.3B PN + SINAMICS S120 Combi				3	3
- NCU 710.3B PN				8	8
- NCU 720.3B PN				31	31
- NCU 730.3B PN				31	31
• Configuration per channel axes incl. spindles:					
- NCU 710.3B PN + SINAMICS S120 Combi				6	6
- NCU 710.3B PN				8	8
- NCU 720.3B PN				20	20
- NCU 730.3B PN				20	20
• PLC-controlled axis				✓	✓
• PLC positioning axis via PROFIBUS DP				✓	✓
• Maximum configuration axes/spindles, CNC- and PLC-controlled:					
- NCU 710.3B PN + SINAMICS S120 Combi				15	15
- NCU 710.3B PN				15	15
- NCU 720.3B PN				40	40
- NCU 730.3B PN				50	50
• Maximum configuration axes/spindles, PLC-controlled:	No CNC option axis/spindle required.				
- NCU 710.3B PN + SINAMICS S120 Combi	Max. 15 minus CNC-controlled axes/spindles.			9 ... 15	9 ... 15
- NCU 710.3B PN	Max. 15 minus CNC-controlled axes/spindles.			7 ... 15	7 ... 15
- NCU 720.3B PN	Max. 40 minus CNC-controlled axes/spindles.			9 ... 40	9 ... 40
- NCU 730.3B PN	Max. 50 minus CNC-controlled axes/spindles.			19 ... 50	19 ... 50
Drives					
SINUMERIK Analog Drive Interface for 4 axes ADI 4	No PROFIBUS certification.	**6FC5211-0BA01-0AA4**		O	O
SINAMICS S120 Combi Power Modules	See SINAMICS S120.	**6SL3111-3VE21-6FA0** **6SL3111-3VE21-6EA0** **6SL3111-3VE22-0HA0** **6SL3111-4VE21-0EA0** **6SL3111-4VE21-6FA0** **6SL3111-4VE21-6EA0** **6SL3111-4VE22-0HA0**		O	O
SINAMICS S120 booksize compact format Motor Modules as expansion for SINAMICS S120 Combi	See SINAMICS S120.	6SL3420-1TE..-.... 6SL3420-2TE..-....		O	O
SINAMICS S120 booksize format Motor Modules via DRIVE-CLiQ	See SINAMICS S120.	6SL3120-.....-.... 6SL3121-.....-.... 6SL3126-.....-....		O	O

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Drives

Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Drives (continued)					
SINAMICS S120 CU320-2 DP Control Unit without CompactFlash card		**6SL3040-1MA00-0AA0**		O	O
SINAMICS S120 CU320-2 PN Control Unit without CompactFlash card		**6SL3040-1MA01-0AA0**		O	O
CompactFlash card with SINAMICS firmware:					
• License for basic performance	Current firmware version	**6SL3054-0EE00-1BA0**		O	O
• License incl. firmware option Performance expansion	Current firmware version	**6SL3054-0EE01-1BA0**		O	O
SINAMICS S120 Control Units:					
• CU310-2 DP	For positioning tasks via PLC.	**6SL3040-1LA00-0AA0**		O	O
• CU310-2 PN	For positioning tasks via PLC.	**6SL3040-1LA01-0AA0**		O	O
• CUA31 adapter		**6SL3040-0PA00-0AA1**		O	O
• CUA32 adapter		**6SL3040-0PA01-0AA0**		O	O
SINAMICS S110 Control Units:					
• CU305 DP	For positioning tasks via PLC.	**6SL3040-0JA00-0AA0**		O	O
• CU305 PN	For positioning tasks via PLC.	**6SL3040-0JA02-0AA0**		O	O
SINAMICS S120 Sensor Module Cabinet-Mounted:					
• SMC10	No SINUMERIK Safety Integrated.	**6SL3055-0AA00-5AA3**		O	O
• SMC20		**6SL3055-0AA00-5BA3**		O	O
• SMC30	No SINUMERIK Safety Integrated.	**6SL3055-0AA00-5CA2**		O	O
• SMC40		**6SL3055-0AA00-5DA0**		O	O
SINAMICS S120 Sensor Modules External:					
• SME20		**6SL3055-0AA00-5EA3**		O	O
• SME25		**6SL3055-0AA00-5HA3**		O	O
• SME120		**6SL3055-0AA00-5JA3**		O	O
• SME125		**6SL3055-0AA00-5KA3**		O	O
SINAMICS S120 TB30 Terminal Board:		6SL3055-0AA00-2TA0		–	–
SINAMICS S120 TM Terminal Modules:					
• TM15		**6SL3055-0AA00-3FA0**		O	O
• TM17	Requirement: Extrapolated switching signals RunMyCC /XOUT (option N51).	**6SL3055-0AA00-3HA0**		–	O
• TM31		**6SL3055-0AA00-3AA1**		O	O
• TM41		**6SL3055-0AA00-3PA1**		O	O
• TM120		**6SL3055-0AA00-3KA0**		O	O
SINAMICS S120 Hydraulic Linear Actor HLA module		**6SL3420-2HX00-0AA0**		O	O
SINAMICS S120 DRIVE-CLiQ Hub Modules					
• DMC20		**6SL3055-0AA00-6AA1**		O	O
• DME20		**6SL3055-0AA00-6AB0**		O	O
SINAMICS S120 VSM10 Voltage Sensing Module	Integrated with SINAMICS S120 chassis format.	**6SL3053-0AA00-3AA1**		O	O

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Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK** **840DE sl**	 **840D sl**
Drives (continued)					
SINAMICS S120 booksize format	See SINAMICS S120.				
• Single Motor Modules:					
- Internal air cooling		6SL3120-1TE13-0A.. 6SL3120-1TE15-0A.. 6SL3120-1TE21-0A.. 6SL3120-1TE21-8A.. 6SL3120-1TE23-0A.. 6SL3120-1TE24-5A.. 6SL3120-1TE26-0A.. 6SL3120-1TE28-5A.. 6SL3120-1TE31-3A.. 6SL3120-1TE32-0A..		O	O
- External air cooling		6SL3121-1TE13-0A.. 6SL3121-1TE15-0A.. 6SL3121-1TE21-0A.. 6SL3121-1TE21-8A.. 6SL3121-1TE23-0A.. 6SL3121-1TE24-5A.. 6SL3121-1TE26-0A.. 6SL3121-1TE28-5A.. 6SL3121-1TE31-3A.. 6SL3121-1TE32-0A..		O	O
• Double Motor Modules:					
- Internal air cooling		6SL3120-2TE13-0A.. 6SL3120-2TE15-0A.. 6SL3120-2TE21-0A.. 6SL3120-2TE21-8A..		O	O
- External air cooling		6SL3121-2TE13-0A.. 6SL3121-2TE15-0A.. 6SL3121-2TE21-0A.. 6SL3121-2TE21-8A..		O	O
SINAMICS S120 booksize format Active Line Modules:	See SINAMICS S120.				
• Internal air cooling		6SL3130-7TE21-6A.. 6SL3130-7TE23-6A.. 6SL3130-7TE25-5A.. 6SL3130-7TE28-0A.. 6SL3130-7TE31-2A..		O	O
• External air cooling		6SL3131-7TE21-6A.. 6SL3131-7TE23-6A.. 6SL3131-7TE25-5A.. 6SL3131-7TE28-0A.. 6SL3131-7TE31-2A..		O	O
SINAMICS S120 booksize format Active Interface Modules		6SL3100-0BE21-6A.. 6SL3100-0BE23-6A.. 6SL3100-0BE25-5A.. 6SL3100-0BE28-0A.. 6SL3100-0BE31-2A..		O	O
SINAMICS S120 booksize format Smart Line Modules:	See SINAMICS S120.				
• Internal air cooling		6SL3130-6AE15-0A.. 6SL3130-6AE21-0A.. 6SL3130-6TE21-6A.. 6SL3130-6TE23-6A.. 6SL3130-6TE25-5A..		O	O
• External air cooling		6SL3131-6AE15-0A.. 6SL3131-6AE21-0A.. 6SL3131-6TE21-6A.. 6SL3131-6TE23-6A.. 6SL3131-6TE25-5A..		O	O
SINAMICS S120 booksize format Basic Line Modules:	See SINAMICS S120.				
• Internal air cooling		6SL3130-1TE22-0A.. 6SL3130-1TE24-0A.. 6SL3130-1TE31-0A..		O	O
SINAMICS S120 booksize format High Frequency Drive		**6SL3125-1UE32-2AD0**		O	O

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Drives

Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK** **840DE sl**	 **840D sl**
Drives (continued)					
SINAMICS S120 chassis format Motor Modules with internal air cooling:					
• Rated pulse frequency 2 kHz		**6SL3320-1TE32-1AA3** **6SL3320-1TE32-6AA3** **6SL3320-1TE33-1AA3** **6SL3320-1TE33-8AA3** **6SL3320-1TE35-0AA3**		O	O
• Rated pulse frequency 1.25 kHz	See SINAMICS S120.	6SL3320-1TE36-1AA. 6SL3320-1TE37-5AA. 6SL3320-1TE38-4AA. 6SL3320-1TE41-0AA. 6SL3320-1TE41-2AA. 6SL3320-1TE41-4AA.		–	–
SINAMICS S120 chassis format Active Line Modules with internal air cooling:	See SINAMICS S120.				
• Up to 300 kW		6SL3330-7TE32-1AA. 6SL3330-7TE32-6AA. 6SL3330-7TE33-8AA. 6SL3330-7TE35-0AA.		O	O
• 500 kW and higher		6SL3330-7TE36-1AA. 6SL3330-7TE38-4AA. 6SL3330-7TE41-0AA. 6SL3330-7TE41-4AA.		–	–
SINAMICS S120 chassis format Active Interface Modules		6SL3300-7TE32-6A.. 6SL3300-7TE33-8A.. 6SL3300-7TE35-0A..		O	O
SINAMICS S120 chassis format Power Modules 400 V 3 AC Internal air cooling	See SINAMICS S120.	6SL3310-1TE32-1AA. 6SL3310-1TE32-6AA. 6SL3310-1TE33-1AA. 6SL3310-1TE33-8AA. 6SL3310-1TE35-0AA.		–	–
SINAMICS S120 blocksize format Power Modules 230 V 1 AC Internal air cooling	No SINUMERIK Safety Integrated.	6SL3210-1SB11-0... 6SL3210-1SB12-3... 6SL3210-1SB14-0...		O	O
SINAMICS S120 blocksize format Power Modules 400 V 3 AC Internal air cooling	No SINUMERIK Safety Integrated.	**6SL3210-1SE11-3UA0** **6SL3210-1SE11-7UA0** **6SL3210-1SE12-2UA0** **6SL3210-1SE13-1UA0** **6SL3210-1SE14-1UA0**		O	O
	See SINAMICS S120.	6SL3210-1SE16-0... 6SL3210-1SE17-7... 6SL3210-1SE21-0... 6SL3210-1SE21-8... 6SL3210-1SE22-5... 6SL3210-1SE23-2... 6SL3210-1SE23-8... 6SL3210-1SE24-5... 6SL3210-1SE26-0... 6SL3210-1SE27-5... 6SL3210-1SE31-0... 6SL3210-1SE31-1... 6SL3210-1SE31-5... 6SL3210-1SE31-8...		O	O
SINAMICS S120M Distributed servo drive	See SINAMICS S120.	6SL3532-6DF71-0R.. 6SL3540-6DF71-0R.. 6SL3542-6DF71-0R.. 6SL3562-6DF71-0R.. 6SL3563-6DF71-0R..		O	O
AM600 adapter module		**6SL3555-2BC10-0AA0**		O	O
DRIVE-CLiQ extension		**6SL3555-0AA00-6AB0**		O	O
Hybrid cabinet bushing		**6SL3555-2DA00-0AA0**		O	O

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Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Connectable motors					
SIMOTICS synchronous motors:	See SIMOTICS motors.				
• 1FT7/1FK7 feed motors				O	O
• 1PH8/1FE./2SP1 main spindle motors				O	O
• 1FN3 linear motors				O	O
• 1FW6 torque motors				O	O
SIMOTICS asynchronous motors:	See SIMOTICS motors.				
• 1PH8/1PH2/2SP1 main spindle motors				O	O
Connectable measuring systems					
SINAMICS S120 DRIVE-CLiQ on SIMOTICS motor:					
• Resolver				✓	✓
• sin/cos 1 V_{pp}				✓	✓
• EnDat 2.1				✓	✓
Measuring systems per axis, maximum number				2	2
Absolute encoder:					
• With DRIVE-CLiQ interface	Via SINAMICS S120.			✓	✓
• Installed in SIMOTICS S-1FT7/-1FK7 and SIMOTICS M-1PH8 motors	Integrated in motor via SINAMICS Sensor Module.			✓	✓
• With SSI interface	Via SINAMICS SMC30 Sensor Module. For analog axes via SINUMERIK ADI 4.			✓	✓
Incremental encoder:					
• Installed in SIMOTICS S-1FT7/-1FK7 and SIMOTICS M-1PH8 motors	Integrated in motor via SINAMICS Sensor Modules.			✓	✓
Resolver:	Via SINAMICS Sensor Module:				
• Installed in SIMOTICS S-1FK7 motors	Integrated in motor			✓	✓
• As external machine encoder	SMC10			✓	✓
Rotary measuring systems with:	Via SINAMICS Sensor Modules:				
• RS422 (TTL)	SMC30			✓	✓
• sin/cos 1 V_{pp}	SMC20/SME20			✓	✓
• Distance-coded reference marks	SMC20/SME20			✓	✓
• EnDat 2.1	SMC20/SME25			✓	✓
• EnDat 2.2	SMC40			✓	✓
Linear scale LMS with:	Via SINAMICS Sensor Modules:				
• sin/cos 1 V_{pp}	SMC20/SME20			✓	✓
• Distance-coded reference marks	SMC20/SME20			✓	✓
• EnDat 2.1	SMC20/SME25			✓	✓

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Drive functions

Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Drive functions					
Voltage protection for SIMOTICS M-1PH8/1FE./2SP1 motors, externally via VPM Voltage Protection Module:	See SIMOTICS motors.				
• VPM 120		**6SN1113-1AA00-1JA1**		O	O
• VPM 200		**6SN1113-1AA00-1KA1**		O	O
• VPM 200 DYNAMIC		**6SN1113-1AA00-1KC1**		O	O
Control:				✓	✓
• Servo control				✓	✓
• Vector control				–	–
• *V*/f control				✓	✓
• Combination of servo/*V*/*f* control possible, e.g. on an NCU, NX or CU				–	–
• Setting the pulse frequency grid in fine steps (3.2 kHz/4 kHz/5.33 kHz/6.4 kHz/8 kHz)	Requires current control cycle of 62.5 µs or 31.25 µs in some cases.			✓	✓
• Sine-wave filter				–	–
• Unit switchover US/SI etc.				–	–
• Direction reversal without changing the setpoint				–	–
• Technology controller				–	–
• k_T estimator				–	–
• $k_T(i_q)$ characteristic				✓	✓
• Rotor/pole position identification saturation-based/motion-based				✓	✓
• Edge modulation				–	–
• Motor data identification stationary/rotating				✓	✓
• Flux reduction for asynchronous motors				✓	✓
Modular machine concept (sub-topologies):					
• Parking axis/encoder				✓	✓
Brakes:					
• Brake control:					
- Basic				✓	✓
- Advanced				✓	✓
• Armature short-circuit brake:					
- Internal				–	–
- External				✓	✓
• DC brake				–	–
Internal motor winding switchover				✓	✓
Motor changeover	Note general conditions.			✓	✓
Suspended axis/electronic counterweight				✓	✓
Dynamic energy management (DC link voltage management)				✓	✓
Runtime meter				✓	✓
I^2t monitoring for motors				✓	✓
Automatic restart mechanism (servo/infeed)				–	–
Technology function: Friction characteristic				–	–

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Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK**	
				840DE sl	**840D sl**
Drive functions (continued)					
Drive Control Chart DCC	Not possible for integrated drives. Included in basic scope on external SINAMICS S120 drives.			–	–
Drive Based Open Architecture	Drive-related functions can be developed in partnership with Siemens on request.			✓	✓
Basic positioner	Not possible for integrated drives. Included in basic scope on external SINAMICS S120 drives.			–	–
2 command data sets				–	–
Parallel connection of SINAMICS S120 Motor Modules				–	–
Maximum configuration valid for standard PROFIBUS DP cycle with:					
• Current/speed controller cycle 125 µs:					
- Axes/spindles				31	31
- Axes/spindles per NCU or NX				6	6
- Motor measuring systems and direct measuring systems per NCU or NX				12	12
• Current/speed controller cycle 62.5 µs:					
- Axes/spindles				11	11
- Axes/spindles per NCU or NX				3	3
• Current/speed controller cycle 31.25 µs:					
- Axes/spindles				1	1
• SINAMICS S120 chassis format Motor Modules per NCU or NX				6	6
Current/speed controller cycle:					
• SINAMICS S120 booksize format, minimum				31.25 µs	31.25 µs
• SINAMICS S120 chassis format, minimum				125 µs	125 µs
• Maximum				250 µs	250 µs
PROFIBUS DP cycle (corresponds to IPO cycle), minimum				0.5 ms	0.5 ms
Drive data sets, maximum number				32	32
Motor data sets, maximum number				16	16
Encoder data sets, maximum number				8	8

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Axis functions – Spindle functions

Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Axis functions					
Traversing range				± 9 decades	± 9 decades
Rotary axis, turning endlessly				✓	✓
Velocity, maximum				300 m/s	300 m/s
Acceleration with jerk limitation				✓	✓
Programmable acceleration				✓	✓
Follow-up mode				✓	✓
Measuring systems 1 and 2, selectable				✓	✓
Feedrate interpolation				✓	✓
Separate feedrate for roundings and chamfers				✓	✓
Travel to fixed stop				✓	✓
Travel to fixed stop with Force Control		**6FC5800-0AM01-0YB0**	**M01**	O	O
Setpoint exchange		**6FC5800-0AM05-0YB0**	**M05**	O	O
Tangential control		**6FC5800-0AM06-0YB0**	**M06**	O	O
Position switching signals/cam controller:		**6FC5800-0AM07-0YB0**	**M07**	O	O
• Pairs, maximum number				16	16
Advanced Position Control APC		**6FC5800-0AM13-0YB0**	**M13**	O	O
Axis container	Within 31 axes.			✓	✓
Link axes (axis container distributed among several NCUs):	Requirement: CBE30-2 communication module.			✓	✓
• NCUs, maximum number				3	3
Spindle functions					
Digital spindle speed				✓	✓
Spindle speed, maximum programmable range of values	Display ± 999 999 999.9999			10^6 ... 10^{-4}	10^6 ... 10^{-4}
Gear stages				5	5
Gear stage selection, automatic				✓	✓
Oriented spindle stop				✓	✓
Spindle speed limitation, minimum/maximum				✓	✓
Constant cutting rate				✓	✓
Spindle control via PLC Positioning, oscillation				✓	✓
Changeover to axis mode				✓	✓
Axis synchronization on-the-fly				✓	✓
Thread run-in and run-out, programmable				✓	✓
Thread cutting with constant or variable pitch				✓	✓
Tapping with compensating chuck/rigid tapping				✓	✓
Scalable analog setpoint Run MyCC /SANS	Requirement: Loadable compile cycle.	**6FC5800-0AN48-0YB0**	**N48**	–	O

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Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK** **840DE sl**	 **840D sl**
Interpolations					
Floating point accuracy (80-bit floating point accuracy)				✓	✓
Linear interpolating axes:				4	4
• Maximum number				4	20
Circle via center point and end point				✓	✓
Circle via interpolation point				✓	✓
Helical interpolation				2D+2	2D+6
Universal interpolator NURBS (non-uniform rational B splines)				✓	✓
Continuous-path mode with programmable rounding clearance				✓	✓
Compressor for 3-axis/5-axis machining				✓	✓
Continue machining at the contour (retrace support) Run MyCC /RESU	Requirements: Loadable compile cycle and cross-mode actions (option M43).	**6FC5800-0AM24-0YB0**	**M24**	O	O
Spline interpolation A, B and C splines		**6FC5800-0AS16-0YB0**	**S16**	O	O
Polynomial interpolation		**6FC5800-0AM18-0YB0**	**M18**	O	O
Involute interpolation		**6FC5800-0AM21-0YB0**	**M21**	O	O
Multi-axis interpolation > 4 interpolating axes		**6FC5800-0AM15-0YB0**	**M15**	–	O
Crank interpolation[1)] Run MyCC /CRIP	Requirement: Loadable compile cycle.	6FC5800-0AN04-0YB0	N04	–	O
Motion control:					
• Advanced Surface		**6FC5800-0AS07-0YB0**	**S07**	O	O
• Top Surface	Requirement: Advanced Surface	**6FC5800-0AS17-0YB0**	**S17**	O	O
• Model-based (engineered motion control) Run MyCC /EMC Contains the option N63: Nodding compensation Run MyCC /NOCO	Requirement: Loadable compile cycle and NCU 720.3B PN or NCU 730.3B PN.	**6FC5800-0AN47-0YB0**	**N47**	–	O

[1)] Not generally released compile cycle; requires machine-specific release process. Please contact your Siemens sales office or Regional Company.

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Couplings

Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Couplings					
Pair of synchronous axes (gantry axes):		**6FC5800-0AM02-0YB0**	**M02**	O	O
• Maximum number				8	8
Master/slave for drives		**6FC5800-0AM03-0YB0**	**M03**	O	O
Generic couplings:					
• CP-Standard: - 4 axis pairs in simultaneous coupled motion				✓	✓
• CP-Static: - 1 × simple synchronous spindle, coupling ratio |1|:1, no multi-edge machining		**6FC5800-0AM75-0YB0**	**M75**	O	O
• CP-Basic: - 4 axis pairs in simultaneous coupled motion and - 1 × synchronous spindle/multi-edge turning and/or master value coupling/curve table interpolation and/or axial coupling in the machine coordinate system	[1] Restricted functionality of export versions. The number of simultaneously traversing axes is restricted to 4.	**6FC5800-0AM72-0YB0**	**M72**	O [1]	O
• CP-Comfort: - 4 axis pairs in simultaneous coupled motion and - 4 × synchronous spindle/multi-edge turning and/or master value coupling/curve table interpolation and/or axial coupling in the machine coordinate system and - 1 × electronic gear for 3 leading axes without curve table, without cascading	[1] Restricted functionality of export versions. The number of simultaneously traversing axes is restricted to 4.	**6FC5800-0AM73-0YB0**	**M73**	O [1]	O
• CP-Expert: - 8 axis pairs in simultaneous coupled motion and - 8 × synchronous spindle/multi-edge turning and/or master value coupling/curve table interpolation and/or axial coupling in the machine coordinate system and - 8 × electronic gear for 3 leading axes with curve tables, with cascading and - 5 × electronic gear for 5 leading axes with curve tables, with cascading	[1] Restricted functionality of export versions. The number of simultaneously traversing axes is restricted to 4.	**6FC5800-0AM74-0YB0**	**M74**	O [1]	O
Compensation of a forced mechanical coupling in the machine coordinate system[2] Run MyCC /AXCO	Requirement: Loadable compile cycle.	6FC5800-0AM81-0YB0	M81	–	O
Transformation: Redundant and spatially distributed axes at workpiece in Cartesian coordinate system[2] Run MyCC /RDCC	Requirement: Loadable compile cycle.	6FC5800-0AN26-0YB0	N26	–	O

[2] Not generally released compile cycle; requires machine-specific release process.
Please contact your Siemens sales office or Regional Company.

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Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK** **840DE sl**	 **840D sl**
Transformations					
Cartesian Point-to-Point travel PTP				✓	✓
Concatenated transformations (inclined axis TRAANG to TRAORI/ cardanic milling head/TRANSMIT/TRACYL)				✓	✓
Generic transformation	Requirement: Machining package 5 axes (option M30) or milling technology package SINUMERIK MDynamics 5 axes (option S33).			–	✓
TRANSMIT/cylinder surface transformation		**6FC5800-0AM27-0YB0**	**M27**	O	O
Inclined axis		**6FC5800-0AM28-0YB0**	**M28**	O	O
Transformation: Rotating workpiece and tool[1)] Run MyCC /2RPT	Requirement: Loadable compile cycle.	6FC5800-0AN43-0YB0	N43	–	O
Transformation: DOUBLETRANSMIT[1)] Run MyCC /2TRA	Requirement: Loadable compile cycle.	6FC5800-0AM25-0YB0	M25	–	O
Transformation: Double Generic[1)] Run MyCC /DGEN	Requirement: Loadable compile cycle.	6FC5800-0AN34-0YB0	N34	–	O
Transformation: Dynamic Swivel TRIPOD basis 5 axes[1)] Run MyCC /DSTT	Requirement: Loadable compile cycle.	6FC5800-0AM84-0YB0	M84	–	O
Transformation: Eccentric axis[1)] Run MyCC /ECCA	Requirement: Loadable compile cycle.	6FC5800-0AN44-0YB0	N44	–	O
Transformation: Eccentric[1)] Run MyCC /ECCE	Requirement: Loadable compile cycle.	6FC5800-0AN41-0YB0	N41	–	O
Transformation: HEXAPOD 6-axis transformation Run MyCC /HEX	Requirement: Loadable compile cycle.	**6FC5800-0AM71-0YB0**	**M71**	–	O
Transformation: Machining with virtual Y axis Run MyCC /MAVY	Requirement: Loadable compile cycle.	**6FC5800-0AN56-0YB0**	**N56**	–	O
Transformation: PARACOP 3 axes[1)] Run MyCC /PACO	Requirement: Loadable compile cycle.	6FC5800-0AM44-0YB0	M44	–	O
Transformation: Swivel axis[1)] Run MyCC /PIVA	Requirement: Loadable compile cycle.	6FC5800-0AN52-0YB0	N52	–	O
Transformation: Handling Run MyCC /RCTRA	Requirement: Loadable compile cycle.	**6FC5800-0AM31-0YB0**	**M31**	–	O
Transformation: Robotic extended[1)] Run MyCC /ROBX	Requirement: Loadable compile cycle.	6FC5800-0AN54-0YB0	N54	–	O
Transformation: Rotating eccentric[1)] Run MyCC /ROTE	Requirement: Loadable compile cycle.	6FC5800-0AN37-0YB0	N37	–	O
Transformation: Pantograph kinematics[1)] Run MyCC /SCIS	Requirement: Loadable compile cycle.	6FC5800-0AM51-0YB0	M51	–	O
Transformation: TRIPOD hybrid kinematics[1)] Run MyCC /THYK	Requirement: Loadable compile cycle.	6FC5800-0AN36-0YB0	N36	–	O
Transformation: TRICEPT 5-axis transformation Run MyCC /TRIC	Requirement: Loadable compile cycle.	**6FC5800-0AM46-0YB0**	**M46**	–	O

1) Not generally released compile cycle; requires machine-specific release process. Please contact your Siemens sales office or Regional Company.

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Measuring – Technologies

Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Measuring					
Logging of measurement results in Automatic mode				✓	✓
Measuring stage 1 Two probes (switching) with/without deletion of distance-to-go				✓	✓
Measuring stage 2 • Axial measurement • Measurements from synchronized actions • Cyclic measuring		**6FC5800-0AM32-0YB0**	**M32**	O	O
Measuring cycles for drilling/milling and turning • Calibrating workpiece probes • Workpiece measurement • Tool measuring		**6FC5800-0AP28-0YB0**	**P28**	O	O
Measure kinematics		**6FC5800-0AP18-0YB0**	**P18**	O	O
Technologies					
Handwheel override				✓	✓
Contour handwheel		**6FC5800-0AM08-0YB0**	**M08**	O	O
Punching/nibbling		**6FC5800-0AM33-0YB0**	**M33**	O	O
Balance cutting, 4-axis roughing		**6FC5800-0AS05-0YB0**	**S05**	O	O
Machining package 5 axes Contains the option M15: Multi-axis interpolation > 4 interpolating axes		**6FC5800-0AM30-0YB0**	**M30**	–	O
Machining package 5 axes Additional function 7th axis		**6FC5800-0AS01-0YB0**	**S01**	–	O
Milling technology package SINUMERIK MDynamics 3 axes Contains the options: • ShopTurn/ShopMill • Residual material detection and machining for contour pockets and stock removal • 3D simulation 1 (finished part) • Simultaneous recording • Advanced Surface motion control • Spline interpolation (A, B and C splines) • TRANSMIT/cylinder surface transformation • Measuring cycles for drilling/milling and turning • Additional HMI user memory on CompactFlash card of the NCU		**6FC5800-0AS32-0YB0**	**S32**	O	O
Milling technology package SINUMERIK MDynamics 5 axes Contains the options: • Machining package 5 axes • Multi-axis interpolation > 4 interpolating axes • ShopTurn/ShopMill • Residual material detection and machining for contour pockets and stock removal • 3D simulation 1 (finished part) • Simultaneous recording • Advanced Surface motion control • Spline interpolation (A, B and C splines) • TRANSMIT/cylinder surface transformation • Measuring cycles for drilling/milling and turning • Additional HMI user memory on CompactFlash card of the NCU • 3D tool radius compensation • Measure kinematics		**6FC5800-0AS33-0YB0**	**S33**	–	O
Cartesian travel to fixed stop Run MyCC /FXSC	Requirement: Loadable compile cycle.	**6FC5800-0AN38-0YB0**	**N38**	–	O
Velocity adaptation for water jet cutting Run MyCC /VADA	Requirement: Loadable compile cycle.	**6FC5800-0AN05-0YB0**	**N05**	–	O

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Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK** **840DE sl**	**840D sl**
Technologies (continued)					
Extrapolated switching signals[1)] Run MyCC /XOUT	Requirement: Loadable compile cycle.	6FC5800-0AN51-0YB0	N51	–	O
• Maximum number				–	64
Synchronous motion Run MyCC /SYMO	Requirement: Loadable compile cycle.	**6FC5800-0AN66-0YB0**	**N66**	–	O
Path-related pulse output[1)] Run MyCC /PRIG	Requirement: Loadable compile cycle.	6FC5800-0AN76-0YB0	N76	O	O
Utility programs for the servo Run MyCC /SUTI	Requirement: Loadable compile cycle.	**6FC5800-0AN10-0YB0**	**N10**	O	O
Grinding:					
• Multiple feedrates in one block, e.g. for clamp meters				✓	✓
• Continuous dressing, parallel dressing online modification of tool offset				✓	✓
• Grinding Advanced Extended functions for grinding, such as an axis-parallel dressing/pre-profiling cycle, for example		**6FC5800-0AS35-0YB0**	**S35**	O	O
• Oscillation functions block-related, modal and asynchronous		**6FC5800-0AM34-0YB0**	**M34**	O	O
• Fast braking during grinding Run MyCC /FABS	Requirement: Loadable compile cycle.	**6FC5800-0AN81-0YB0**	**N81**	–	O
• CCG compiler, non-circular grinding (cam contour grinding)	Requirement: SINUMERIK PCU 50.5	**6FC5800-0AP10-0YB0**	**P10**	O	O
Block cycle times (block processing times), typically with:	Requirement: Use of the compressor.				
• NCU 710.3B PN				1.2 ms	1.2 ms
• NCU 720.3B PN				0.5 ms	0.5 ms
• NCU 730.3B PN				0.3 ms	0.3 ms
Handling package Contains the options: • 3 additional axes • 3 additional channels • Handling transformation • Synchronized actions stage 2 No tool offsets or spindles possible.	Requirement: Loadable compile cycle.	**6FC5800-0AS31-0YB0**	**S31**	–	O
Display external positions Run MyCC /EXPD	Requirement: Loadable compile cycle.	**6FC5800-0AN64-0YB0**	**N64**	O	O
Linking KUKA robots into the SINUMERIK 840D sl for operation, programming and diagnostics SINUMERIK Integrate Run MyRobot /Handling Contains the options: • 1 additional machining channel • Run MyCC /EXPD • Run MyHMI /3GL • Run MyScreens	Requirement: Loadable compile cycle.	**6FC5800-0AP74-0YB0**	**P74**	–	O
Use a KUKA robot with a SINUMERIK 840D sl as the CNC control SINUMERIK Integrate Run MyRobot /Machining Contains the options: • Run MyCC /RODI • Multi-axis interpolation > 4 interpolating axes • Run MyHMI /3GL	Requirement: Loadable compile cycle.	**6FC5800-0AP73-0YB0**	**P73**	–	O
Communication interface to a KUKA robot Run MyCC /RODI	Requirement: Loadable compile cycle.	**6FC5800-0AN65-0YB0**	**N65**	–	O

[1)] Not generally released compile cycle; requires machine-specific release process.
Please contact your Siemens sales office or Regional Company.

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Technologies – Motion-synchronous actions

Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Technologies (continued)					
Electronic transfer CP Contains the options: • Position switching signals/cam controller • Polynomial interpolation • Generic coupling Comfort CP-Comfort • Cross-mode actions • I/O interfacing via PROFIBUS DP • Synchronized actions stage 2 • Pairs of synchronous axes (gantry axes)	1) Restricted functionality of export versions. The number of simultaneously traversing axes is restricted to 4.	**6FC5800-0AM76-0YB0**	**M76**	O 1)	O
SINUMERIK plastics package IME Contains the function: • Travel to fixed stop Contains the options: • 3 additional axes • Pair of synchronous axes (gantry axes) • Master/slave for drives • Position switching signals/cam controller • Polynomial interpolation • Handling transformation • Synchronized actions stage 2 No tool offsets or spindles possible.		**6FC5800-0AS40-0YB0**	**S40**	–	O
Motion-synchronous actions					
CNC inputs/outputs, high-speed:					
• Digital inputs on-board				4	4
• Digital inputs or outputs on-board, total				4	4
• Expansion via SIMATIC S7 I/O	See SIMATIC Catalog ST 70 or Siemens Industry Mall.			O	O
- Digital inputs				32	32
- Digital outputs				32	32
- Analog inputs				4	4
- Analog outputs				4	4
Synchronized actions and fast auxiliary function output incl. 3 synchronous functions (max. 159 elements for synchronized actions)	1) Restricted functionality of export versions. The number of simultaneously traversing axes is restricted to 4.			✓ 1)	✓
• Number of simultaneously active synchronous functions SYNFC				1	24
Synchronized actions stage 2	1) Restricted functionality of export versions. The number of simultaneously traversing path and positioning axes is restricted to 4.	**6FC5800-0AM36-0YB0**	**M36**	O 1)	O
Positioning axes and spindles via synchronized actions (command axes)				✓	✓
Analog value control in the interpolation cycle	Requirement: Analog input			✓	✓
Path velocity-dependent analog output (laser power control)		**6FC5800-0AM37-0YB0**	**M37**	O	O
Laser switching signal, high-speed Run MyCC /HSLC	Requirement: Loadable compile cycle.	**6FC5800-0AM38-0YB0**	**M38**	O	O

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Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK** **840DE sl**	 **840D sl**
Motion-synchronous actions (continued)					
Clearance control:					
• 1D in interpolation cycle via synchronized actions				✓	✓
• 1D/3D clearance control in position control cycle Run MyCC /CLC	Requirement: Loadable compile cycle. [1] Restricted functionality of export versions. Clearance control can be applied to only one axis because 5-axis transformation is not available. The number of interpolating axes is restricted to 4 without Run MyCC /CLC and to 3 with Run MyCC /CLC.	**6FC5800-0AM40-0YB0**	**M40**	O 1)	O
• 1D/3D clearance control in position control cycle in any direction Run MyCC /CLC-FD	Requirement: Loadable compile cycle and 1D/3D clearance control in position control cycle, Run MyCC /CLC [1] Restricted functionality of export versions.	**6FC5800-0AM65-0YB0**	**M65**	O 1)	O
Evaluation of internal drive variables	Required for Adaptive Control.	**6FC5800-0AM41-0YB0**	**M41**	O	O
Asynchronous subprograms ASUB	High-speed CNC inputs/outputs.			✓	✓
Interrupt routines with fast retraction from the contour		**6FC5800-0AM42-0YB0**	**M42**	O	O
Cross-mode actions ASUB and synchronized actions in all CNC operating modes		**6FC5800-0AM43-0YB0**	**M43**	O	O

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CNC programming language

Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
CNC programming language					
Programming language DIN 66025 and high-level language expansion				✓	✓
Main program call from main program and subprogram				✓	✓
Subprogram levels, maximum				16	16
Interrupt routines, maximum				2	2
Number of subprogram passes				≤ 9999	≤ 9999
Number of levels for skip blocks				0 ... 8	0 ... 8
Polar coordinates				✓	✓
1/2/3-point contours				✓	✓
Dimensions metric/inch, changeover via operator action or program				✓	✓
Inverse-time feedrate				✓	✓
Auxiliary function output via:					
• M word, maximum programmable range of values				INT 2^{31} -1	INT 2^{31} -1
• H word, maximum programmable range of values REAL ± 3.4028 ex 38	Display ± 999 999 999.9999			INT -2^{31} ... 2^{31} -1	INT -2^{31} ... 2^{31} -1
CNC high-level language with:					
• User variables, configurable				✓	✓
• Predefined user variables (arithmetic parameters)				✓	✓
• Predefined user variables (arithmetic parameters), configurable				✓	✓
• Read/write system variables				✓	✓
• Indirect programming				✓	✓
• Program jumps and branches				✓	✓
• Program coordination with WAIT, START, INIT				✓	✓
• Arithmetic and trigonometric functions				✓	✓
• Comparison operations and logic combinations				✓	✓
• Macro techniques				✓	✓
• Control structures IF-ELSE-ENDIF				✓	✓
• Control structures WHILE, FOR, REPEAT, LOOP				✓	✓
• Commands to HMI				✓	✓
• STRING functions				✓	✓
Program functions:					
• Preprocessing memory, dynamic FIFO				✓	✓
• Look Ahead, recorded part program blocks	MDynamics, Top Surface or COMPSURF active.			3000	3000
• Look Ahead, IPO blocks, buffered				1000	1000
• Frame concept				✓	✓
• Inclined-surface machining with frames				✓	✓
• Axis/spindle interchange				✓	✓
• Geometry axes, switchable online in the CNC program				✓	✓
• Program preprocessing				✓	✓
Online ISO dialect interpreter				✓	✓

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Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK** **840DE sl**	 **840D sl**
CNC programming language (continued)					
Program/workpiece management:					
• Part programs on the SINUMERIK NCU, maximum number	A maximum total of 512 files per directory.			1000	1000
• Workpieces on the SINUMERIK NCU, maximum number	A maximum total of 256 directories.			250	250
• Workpieces on the SSD of the SINUMERIK PCU, maximum number	A maximum total of 10000 user files.			10000	10000
• Templates for programs and workpieces				✓	✓
• Job lists				✓	✓
• In additional HMI user memory on CompactFlash card of the SINUMERIK NCU	A maximum total of 10000 user files and directories. Requirement: Additional HMI user memory on CF card of NCU.			✓	✓
• On additional plug-in CompactFash card in the SINUMERIK PCU	Requirement: CF card in the PCU.			✓	✓
• On integrated SSD in the SINUMERIK PCU				✓	✓
• On USB storage medium, e.g. memory stick	Requirement: Memory stick.			✓	✓
• On network drive				✓	✓
Basic frames, maximum number				16	16
Settable offsets, maximum number				100	100
Work offsets, programmable (frames)				✓	✓
Scratching, determining work offset				✓	✓
Work offsets, external via PLC				✓	✓
Global and local user data				✓	✓
Global program user data				✓	✓
Display system variables, including in online configurable display, and log them	[1] Function is dependent on operating software.			[1]	[1]
Programming support					
Program editor:					
• Text editor: Selecting, copying, deleting				✓	✓
• Dual editor				✓	✓
• Multi-editor, maximum	Requirement: SINUMERIK OP 019.			4	4
• Write protection for lines				✓	✓
• Suppression of lines in the display				✓	✓
• Technology cycles:					
- Drilling				✓	✓
- Milling				✓	✓
- Pocket milling with free contour definition and islands				✓	✓
- Turning				✓	✓
- Grinding				✓	✓

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Programming support – Simulations

Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Programming support (continued)					
programGUIDE:					
• Programming support for cycles				✓	✓
• Dynamic programming graphics				✓	✓
• Animated elements				✓	✓
DXF Reader, integrated: • Accepting contours • Accepting point patterns		**6FC5800-0AP56-0YB0**	**P56**	O	O
ShopTurn/ShopMill: • Machining step programming • Multiple clamping of identical/different workpieces • Manual machine		**6FC5800-0AP17-0YB0**	**P17**	O	O
programSYNC		**6FC5800-0AP05-0YB0**	**P05**	O	O
Residual material detection and machining for contour pockets and stock removal		**6FC5800-0AP13-0YB0**	**P13**	O	O
Programming support is expandable, e.g. user cycles	See SINUMERIK Integrate Run MyScreens.			✓	✓
Access protection for cycles SINUMERIK Integrate Lock MyCycles					
• Cycle protection OEM Lock MyCycles		**6FC5800-0AP54-0YB0**	**P54**	O	O
Simulations					
Machining channels capable of simulation, maximum	Requirement: programSYNC (option P05).			4	4
Simulation of program X, while program Y is being executed	Requirement: NCU 720.3B PN or NCU 730.3B PN.			✓	✓
Quickview for mold-making programs				✓	✓
Turning/drilling/milling:					
• Turning				✓	✓
• Counterspindle				✓	✓
• Turn-milling				✓	✓
• Mill-turning with supported kinematics	Application-specific by machine manufacturer.			✓	✓
• Milling up to 5-axis machining with TRAORI				✓	✓
• Simulation (finished part) in 2D representation				✓	✓
• Simulation 1 (finished part) in 3D representation		**6FC5800-0AP25-0YB0**	**P25**	O	O
• Simultaneous recording Real-time simulation of current machining		**6FC5800-0AP22-0YB0**	**P22**	O	O

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Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK** **840DE sl**	 **840D sl**
Operating modes					
JOG:				✓	✓
• Handwheel selection				✓	✓
• Inch/metric changeover				✓	✓
• Manual measurement of work offset				✓	✓
• Manual measurement of tool offset				✓	✓
• Automatic tool measurement				✓	✓
• Automatic workpiece measurement				✓	✓
• Reference point approach automatically or via CNC program				✓	✓
MDI:				✓	✓
• Input in text editor				✓	✓
• Save MDI program				✓	✓
Teach-in:				✓	✓
• Teach positions in MDI buffer				✓	✓
• Teach-in function Handling				✓	✓
AUTO :				✓	✓
• Execution from external storage EES (execution from external storage)	Contains option P77.	**6FC5800-0AP75-0YB0**	**P75**	O	O
• One part program memory for several NCUs	Requirement: Execution from external storage EES (option P75).			O	O
• Execution from HMI memory on the Compact Flash card of the NCU	Requirement: Additional HMI user memory on CF card of NCU.	**6FC5800-0AP12-0YB0**	**P12**	O	O
• Execution from CNC user memory, expanded		**6FC5800-0AP77-0YB0**	**P77**	O	O
• Execution from network drive				✓	✓
• Execution from storage medium connected to USB interface at rear of the SINUMERIK TCU or PCU, e.g. memory stick				✓	✓
• Execution from SSD of the SINUMERIK PCU				✓	✓
• DRF offset				✓	✓
• Program control				✓	✓
• Program editing				✓	✓
• Block search with/without calculation				✓	✓
• Overstore				–	–
Repos (repositioning on the contour) via:				✓	✓
• Operation, semi-automatic				✓	✓
• Program				✓	✓

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Tools

Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Tools					
Tool types:					
• Drilling/milling				✓	✓
• Turning				✓	✓
• Groove sawing				✓	✓
• Grinding				✓	✓
• Nibbling	Not in SINUMERIK Operate.			–	–
Tool radius compensations in plane with:					
• Approach and retract strategies				✓	✓
• Transition circle or transition ellipse at outside corners				✓	✓
Configurable intermediate blocks with tool radius compensation active				✓	✓
3D tool radius compensation		**6FC5800-0AM48-0YB0**	**M48**	O	O
Tool change via T number				✓	✓
Tool carrier with orientation capability				✓	✓
Look-ahead detection of contour violations				✓	✓
Grinding wheel peripheral speed, programmable				✓	✓
Tool orientation interpolation	Requirement: Milling technology package SINUMERIK MDynamics 5 axes (option S33) or machining package 5 axes (option M30).			–	✓
Tool length compensation, online				✓	✓
Operation without magazine management:				✓	✓
• Tool offset selection via D number without T assignment (flat D number)				–	–
• Editing of tool data				✓	✓
• Tool offset selection via T and D numbers				✓	✓
• Tools in the tool list:					
- NCU 710.3B PN				600	600
- NCU 720.3B PN				600	600
- NCU 730.3B PN				1500	1500
• Cutting edges in the tool list:					
- NCU 710.3B PN				1500	1500
- NCU 720.3B PN				1500	1500
- NCU 730.3B PN				3000	3000

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Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK** **840DE sl**	 **840D sl**
Tools (continued)					
Operation with tool management:					
• Up to 4 magazines				✓	✓
• With more than 4 magazines		**6FC5800-0AM88-0YB0**	**M88**	O	O
• Monitoring for maximum tool speed/acceleration		**6FC5800-0AS08-0YB0**	**S08**	O	O
• System displays in standard software				✓	✓
• User-friendly commissioning via system displays				✓	✓
• Tool list				✓	✓
• Configurable tool list				✓	✓
- Quantity				1	1
• Tools in the tool list:					
- NCU 710.3B PN				600	600
- NCU 720.3B PN				600	600
- NCU 730.3B PN				1500	1500
• Cutting edges in the tool list:					
- NCU 710.3B PN				1500	1500
- NCU 720.3B PN				1500	1500
- NCU 730.3B PN				3000	3000
• Tool offset selection via T and D numbers				✓	✓
• Editing of tool data				✓	✓
• Editing of OA data				✓	✓
• Magazine list				✓	✓
• Configurable magazine list				✓	✓
• Magazines, maximum					
- NCU 710.3B PN				32	32
- NCU 720.3B PN				32	32
- NCU 730.3B PN				64	64
• Magazine locations, maximum					
- NCU 710.3B PN				600	600
- NCU 720.3B PN				600	600
- NCU 730.3B PN				1500	1500
• Magazine data				✓	✓
• Empty location search and place positioning				✓	✓
• Easy empty location search using softkeys				✓	✓
• Loading and unloading of tools				✓	✓
• More than one loading and unloading point per magazine				✓	✓
• Tool life monitoring and workpiece count				✓	✓
• Multi-tool with tools, maximum				64	64
• Adapter data				✓	✓
• Location-dependent offsets				✓	✓
Tool identification for loading/unloading tools with code carrier	See SIMATIC Ident Catalog ID 10 or Siemens Industry Mall.				
• Tool Ident Connection		**6FC5800-0AP52-0YB0**	**P52**	O	O

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Communication and data management

Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Communication and data management					
Additional HMI user memory on CompactFlash card of the NCU	Not in combination with PCU 50.5. Requirements: 8 GB CompactFlash card.	**6FC5800-0AP12-0YB0**	**P12**	O 6 GB	O 6 GB
Data on storage medium at:					
• rear USB interface of the TCU or PCU, e.g. card reader or memory stick	2 plant HMIs can be accessed per plant network.			✓	✓
• USB interface at the front of the operator panel front, e.g. memory stick	2 plant HMIs can be accessed per plant network. Requirements: Operator panels SINUMERIK OP 08T/ OP 010/OP 010S/ OP 010C/OP 012/ OP 015A.			✓	✓
Manage additional drives via:					
• Ethernet				4	4
• USB				✓	✓
• CompactFlash card of the PCU				✓	✓
COM (RS232C) serial interface	Requirement: PCU 50.5 or COM01.3 module for NCU.			✓	✓
I/O interfacing via PROFIBUS DP				✓	✓
Axis data output via PROFIBUS Run MyCC /ADAS	Requirement: Loadable compile cycle.	**6FC5800-0AN07-0YB0**	**N07**	O	O
Reading of actual positions correlated with output signal Run MyCC /COPA	Requirement: Loadable compile cycle.	**6FC5800-0AN61-0YB0**	**N61**	O	O
Data backup:					
• CompactFlash card of the NCU (backup/restore) on memory stick or in network				✓	✓
• On integral SSD of PCU 50.5				✓	✓
• With Ghost (backup/restore) on PCU 50.5 or in network				✓	✓
Data link to a master computer Server for OPC unified architecture SINUMERIK Integrate Access MyMachine:	See SINUMERIK Integrate.				
• Access MyMachine /OPC UA	License for NCU.	**6FC5800-0AP67-0YB0**	**P67**	O	O
Variables, maximum number				200	200

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Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Operation					
Operator panel front black line with integrated SINUMERIK TCU:					
• SINUMERIK OP 015 black, 15.6", multi-touch, capacitive keys and display area		**6FC5303-0AF14-0AA0**		O	O
• SINUMERIK OP 019 black, 18.5", multi-touch, capacitive display area		**6FC5303-0AF17-0AA0**		O	O
Operator panel front with integrated SINUMERIK TCU:					
• SINUMERIK OP 08T, 7.5", membrane keys		**6FC5203-0AF04-1BA1**		O	O
Operator panel fronts without integrated SINUMERIK TCU:					
• SINUMERIK OP 010, 10.4", membrane keys		**6FC5203-0AF00-0AA1**		O	O
• SINUMERIK OP 010S, 10.4", keys, mechanical		**6FC5203-0AF04-0AA0**		O	O
• SINUMERIK OP 010C, 10.4", keys, mechanical		**6FC5203-0AF01-0AA0**		O	O
• SINUMERIK OP 012, 12.1", with LED backlight, membrane keys and touchpad		**6FC5203-0AF02-0AA2**		O	O
• SINUMERIK OP 015A, 15", with LED backlight, membrane keys		**6FC5203-0AF05-0AB1**		O	O
• SINUMERIK OP 019, 19", keys, capacitive		**6FC5303-0AF13-0AA0**		O	O
• Accessories for operator panel fronts:					
- SINUMERIK TCU 20.2 for operator panel fronts	Only in combination with SINUMERIK OP 010/ OP 010S/OP 010C/ OP 012/OP 015A.	**6FC5312-0DA00-0AA2**		O	O
- SINUMERIK TCU 30.2 for operator panel fronts	Only in combination with SINUMERIK OP 019.	**6FC5312-0DA00-1AA0**		O	O
• Additional components for SINUMERIK TCU 20.3/TCU 30.3:	See Catalog IK PI or Siemens Industry Mall.				
- Switch SCALANCE X208 PRO managed		**6GK5208-0HA10-2AA6**		O	O
- Switch SCALANCE X208 managed		**6GK5208-0BA10-2AA3**		O	O
- Switch SCALANCE X108 unmanaged		**6GK5108-0BA00-2AA3**		O	O
- Switch SCALANCE XB005 unmanaged		**6GK5005-0BA00-1AB2**		O	O
- Switch SCALANCE X005 unmanaged		**6GK5005-0BA00-1AA3**		O	O
• USB 1.1/2.0 extension, type A for mounting in 22 mm (0.87 in) drill hole, degree of protection IP66 length 1 m (3.28 ft)		**6FC5347-0AF01-1AA0**		O	O
SINUMERIK PCU:					
• SINUMERIK PCU 50.5-C P4505, Windows 7 Ultimate		**6FC5210-0DF52-3AA0**		O	O
- Processor clock frequency				1.86 GHz	1.86 GHz
- RAM capacity				4 GB	4 GB
• SINUMERIK PCU 50.5-P i5-520E, Windows 7 Ultimate		**6FC5210-0DF53-3AA0**		O	O
- Processor clock frequency				2.4 GHz	2.4 GHz
- RAM capacity				8 GB	8 GB
• Memory expansion for SINUMERIK PCU 50.5-C/PCU 50.5-P					
- 1 GB		**6ES7648-2AJ40-1KA0**		O	O
- 2 GB		**6ES7648-2AJ50-1KA0**		O	O
- 4 GB		**6ES7648-2AJ60-1KA0**		O	O

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Operation

Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Operation (continued)					
Assembly materials for SINUMERIK PCU and TCU:					
• Mounting bracket for PCU and TCU behind operator panel front		**6FC5248-0AF20-2AA0**		O	O
• Upright mounting bracket for PCU in control cabinet		**6FC5248-0AF20-1AA1**		O	O
• Flat mounting bracket for PCU in control cabinet		**6FC5248-0AF20-0AA0**		O	O
Machine operation with SINUMERIK Operate /NCU	Single license without data storage medium	**6FC5800-0AS00-0YB0**	**S00**	O	O
Machine operation with SINUMERIK Operate /PCU	Single license without data storage medium (for SINUMERIK Operate, see CNC software DVD-ROM)	**6FC5800-0AP88-0YB0**	**P88**	O	O
Software for machine operation with SIMATIC IPC:					
• SINUMERIK PCU base software /IPC Provide SINUMERIK PCU functions on a defined SIMATIC IPC		**6FC5800-0AP86-0YB0**	**P86**	O	O
• Machine operation with SINUMERIK Operate /PCU	Requirement: SINUMERIK PCU base software /IPC (option P86).	**6FC5800-0AP88-0YB0**	**P88**	O	O
Software for machine operation with PC:	Without license Software version 4.7 SP2 (for SINUMERIK Operate, see CNC software DVD-ROM)	**6FC5860-2YC44-2YA8**			
• SINUMERIK Operate /PC	Single license without data storage medium	**6FC5800-0AP87-0YB0**	**P87**	O	O
• Machine operation with SINUMERIK Operate /PC	Software update service	**6FC5860-2YP00-0YL8**		O	O
SINUMERIK extended touch SINUMERIK Operate expanded by multi-touch operation	Requirement: Multi-touch-capable operator panel				
• For SINUMERIK operator panel fronts				✓	✓
• For third-party operator panels		**6FC5800-0AP80-0YB0**	**P80**	O	O
Software for machine operation Expand SINUMERIK Operate	See SINUMERIK Integrate Create MyHMI /PRO and RunMyScreens.			O	O
Software for SIMATIC KTP900 F/TP1200 Panels for machine operation with TRANSLINE HMI Lite	Single license on DVD-ROM Current software version	**6FC5263-0PY11-0AG0**		O	O
	Single license on DVD-ROM Software version 8	**6FC5263-8PY11-0AG0**		O	O
	Copy single license without data storage medium	**6FC5263-0PY11-0AG1**		O	O
Connection for:					
• SIMATIC Comfort Panel	Requirements: SIMATIC WinCC and Run MyHMI /SIMATIC OP.			✓	✓
• SIMATIC Mobile Panel	Requirements: SIMATIC WinCC and Run MyHMI /SIMATIC OP.			✓	✓
• SIMATIC Thin Client Touch 10" and 15" operator panels via Industrial Ethernet				✓	✓
• Standard monitor DVI VGA via external adapter for SINUMERIK PCU 50.5				✓	✓

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Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK** **840DE sl**	 **840D sl**
Operation (continued)					
Control unit management:					
• Identical display on all OPs with TCU:				✓	✓
- Simultaneous operation interlock				✓	✓
- Activate/deactivate MCP/MPP				✓	✓
- Different resolutions, e.g. SINUMERIK OP 010/OP 012				✓	✓
- Up to 2 operator panel fronts, each with a TCU on one NCU 710.3B PN				✓	✓
- Up to 4 operator panel fronts, each with a TCU on one NCU 720.3B PN/NCU 730.3B PN				✓	✓
- Up to 4 operator panel fronts, each with one TCU on a PCU plus 1 additional operator panel front directly on the PCU				✓	✓
- From 2/4 operator panel fronts, as many operator panel fronts as required due to intelligent suppression				✓	✓
• One or more TCUs selectable via several NCUs and PCUs				✓	✓
• One HMI switchable via several NCUs				✓	✓
• One integrated HMI and one SINUMERIK Operate simultaneously on one NCU	Only for loading/ unloading tools.			✓	✓
Operation via a VNC viewer				✓	✓
Machine control panels:					
• SINUMERIK MCP 310C PN		**6FC5303-0AF23-0AA1**		O	O
• SINUMERIK MCP 310 PN		**6FC5303-0AF23-1AA1**		O	O
• SINUMERIK MCP 483C PN		**6FC5303-0AF22-0AA1**		O	O
• SINUMERIK MCP 483 PN		**6FC5303-0AF22-1AA1**		O	O
• Accessories for machine control panels:					
- Emergency stop mushroom pushbutton, 22 mm (0.87 in), latching, red		**3SB3000-1HA20**		O	O
- Contact block		**3SB3400-0A**		O	O
- Cable set for additional control devices		**6FC5247-0AA35-0AA0**		O	O
- Spindle/rapid traverse override, electronic rotary switch, 1×16G, T=24, cap, button, pointer, rapid-traverse and spindle dials		**6FC5247-0AF12-1AA0**		O	O
- Feedrate/rapid traverse override, electronic rotary switch, 1x23G, T=32, cap, button, pointer, rapid-traverse and feedrate dials		**6FC5247-0AF13-1AA0**		O	O
Machine Push Button Panel MPP with machine control panel functions:					
• SINUMERIK MPP 310 IEH with port for SINUMERIK HT2/HT 8		**6FC5303-1AF20-8AA1**		O	O
• SINUMERIK MPP 483 IE		**6FC5303-1AF10-0AA0**		O	O
• SINUMERIK MPP 483 IEH with port for SINUMERIK HT2/HT 8		**6FC5303-1AF10-8AA0**		O	O
Interface for customer machine control panel SINUMERIK MCP Interface PN		**6FC5303-0AF03-0AA0**		O	O

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Operation

Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Operation (continued)					
Handheld units:					
• SINUMERIK HT 2 handheld terminal:		**6FC5303-0AA00-2AA0**		O	O
- Magnetic clamp for HT 2		**6FC5348-0AA08-0AA0**		O	O
- Holder for HT 2		**6FC5348-0AA08-1AA0**		O	O
- Slide-in labels, inscribable (3 A4 sheets)		**6FC5348-0AA08-2AA0**		O	O
• SINUMERIK HT 8 handheld terminal		**6FC5403-0AA20-0AA1**		O	O
• SINUMERIK HT 8 handheld terminal with handwheel		**6FC5403-0AA20-1AA1**		O	O
• Accessories for HT 8 handheld terminals:					
- Touch pen with holding loop		**6FC5348-0AA08-4AA0**		O	O
- Wall holder		**6AV6574-1AF04-4AA0**		O	O
• Accessories for HT 2 and HT 8 handheld terminals:					
- Connection module Basic PN without emergency stop override for mounting in the control cabinet with terminating plug		**6FC5303-0AA01-1AA0**		O	O
- PN Basic connection box without emergency stop override for mounting in the system		**6AV6671-5AE01-0AX0**		O	O
- PN Plus connection box with emergency stop override for mounting in the system		**6AV6671-5AE11-0AX0**		O	O
• Mini handheld unit with coiled connecting cable		**6FX2007-1AD03**		O	O
• Mini handheld unit with straight cable		**6FX2007-1AD13**		O	O
• Accessories for mini handheld units:					
- Connection kit		**6FX2006-1BG03**		O	O
Electronic handwheels:	Third handwheel can be operated as a contour handwheel.			2 (3)	2 (3)
• With 120 mm × 120 mm (4.72 in × 4.72 in) front panel, 5 V DC		**6FC9320-5DB01**		O	O
• With 76.2 mm × 76.2 mm (3 in × 3 in) front panel, 5 V DC		**6FC9320-5DC01**		O	O
• With 76.2 mm × 76.2 mm (3 in × 3 in) front panel, 24 V DC, HTL		**6FC9320-5DH01**		O	O
• Without front panel, without setting wheel, 5 V DC		**6FC9320-5DF01**		O	O
• Without front panel, with setting wheel, 5 V DC		**6FC9320-5DM00**		O	O
• Portable in housing, 2.5 m (8.2 ft) coiled cable, 5 V DC		**6FC9320-5DE02**		O	O
- Flange socket for portable handwheel		**6FC9341-1AQ**		O	O
Keyboards:					
• SINUMERIK KB 310C		**6FC5203-0AF21-0AA1**		O	O
• SINUMERIK KB 483C		**6FC5203-0AF20-0AA1**		O	O
• KBPC CG US standard PC keyboard		**6FC5203-0AC01-3AA0**		O	O
- Keyboard tray for standard PC keyboard		**6FC5247-0AA40-0AA0**		O	O
Electronic Key System EKS	Single license without data storage medium	**6FC5800-0AP53-0YB0**	**P53**	O	O

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Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK** **840DE sl**	 **840D sl**
Operation (continued)					
Memory and storage devices:					
• Card reader for CF/SD storage media with USB connection:		**6FC5335-0AA00-0AA0**		O	O
• CompactFlash card	Requirement: Card reader.				
- 2 GB		**6FC5313-5AG00-0AA2**		O	O
- 8 GB		**6FC5313-6AG00-0AA0**		O	O
• Industrial USB Hub 4	With SINUMERIK PCU 50.5.	**6AV6671-3AH00-0AX0**		O	O
• SIMATIC USB flash drive 16 GB	With SINUMERIK PCU 50.5.	**6ES7648-0DC60-0AA0**		O	O
Plain text display of user variables				✓	✓
Multi-channel display:					
• Number of machining channels				3	3
• Number of machining channels with SINUMERIK OP 019				4	4
Workpiece-related actual value system				✓	✓
Menu selection via the PLC				–	–
CNC program messages				✓	✓
Access protection				7 levels	7 levels
Operating software languages:					
• Additional languages	Software versions available on request.	**6FC5800-0AN00-0YB0**	**N00**	O	O
• Language switchover online				✓	✓
• Chinese Simplified, English, French, German, Italian, Spanish				✓	✓
• Installed languages, maximum	Unlimited for SINUMERIK PCU 50.5.			8	8
Language extensions for the operating software SINUMERIK Operate and SINUMERIK 840D sl:	On DVD-ROM Without license				
• Chinese Traditional, Czech, Danish, Dutch, Finnish, Hungarian, Indonesian, Japanese, Korean, Malayan, Polish, Portuguese/Brazilian, Romanian, Russian, Slovak, Slovene, Swedish, Thai, Turkish, Vietnamese	Software versions available on request.	**6FC5860-0YC40-0YA8**		O	O
• Other languages	On request.			O	O

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Monitoring functions

Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Monitoring functions					
Working area limitation				✓	✓
Limit switch monitoring Software and hardware limit switches				✓	✓
Position monitoring				✓	✓
Standstill monitoring				✓	✓
Clamping monitoring				✓	✓
2D/3D protection areas				✓	✓
Path length evaluation		**6FC5800-0AM53-0YB0**	**M53**	O	O
Contour monitoring				✓	✓
Contour monitoring with tunnel function		**6FC5800-0AM52-0YB0**	**M52**	O	O
Axis limitation from the PLC				✓	✓
Spindle speed limitation				✓	✓
Integrated spindle monitor (S-Monitor)	Requirements: WEISS spindle sensor module.	**6FC5800-0AP55-0YB0**	**P55**	O	O
Collision check:					
• Collision check in real time (collision avoidance)		**6FC5800-0AS02-0YB0**	**S02**	O	O
• Axis collision protection Run MyCC /PROT	Requirement: Loadable compile cycle.	**6FC5800-0AN06-0YB0**	**N06**	–	O
Extended stop and retract ESR, drive-autonomous		**6FC5800-0AM60-0YB0**	**M60**	O	O
Extended stop and retract ESR, CNC-controlled and drive-autonomous		**6FC5800-0AM61-0YB0**	**M61**	O	O
Tool monitoring and diagnostics:					
• Integrated tool monitoring and diagnostics IMD Light[1)] Run MyCC /IMD-L	Requirement: Loadable compile cycle.	6FC5800-0AN12-0YB0	N12	O	O
• Integrated tool monitoring and diagnostics IMD BASE[1)] Run MyCC /IMD	Requirement: Loadable compile cycle.	6FC5800-0AN13-0YB0	N13	O	O
• PROFIBUS tool and process monitoring Run MyCC /TPM-PB	Requirement: Loadable compile cycle.	**6FC5800-0AM62-0YB0**	**M62**	O	O

[1)] Not generally released compile cycle; requires machine-specific release process.
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Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK** **840DE sl**	 **840D sl**
Compensations					
Backlash compensation				✓	✓
Leadscrew error compensation				✓	✓
Measuring system error compensation				✓	✓
Feedforward control:					
• Velocity-dependent				✓	✓
• Acceleration-dependent				✓	✓
Weight counterbalance, electronic	Function of SINAMICS S120.			✓	✓
Temperature compensation				✓	✓
Quadrant error compensation				✓	✓
Circularity test				✓	✓
Optimized friction compensation		**6FC5800-0AS06-0YB0**	**S06**	O	O
Leadscrew error compensation, bidirectional	[1] Restricted functionality for export versions. The correctable tolerance band is restricted to 1 mm (0.04 in).	**6FC5800-0AM54-0YB0**	**M54**	O [1]	O
Sag compensation, multi-dimensional	[1] Restricted functionality for export versions. The correctable tolerance band is restricted to 1 mm (0.04 in).	**6FC5800-0AM55-0YB0**	**M55**	O [1]	O
Nodding compensation Run MyCC /NOCO	Requirement: Loadable compile cycle.	**6FC5800-0AN63-0YB0**	**N63**	–	O
Volumetric error compensation:					
• Spatial compensation for 3 axes Run MyCC /VCS-A3	Requirement: Loadable compile cycle.	**6FC5800-0AN15-0YB0**	**N15**	–	O
• Spatial compensation for 5 axes Run MyCC /VCS-A5	Requirement: Loadable compile cycle.	**6FC5800-0AN16-0YB0**	**N16**	–	O
• Spatial compensation for 5 axes plus Run MyCC /VCS-A5 plus	Requirement: Loadable compile cycle.	**6FC5800-0AN17-0YB0**	**N17**	–	O
• Spatial compensation for 2 axes[2] Run MyCC /VCS-ROT	Requirement: Loadable compile cycle.	6FC5800-0AN31-0YB0	N31	–	O
Vibration extinction Run MyCC /VIBX	Requirement: Loadable compile cycle.	**6FC5800-0AN11-0YB0**	**N11**	–	O
Magnetic cogging torque compensation[2] Run MyCC /COCO	Requirement: Loadable compile cycle.	6FC5800-0AN46-0YB0	N46	–	O

[2] Not generally released compile cycle; requires machine-specific release process.
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Programmable logic controller PLC

Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK** **840DE sl**	 **840D sl**
Programmable logic controller PLC					
Expansion of the PLC user memory by 128 KB each		**6FC5800-0AD10-0YB0**	**D11... D18**	O	O
PLC user memory, maximum				1536 KB	1536 KB
SIMATIC S7-300 PLC 317F-3PN/DP integrated				✓	✓
Processing time for:					
• bit operations, minimum				0.025 µs	0.025 µs
• word operations, minimum				0.03 µs	0.03 µs
SIMATIC STEP 7 programming language:					
• Ladder diagram LAD				O	O
• Function block diagram FBD				O	O
• Statement list STL				O	O
• Structured Control Language SCL	Add-on package for SIMATIC STEP 7.			O	O
• Continuous Function Chart CFC	Add-on package for SIMATIC STEP 7.			O	O
• GRAPH	Add-on package for SIMATIC STEP 7.			O	O
PLC programming with HiGraph	Add-on package for SIMATIC STEP 7.			O	O
Distributed I/O via PROFIBUS DP:	See Catalog ST 70 or Siemens Industry Mall.				
• Via integrated interface, data transfer rate up to				12 Mbit/s	12 Mbit/s
• Distributed PROFIBUS DP slaves, maximum number	In total on DP1 and DP2.			124	124
Distributed I/O via PROFINET:	See Catalog ST 70 or Siemens Industry Mall.				
• Via integrated interface, data transfer rate up to				100 Mbit/s	100 Mbit/s
• Distributed PROFINET slaves, maximum number				128	128
PROFINET CBA				✓	✓
PROFINET IO controller				✓	✓
PROFINET IO device				✓	✓
Number of digital inputs can be adjusted between 0 and 4049 bytes	Number = process image inputs.			1024 bytes	1024 bytes
Number of digital outputs can be adjusted between 0 and 4049 bytes	Number = process image outputs.			1024 bytes	1024 bytes
I/O inputs, number:	Logical address range inputs.			8192 bytes	8192 bytes
• Usable, maximum				5700 bytes	5700 bytes
I/O outputs, number:	Logical address range inputs.			8192 bytes	8192 bytes
• Usable, maximum				5700 bytes	5700 bytes
Bit memories, number				4096 bytes	4096 bytes
Timers, number				512	512
Counters, number				512	512

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Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK** **840DE sl**	 **840D sl**
Programmable logic controller PLC (continued)					
Number of FBs:				2048	2048
• Largest number per FB				7999	7999
Number of FCs:				2048	2048
• Largest number per FC				7999	7999
Number of DBs:				2048	2048
• Largest number				16000	16000
Cyclic function block				✓	✓
Time-controlled function blocks				✓	✓
SINUMERIK PP 72/48D PN I/O module	Quantity limited by I/O quantity structure of PLC.	**6FC5311-0AA00-0AA0**		O	O
SINUMERIK PP 72/48D 2/2A PN I/O module	Quantity limited by I/O quantity structure of PLC.	**6FC5311-0AA00-1AA0**		O	O
SINUMERIK Analog Drive Interface for 4 axes, ADI 4	No PROFIBUS certification.	**6FC5211-0BA01-0AA4**		O	O
Safety functions					
Safety functions for personnel and machine protection SINUMERIK Safety Integrated					
Safety functions integrated in the system:	Requirement: Safety Integrated with safe programmable logic SPL.			O	O
• Safe shutdown (stops)				O	O
• Safe braking ramp (SBR)				O	O
• Safe operating stop (SBH, SOS)				O	O
• Safe standstill (SH, STO)				O	O
• Safely limited speed (SLS)				O	O
• Safety-related output $n < n_x$				O	O
• Safe software limit switches (SE, SLP)				O	O
• Safe software cams (SN)				O	O
• Safety-related input/output signals (SGE/SGA)				O	O
• Safe programmable logic (SPL)				O	O
• Safe brake management (SBM)				O	O
- Safe Brake Control (SBC)				O	O
- Safe Brake Test (SBT)				O	O
• Safety-related communication via standard bus (PROFIsafe with SIMATIC ET 200S, SIMATIC ET 200pro)	See Catalog ST 70 or Siemens Industry Mall.			O	O
• Safe integration of sensors via PROFIBUS DP ASi F-Link	See Catalog IK PI or Siemens Industry Mall.			O	O

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Safety functions

Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK**	
				840DE sl	**840D sl**
Safety functions (continued)					
Safety functions for personnel and machine protection (continued)					
SINUMERIK Safety Integrated					
• SI-Basic for 1 NCU including 1 axis/spindle 4 SPL inputs and 4 SPL outputs		**6FC5800-0AM63-0YB0**	**M63**	O	O
• SI-Comfort for 1 NCU including 1 axis/spindle 64 SPL inputs and 64 SPL outputs		**6FC5800-0AM64-0YB0**	**M64**	O	O
• SI-High Feature for 1 NCU including 1 axis/spindle 192 SPL inputs and 192 SPL outputs	Requirement: NCU 720.3B PN or NCU 730.3B PN.	**6FC5800-0AS68-0YB0**	**S68**	O	O
• SI axis/spindle Extra for each additional axis/spindle Enhanced motion monitoring functions for 1 axis/spindle		**6FC5800-0AC70-0YB0**	**C71 ... C78**	O	O
• SI axis/spindle package Additional 15 axes/spindles Enhanced motion monitoring functions for 15 axes/spindles		**6FC5800-0AC60-0YB0**	**C61, C62**	O	O
• SI-Connect Enhanced safe communication to 16 connections		**6FC5800-0AS67-0YB0**	**S67**	O	O
SINUMERIK Safety Integrated plus:					
• SI axis/spindle Enhanced motion monitoring functions for 1 axis/spindle		**6FC5800-0AK00-0YB0**	**K01 ... K09**	O	O
• SI multi-axis package Enhanced motion monitoring functions for all axes/spindles activated in the SINUMERIK		**6FC5800-0AS61-0YB0**	**S61**	O	O
• SI-Logic Enabling of the F-PLC integrated in the SINUMERIK for failsafe programming		**6FC5800-0AS60-0YB0**	**S60**	O	O
Safety Integrated automated acceptance test performed with SinuCom NC-SI	Requirement: SinuCom NC.			O	O
Drive-autonomous safety functions for personnel and machine protection:					
• Safe Torque Off (STO)				✓	✓
• Safe Brake Control (SBC)				✓	✓
• Safe Stop 1 (SS1)				✓	✓

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Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK** **840DE sl**	 **840D sl**
Engineering					
Integrated commissioning for the SINUMERIK CNC control and the SINAMICS S120 drive system	Requirement: SINUMERIK Operate.			✓	✓
Commissioning functions for the SINAMICS S120 drive system Auto Servo Tuning AST, fully automatic speed and position controller optimization:	Requirement: SINUMERIK Operate.			✓	✓
• Single-axis optimization, incl. gantry axes				✓	✓
• Speed controller optimization, incl. current setpoint filter setting				✓	✓
• Position controller optimization, incl. speed setpoint filter setting				✓	✓
• Setting of feedforward control				✓	✓
• Overview of optimization results				✓	✓
• Closed circuit can be manually tuned according to Bode plot				✓	✓
• Optimization of path interpolation				✓	✓
• Assignment of torque feedforward control				✓	✓
• Complete user strategy, freely parameterizable				✓	✓
• Forward and backward navigation through optimization menus, re-optimization of speed controller				✓	✓
• Generation of reports, single axis and path interpolation				✓	✓
• Optimization project can be loaded and optimized offline on the PC				✓	✓
Trace	Requirement: SINUMERIK Operate.			✓	✓
Measuring functions for manual drive optimization				✓	✓
Circularity test	Requirement: SINUMERIK Operate.			✓	✓
Call Auto Servo Tuning from the part program AST call		**6FC5800-0AS10-0YB0**	**S10**	O	O
Series start-up via:					
• USB interface with storage medium, e.g. memory stick				✓	✓
• Network drive				✓	✓
• Programming of the CompactFlash card, offline or online	Requirement: Additional HMI user memory on CF card of NCU.			✓	✓
SINUMERIK Toolbox	On DVD-ROM of CNC software.			O	O
SIMATIC STEP 7 software on PC/PG for PLC start-up	See SIMATIC Catalog ST 70 or Siemens Industry Mall.			O	O
Series production and software upgrades SINUMERIK Integrate Create MyConfig		**6FC5862-2YC42-0YA0**		O	O
STARTER commissioning tool for SINAMICS and MICROMASTER	For topology and diagnostics.	6SL3072-0AA00-0AG0		–	–

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Engineering

Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Engineering (continued)					
SinuCom commissioning and service tools for SINUMERIK 840D sl	For commissioning and optimization.				
• Software for PC/PG	Single license without data storage medium	**6FC5250-0AY00-0AG1**		O	O
	Single license Current software version	**6FC5250-0AY00-0AG0**		O	O
	Single license SW version 7.7	**6FC5250-7AY00-7AG0**		O	O
	Software update service	**6FC5250-0AY00-0AG2**		O	O
	Update on order software version 7.7	**6FC5250-7AY00-7AG3**		O	O
• Commissioning software for SINAMICS S120				–	–
• SinuCom NC Dialog-based parameterization of machine data, management of series start-up files, integrated online help for functions, machine data and alarms				✓	✓
- SinuCom NC Trace Dynamic recording of variables and signals, optimization without additional oscilloscope				✓	✓
- SinuCom NC SI supports the machine manufacturer in automating the Safety Integrated acceptance test				✓	✓
• SinuCom FFS to generate an image for the PC card of the NCU of the SINUMERIK 840D sl				–	–
• SinuCom CFS to generate an image in Ext3 format for the CF card				✓	✓
• SinuCom ARC Reading, deleting, inserting and changing series start-up files				✓	✓
Alarms and messages				✓	✓
Action log can be activated for diagnostic purposes	Logbook for alarms and keys.			✓	✓
Machine logbook, electronic				✓	✓
Trace: CNC, PLC and drives				✓	✓
Easy Message (SMS service)				–	–
PLC status	Generally possible via SIMATIC STEP 7 on PG/PC.			✓	✓
SIMATIC STEP 7 for SINUMERIK hardware for service functions	With SINUMERIK PCU 50.5.				
	Single license without data storage medium	**6FC5252-0AY00-0AG1**		O	O
	Single license Current software version	**6FC5252-0AY00-0AG0**		O	O
	Single license Software version 5.5 SP3	**6FC5252-5AY01-5AG0**		O	O
Remote diagnostics, data transfer and start-up support SINUMERIK Integrate Access MyMachine:					
• Access MyMachine /P2P	License for NCU	**6FC5800-0AP30-0YB0**	**P30**	O	O
• Access MyMachine /P2P for PC/PG Always permits data transfer between PC/PG and CNCs.	Requirement for image transmission by modem: Access MyMachine /P2P.				
	Single license Current software version	**6FC5860-7YC00-0YA0**		O	O
	Single license Software version 4.7 SP1	**6FC5860-7YC44-1YA0**		O	O

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Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK** **840DE sl**	 **840D sl**
Engineering (continued)					
Program screens, operating areas and user interfaces SINUMERIK Integrate Create MyHMI /3GL	OEM contract required.				
• Programming package Create MyHMI /3GL Software for PC on DVD-ROM	Single license Current software version	**6FC5861-1YC00-0YA0**		O	O
	Single license Software version 4.7 SP2	**6FC5861-1YC44-2YA0**		O	O
	Single license without data storage medium	**6FC5861-1YP00-0YB0**		O	O
	Software update service	**6FC5861-1YP00-0YL8**		O	O
• Use extended HMI applications Run MyHMI /3GL		**6FC5800-0AP60-0YB0**	**P60**	O	O
• Create MyHMI /WinCC Software for PC on DVD-ROM	Single license Current software version	**6FC5861-3YC00-0YA0**		O	O
	Single license Software version 13 SP1	**6FC5861-3YC43-0YA0**		O	O
	Single license without data storage medium	**6FC5861-3YP00-0YB0**		O	O
	Software update service	**6FC5861-3YP00-0YL8**		O	O
• Expand operating area in SINUMERIK Operate Run MyHMI /WinCC	Requirement: SINUMERIK Operate on PCU or PC.	**6FC5800-0AP61-0YB0**	**P61**	O	O
• User interface on SIMATIC Panel Run MyHMI /SIMATIC OP for SIMATIC Comfort and Mobile Panels	Requirement: SIMATIC Panel.	**6FC5800-0AP03-0YB0**	**P03**	O	O
Integrate screens with variable layout in SINUMERIK Operate SINUMERIK Integrate Create MyHMI /PRO:	Single license Current software version	**6FC5867-3YC00-0YA8**		O	O
	Single license Software version 8.0	**6FC5867-3YC80-0YA8**		O	O
• Use standardized and freely configurable operating screens in SINUMERIK Operate for machine operation, Run MyHMI /PRO		**6FC5800-0AP47-0YB0**	**P47**	O	O
Integrate screens in SINUMERIK Operate SINUMERIK Integrate Run MyScreens:					
• Free screens				5	5
• > 5 screens, extended functions		**6FC5800-0AP64-0YB0**	**P64**	O	O

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Engineering – Industrial software for CNCs – Boost manufacturing productivity

Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Engineering (continued)					
Integrate OEM-specific solutions in the NC kernel SINUMERIK Integrate Create MyCC:					
• Openness in the NC kernel Create MyCC	OEM contract required.	On request.		–	O
• Openness in the NC kernel based on Customized Interface Create MyCCI	COA contract required.	On request.		O	O
• Openness in the NC kernel based on Interpreter Interface Create MyCCI /Interpreter	COA contract required.	On request.		O	O
• Execute compile cycles Run MyCC	Requirement: Create MyCC.	On request.		–	O
• Spatial compensation interface Run MyCCI /VCI	Requirement: Create MyCC or Create MyCCI or Create MyCCI /Interpreter.	**6FC5800-0AN74-0YB0**	**N74**	–	O
• Universal spatial compensation interface Run MyCCI /UCI	Requirement: Create MyCC or Create MyCCI.	**6FC5800-0AN75-0YB0**	**N75**	–	O
• COA interface for compiled OEM cycles Run MyCCI /COOC	Requirement: Create MyCC or Create MyCCI or Create MyCCI /Interpreter.	**6FC5800-0AM67-0YB0**	**M67**	O	O
Industrial software for CNCs					
SINUMERIK Integrate for production Software package	DVD-ROM without license Current software version	**6FC5864-0YD00-0AA8**		O	O
	DVD-ROM without license software version 4.1	**6FC5864-0YD41-0AA8**		O	O
Boost manufacturing productivity					
CNC program transfer SINUMERIK Integrate for production Manage MyPrograms:					
- Machine Connect	Single license for each machine current software version	**6FC5864-1AP00-0YB0**		O	O
	Single license for each machine software version 4.1	**6FC5864-1AP41-0YB0**		O	O
- Server Access	Software Update Service per year	**6FC5864-1AP00-0YM0**		O	O
Tool management function for individual machines and networked machines SINUMERIK Integrate for production Manage MyTools:					
• Manage MyTools – individual machine				✓	✓
• Manage MyTools – networked machine					
- Machine Connect	Single license for each machine current software version	**6FC5864-2AP00-0YB0**		O	O
	Single license for each machine software version 4.1	**6FC5864-2AP41-0YB0**		O	O
- Server Access	Software Update Service per year	**6FC5864-2AP00-0YM0**		O	O

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Description ✓ Basic version | O Option | – Not available	**Instructions** (footnotes are applicable line by line)	**Article No.** Type	**Order code**	**SINUMERIK** **840DE sl**	 **840D sl**
Boost manufacturing productivity (continued)					
Optimum utilization of the machinery SINUMERIK Integrate for production Analyze MyPerformance:					
- Machine Connect	Single license for each machine current software version	**6FC5864-3AP00-0YB0**		O	O
	Single license for each machine software version 4.1	**6FC5864-3AP41-0YB0**		O	O
- Server Access	Software Update Service per year	**6FC5864-3AP00-0YM0**		O	O
Boost service productivity					
Condition-oriented maintenance SINUMERIK Integrate for production Analyze MyCondition /Local:					
- Machine Connect	Single license for each machine current software version	**6FC5864-7LP00-0YB0**		O	O
	Single license for each machine software version 4.1	**6FC5864-7LP41-0YB0**		O	O
- Server Access	Software Update Service per year	**6FC5864-7LP00-0YM0**		O	O
SINUMERIK Integrate for production Analyze MyCondition /Cloud:					
• Control Monitors					
- Machine Connect	Single license for each machine current software version	**6FC5864-7AP00-0YB0**		O	O
	Single license for each machine software version 4.1	**6FC5864-7AP41-0YB0**		O	O
- Server Access	Software Update Service per year	**6FC5864-7AP00-0YM0**		O	O
• Diagnostic Data					
- Machine Connect	Single license for each machine current software version	**6FC5864-7BP00-0YB0**		O	O
	Single license for each machine software version 4.1	**6FC5864-7BP41-0YB0**		O	O
- Server Access	Software Update Service per year	**6FC5864-7BP00-0YM0**		O	O
• Maintenance Functions					
- Machine Connect	Single license for each machine current software version	**6FC5864-7CP00-0YB0**		O	O
	Single license for each machine software version 4.1	**6FC5864-7CP41-0YB0**		O	O
- Server Access	Software Update Service per year	**6FC5864-7CP00-0YM0**		O	O

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Boost service productivity – Automate production

Description ✓ Basic version | O Option | – Not available	Instructions (footnotes are applicable line by line)	Article No. Type	Order code	SINUMERIK 840DE sl	 840D sl
Boost service productivity (continued)					
Diagnostic functions in case of machine faults, workflow services, remote control and remote monitoring of machine control systems SINUMERIK Integrate for production Access MyMachine:					
• Single Access					
- Machine Connect	Single license for each machine current software version	**6FC5864-4AP00-0YB0**		O	O
	Single license for each machine software version 4.1	**6FC5864-4AP41-0YB0**		O	O
- Server Access	Software Update Service per year	**6FC5864-4AP00-0YM0**		O	O
• Conferencing					
- Machine Connect	Single license for each machine current software version	**6FC5864-4BP00-0YB0**		O	O
	Single license for each machine software version 4.1	**6FC5864-4BP41-0YB0**		O	O
- Server Access	Software Update Service per year	**6FC5864-4BP00-0YM0**		O	O
• Remote STEP 7					
- Machine Connect	Single license for each machine current software version	**6FC5864-4CP00-0YB0**		O	O
	Single license for each machine software version 4.1	**6FC5864-4CP41-0YB0**		O	O
- Server Access	Software Update Service per year	**6FC5864-4CP00-0YM0**		O	O
Interface for backing up data SINUMERIK Integrate for production Access MyBackup:	Interface for Solution Partners				
- Machine Connect	Single license for each machine current software version	**6FC5864-8AP00-0YB0**		O	O
	Single license for each machine software version 4.1	**6FC5864-8AP41-0YB0**		O	O
- Server Access	Software Update Service per year	**6FC5864-8AP00-0YM0**		O	O
Automate production					
Communication software for connecting a host computer to SINUMERIK 840D sl and SINUMERIK Operate SINUMERIK Integrate for production Create MyInterface	DVD-ROM without license Current software version	**6FC6000-7AC02-6AA8**		O	O
- Machine Connect	Single license for each machine	**6FC6000-7NF02-6YB0**		O	O
Open interface for connection to master computer SINUMERIK Integrate for production Access MyData	Requirements: Manage MyPrgrams, Manage MyTools, Analyze MyCondition.				
- Machine Connect	Single license for each machine current software version	**6FC5864-0DP00-0YB0**		O	O
	Single license for each machine software version 4.1	**6FC5864-0DP41-0YB0**		O	O
- Server Access	Software Update Service per year	**6FC5864-0DP00-0YM0**		O	O