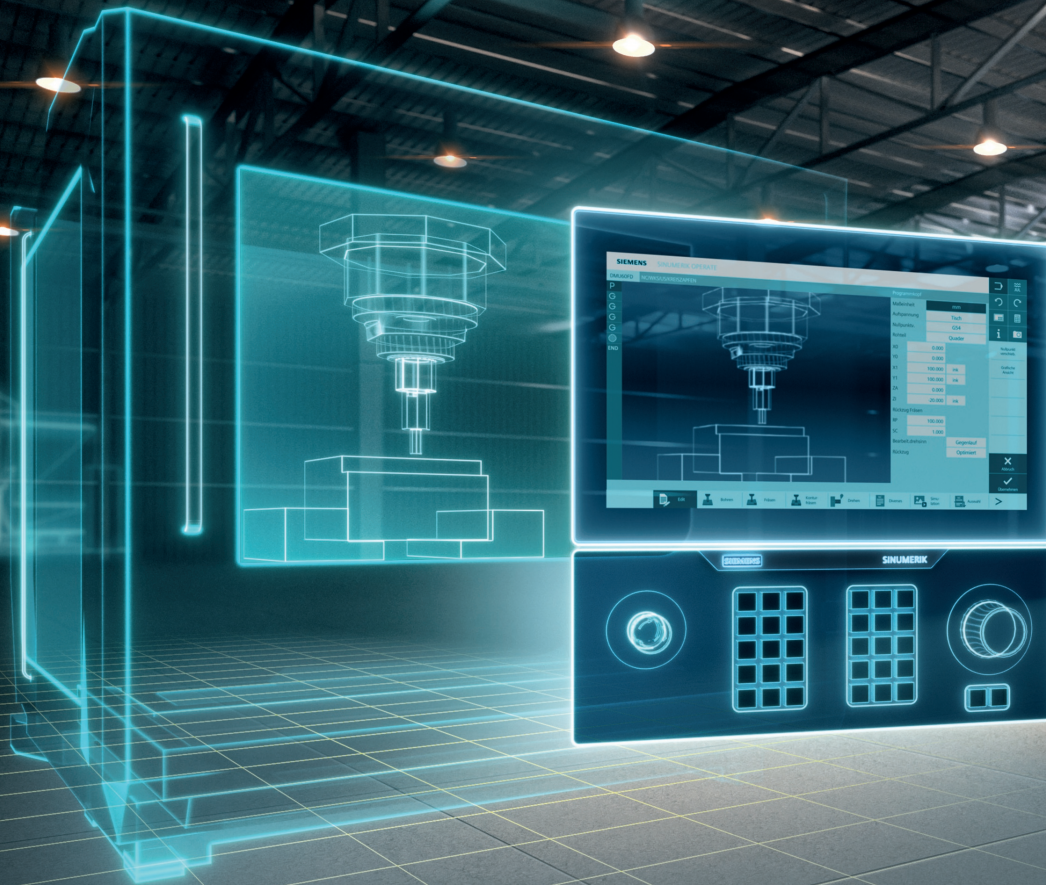


SIEMENS



Catalog
NC 63

Edition
March
2023

MOTION CONTROL

SINUMERIK ONE

Equipment for Machine Tools

Function overview

[siemens.com/sinumerik](https://www.siemens.com/sinumerik)

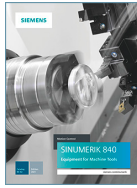
Related catalogs

Motion Control

SINUMERIK 840
Equipment for Machine Tools

NC 62

PDF (E86060-K4462-A101-A4-7600)



Motion Control

SINUMERIK MC
Equipment for woodworking, glass working and stone working machines, as well as special technologies

NC 64

PDF (E86060-K4464-A101-A2-7600)



Motion Control

SINUMERIK 828
Equipment for Machine Tools

NC 82

PDF (E86060-K4482-A101-B1-7600)



Motion Control Drives

SINAMICS S120 and SIMOTICS

D 21.4

E86060-K5521-A141-A1-7600



SIMATIC

Products for
Totally Integrated Automation

ST 70

PDF (E86060-K4670-A101-B9-7600)



SIMATIC HMI / PC-based Automation

Human Machine Interface Systems
PC-based Automation

ST 80/ST PC

PDF (E86060-K4680-A101-D0-7600)



Industrial Communication

SIMATIC NET

IK PI

E86060-K6710-A101-B8-7600



SITOP

SITOP
Power Supply

KT 10.1

E86060-D4001-A510-E0



SITRAIN

Digital Industry Academy

www.siemens.com/sitrain



SiePortal

Information and Ordering Platform
on the Internet:

www.siemens.com/industrymall



The SINUMERIK ONE glossary
is available in SiePortal at:



<https://mall.industry.siemens.com/mall/en/WW/catalog/products/10361265>

SINUMERIK ONE

Equipment for Machine Tools

Motion Control



Catalog NC 63 · Edition March 2023

Supersedes:
Catalog NC 63 · August 2022

Refer to SiePortal for current updates of this catalog:
www.siemens.com/industrymall

© Siemens 2023

Introduction SINUMERIK ONE

1

Function overview SINUMERIK ONE

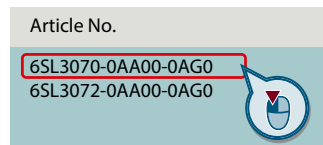
2

Appendix

Partners
Notes on software
Software licenses
Metal surcharges
Conditions of sale and delivery

3

Click on an Article No. in the catalog PDF to call it up in the Industry Mall and to obtain all the information.



Or directly on the internet, e.g.
www.siemens.com/product?6SL3070-0AA00-0AG0



The products and systems described in this catalog are manufactured/distributed under application of a certified quality management system in accordance with DIN EN ISO 9001. The certificate is recognized by all IQNet countries.

Introduction



1/2

1/2

1/3

1/3

SINUMERIK ONE

Overview

Benefits

More information

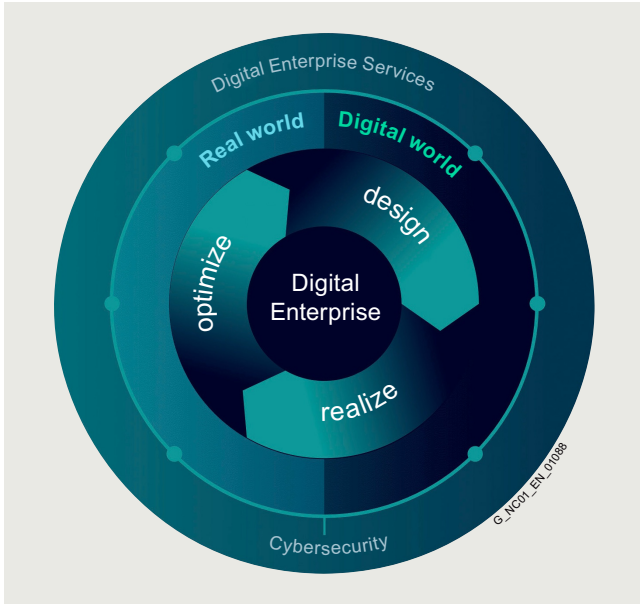
Introduction

SINUMERIK ONE

1

Overview

Perfectly integrated virtual and real CNC systems



Siemens is introducing its first *digital native CNC*, SINUMERIK ONE, and thus driving forward the digital transformation of the machine tool industry.

SINUMERIK ONE is the pioneering CNC system for highly productive machine tools. But it is also much more than a powerful hardware innovation.

Using its digital twin, it helps to simulate and test work processes completely virtually.

With SINUMERIK ONE virtual processes become the guiding factor for real-world management. The digital twin lowers the non-productive times of real machine tools to a minimum. Thanks to the seamless interplay of virtual and real worlds, SINUMERIK ONE can be used to easily implement innovations and execute new business models. SINUMERIK ONE therefore sets new standards in terms of digitalization, productivity and performance. It is the pioneering CNC for machine tools in increasingly digital production processes.

Machine manufacturers and machine operators alike benefit from the end-to-end digital twin of products, production and performance. SINUMERIK ONE supports consistent machine development based on the digital twin.

For machine manufacturers, closed-loop engineering has a significant advantage: The mechatronic development approach parallelizes mechanics, electronics and automation and combines these disciplines in a digital model.

The digital model then becomes the guiding factor in the development process. The digital twin is based on an end-to-end and comprehensive engineering tool landscape.

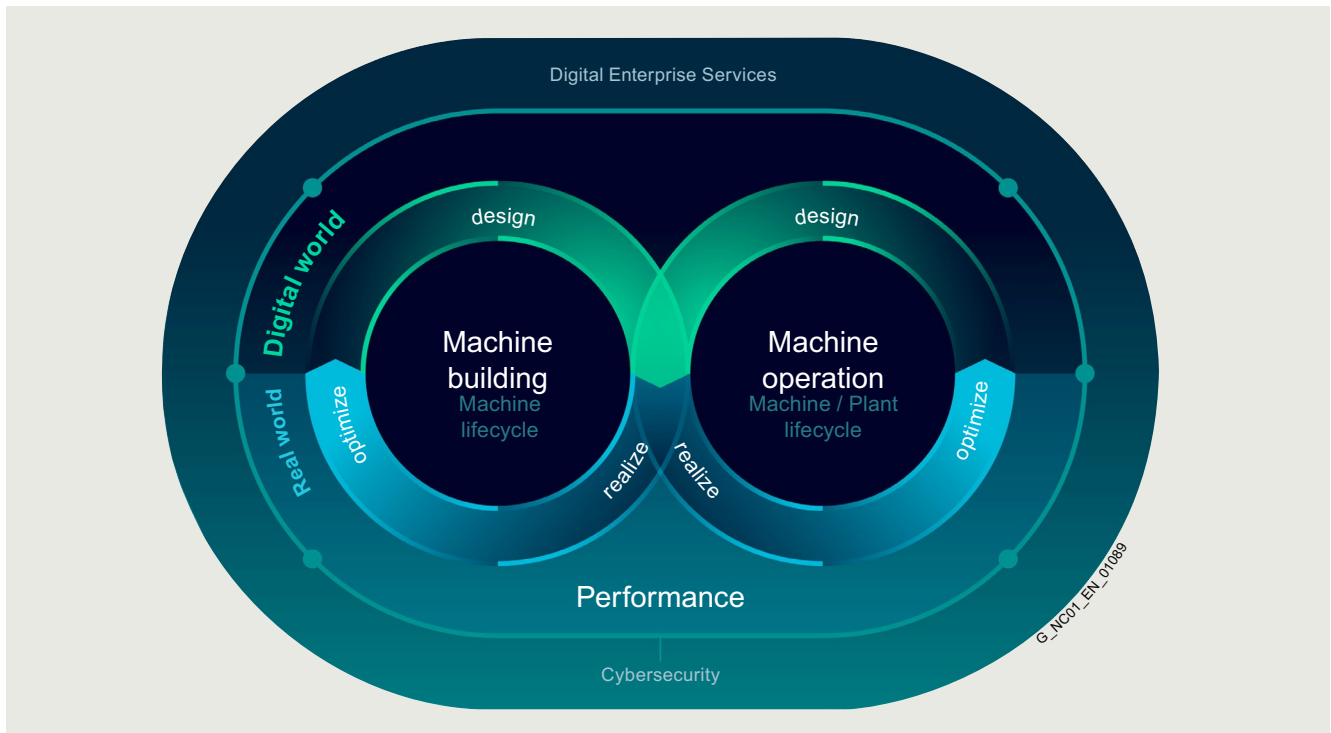
As a result, product development and hence time-to-market and commissioning times can be significantly reduced. Based on the virtual machine model, entirely new possibilities open up for machine manufacturers and machine operators alike. Accordingly, machine concepts and functions can be discussed in a targeted way even before the real hardware is available.

Thanks to realistic machining simulation, SINUMERIK ONE enables machine users to simulate the programming of workpieces and the setup and operation of machines entirely in a virtual environment. Personnel training can also take place on the digital twin, away from the real machine. The software and hardware innovations of SINUMERIK ONE and the possibility to create an end-to-end digital twin for products and production significantly accelerates machining processes.

The CNC system with integrated SIMATIC S7-1500F PLC is available as a cabinet-based and a panel-based version. SINUMERIK ONE can be fully integrated into the TIA Portal and opens up the possibilities of a highly efficient engineering framework for the machine manufacturer. The new control system also relies on Safety Integrated as a uniform Siemens industrial standard in the area of safety. SINUMERIK ONE implements the multi-stage defense-in-depth concept, the IT security already envisaged during the conception of the product.

Thanks to Create MyVirtual Machine and Run MyVirtual Machine, SINUMERIK ONE can be equipped with software for the digital twins of engineering and machining. Its end-to-end concept of the digital twin, its powerful hardware and integrated IT security make the SINUMERIK ONE the pioneering CNC that is driving the digital transformation of the machine tool industry.

Benefits



The new SINUMERIK ONE is specifically designed for smart manufacturing.

- The digital twin is an integral part of the CNC system; virtual and real CNC merge and complement each other
- Significant reduction in product development and market launch times thanks to the **digital first** strategy
- Improved networking and data communication capabilities
- Significant reduction in the duration of real commissioning thanks to virtual commissioning preparation
- Significantly increased CNC performance
- Significantly shorter downtimes and complete integration into the TIA Portal thanks to the integrated SIMATIC S7-1500F PLC

This means that the SINUMERIK ONE can be seamlessly integrated into digital solutions and workflows.

More information

More information on SINUMERIK ONE is available at

www.siemens.com/sinumerik-one

You will find an image of the new eCatalog NC 63 of the SINUMERIK ONE and the associated components in SiePortal in the section:

Market-specific solutions → Machine building → Machine Tools
→ SINUMERIK ONE

www.siemens.com/industrymall

Introduction

Notes

1

Function overview



2/2	SINUMERIK ONE
2/2	Control structure and configuration
2/4	Drives
2/7	Connectable motors
2/8	Connectable measuring systems
2/9	Drive functions
2/12	Axis functions
2/12	Spindle functions
2/13	Interpolations
2/15	Couplings
2/16	Transformations
2/18	Measuring
2/18	Technologies
2/22	Motion-synchronous actions
2/23	CNC programming language
2/25	Programming support
2/26	Simulation
2/27	Operating modes
2/28	Tools
2/30	Communication/data management
2/32	HMI components
2/40	Operation
2/43	Monitoring functions
2/45	Compensations
2/46	Programmable logic controller (PLC)
2/49	Safety functions
2/51	Engineering software
2/56	Boost productivity
2/58	Machine Services
2/61	Product Partner SINUMERIK Systems

Important ordering information:
Products, which only have a product ID or both a product ID and article number, can be exclusively ordered using the product ID. More information is available through your Siemens contact and on the internet at: <https://www.dex.siemens.com/?selected=industrialsoftware>

Click on the note [See SiePortal](#) in the catalog PDF to obtain more detailed information about each product.

The most important functions of the SINUMERIK ONE are listed in the function overview.
This gives you quick and selective access to the individual functions.

The information in the function overview of the SINUMERIK controls is based on the following software version:

Control	SW version
SINUMERIK ONE	6.15
SINUMERIK ONE	6.21

Click on an Article No. in the catalog PDF to call it up in the Industry Mall and to obtain all the information.

Article No.

6SL3070-0AA00-0AG0

6SL3072-0AA00-0AG0

Or directly on the internet, e.g. www.siemens.com/product?6SL3070-0AA00-0AG0

Function overview

SINUMERIK ONE

Control structure and configuration

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE							
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version			
Control structure and configuration										
SINUMERIK ONE For installation in the control cabinet:										
• NCU 1760 with PLC S7-1500F	6FC5317-6AA00-0AA0		–	–	–	O	O			
• NCU 1750 with PLC S7-1500F	6FC5317-5AA00-0AA0		–	–	O	–	O			
• NCU 1740 with PLC S7-1500F	6FC5317-4AA00-0AA0		–	O	–	–	O			
SINUMERIK ONE compact for installation in the panel:										
• PPU 1740-1900 with PLC S7-1500F – 19" blackline plus	6FC5317-4AA00-1DA0		O	–	–	–	O			
• PPU 1740-1500 with PLC S7-1500F – 15" blackline plus	6FC5317-4AA00-1CA0		O	–	–	–	O			
Software for SINUMERIK ONE NCU/PPU:										
• CNC software 31-3 <u>export version</u> , 6 languages (en, de, fr, it, es, zh)										
- on SD card, single license, current SW version	6FC5852-1YG00-0YA0		O	O	O	O	O			
- on SD card, without license, current SW version	6FC5852-1YG00-0YA8		O	O	O	O	O			
- on SD card, single license, SW version 6.21	NEW 6FC5852-1YG21-0YA0		O	O	O	O	O			
- on SD card, without license, SW version 6.21	NEW 6FC5852-1YG21-0YA8		O	O	O	O	O			
- on SD card, single license, SW version 6.15 SP2	6FC5852-1YG15-2YA0		O	O	O	O	O			
- on SD card, without license, SW version 6.15 SP2	6FC5852-1YG15-2YA8		O	O	O	O	O			
- without data storage medium, single license, current SW version	6FC5852-1YF00-0YB0		O	O	O	O	O			
• CNC software 31-3 <u>version with full functional scope</u> , 6 languages (en, de, fr, it, es, zh)										
- on SD card, single license, current SW version ¹⁾	6FC5852-1XG00-0YA0		O	O	O	O	–			
- on SD card, without license, current SW version ¹⁾	6FC5852-1XG00-0YA8		O	O	O	O	–			
- on SD card, single license, SW version 6.21 ¹⁾	NEW 6FC5852-1XG21-0YA0		O	O	O	O	–			
- on SD card, without license, SW version 6.21 ¹⁾	NEW 6FC5852-1XG21-0YA8		O	O	O	O	–			
- on SD card, single license, SW version 6.15 SP2 ¹⁾	6FC5852-1XG15-2YA0		O	O	O	O	–			
- on SD card, without license, SW version 6.15 SP2 ¹⁾	6FC5852-1XG15-2YA8		O	O	O	O	–			
- without data storage medium, single license, current SW version ¹⁾	6FC5852-1XF00-0YB0		O	O	O	O	–			
Software for SINUMERIK ONE NCU/PPU, SIMATIC IPC for SINUMERIK and PC:										
• CNC software export version toolbox and SINUMERIK Operate, on DVD-ROM, without license, update on order SW version 6.21	NEW 6FC5852-1YC21-0YA8		O	O	O	O	O			
• CNC software export version toolbox and SINUMERIK Operate, on DVD-ROM, without license, update on order SW version 6.15 SP2	6FC5852-1YC15-2YA8		O	O	O	O	O			
• CNC software export version toolbox and SINUMERIK Operate, on DVD-ROM, without license, update on order current SW version	6FC5852-1YC00-0YA8		O	O	O	O	O			
• SINUMERIK ONE export version CNC software with SINUMERIK Operate, Software Update Service	6FC5852-1YP00-0YL8		O	O	O	O	O			

¹⁾ Export approval required.

Function overview

SINUMERIK ONE

Control structure and configuration

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Control structure and configuration (continued)							
Software for SINUMERIK ONE NCU/PPU, SIMATIC IPC for SINUMERIK and PC (continued):							
• CNC software version with full functional scope toolbox and SINUMERIK Operate, on DVD-ROM, without license, update on order SW version 6.21¹⁾ • CNC software version with full functional scope toolbox and SINUMERIK Operate, on DVD-ROM, without license, update on order SW version 6.15 SP2¹⁾ • CNC software version with full functional scope toolbox and SINUMERIK Operate, on DVD-ROM, without license, update on order current SW version¹⁾ • SINUMERIK ONE version with full functional scope CNC software with SINUMERIK Operate, Software Update Service¹⁾	NEW	6FC5852-1XC21-0YA8	O	O	O	O	–
		6FC5852-1XC15-2YA8	O	O	O	O	–
		6FC5852-1XC00-0YA8	O	O	O	O	–
		6FC5852-1XP00-0YL8	O	O	O	O	–
Machining channels/mode groups:			✓1	✓1	✓1	✓1	✓
• Mode group , each additional	6FC5800-0BC00-0YB0	C01...C09	O	O	O	O	O
• Machining channel , each additional	6FC5800-0BC10-0YB0	C11...C19	O	O	O	O	O
• Maximum configuration			4	4	10	10	✓
Axes/spindles or positioning axes/auxiliary spindle CNC software			✓3	✓3	✓3	✓3	✓
• Axis/spindle , each additional	6FC5800-0BA00-0YB0	A01...A28	O	O	O	O	O
• Positioning axis/auxiliary spindle , each additional	6FC5800-0BB00-0YB0	B01...B28	O	O	O	O	O
• Multi-axis package (expansion to 31 axes/spindles and 10 channels)	6FC5800-0BM10-0YB0	M10	O	O	O	O	O
• Maximum configuration of axes			12	12	31	31	✓
• Maximum configuration of spindles			12	12	31	31	✓
• Configuration, axes incl. spindles per channel			12	12	20	20	✓
• PLC-controlled axis			✓	✓	✓	✓	✓
• PLC positioning axis via PROFINET			✓	✓	✓	✓	✓
• Maximum configuration axes/spindles, CNC + PLC-controlled:			20	20	40	50	✓
• Maximum configuration axes/spindles, PLC-controlled (n = CNC-controlled axes/spindles)			20-n	20-n	40-n	50-n	✓
Expansion of the drive control:							
• Numeric Control Extension NX10.3	6SL3040-1NC00-0AA0		O	O	O	O	O
• Numeric Control Extension NX15.3	6SL3040-1NB00-0AA0		O	O	O	O	O
• DRIVE-CLiQ ports			4	4	6	6	✓
• Maximum configuration NX			2	2	5	5	✓
• Maximum configuration NCU/PPU + NX + CU3x0-2			9	9	13	15	✓
• Maximum configuration CU3x0-2 (n = number of NX)			8-n	8-n	12-n	14-n	✓
• Maximum configuration SINAMICS S120 Combi (per 1 × S120 Combi, 1 × NCU/PPU or 1 × NX is required)			3	3	3	3	✓

¹⁾ Export approval required.

Function overview

SINUMERIK ONE

Drives

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Drives							
SINAMICS S120 booksize format Internal air cooling	See SiePortal						
• Single Motor Modules:	See SiePortal						
- C type		O	O	O	O	O	O
- D type		O	O	O	O	O	O
• Double Motor Modules:	See SiePortal						
- C type		O	O	O	O	O	O
- D type		O	O	O	O	O	O
SINAMICS S120 booksize format Active Line Modules Internal air cooling This product can be used to save energy.	See SiePortal	O	O	O	O	O	O
SINAMICS S120 booksize format Active Interface Modules to match the Active Line Modules	See SiePortal	O	O	O	O	O	O
SINAMICS S120 booksize format Smart Line Modules Internal air cooling	See SiePortal	O	O	O	O	O	O
SINAMICS S120 booksize format Basic Line Modules Internal air cooling	See SiePortal	O	O	O	O	O	O
SINAMICS S120 Hydraulic Linear Actor HLA module	6SL3420-2HX00-0AA0	O	O	O	O	O	O
SINAMICS S120 booksize format High Frequency Drive	6SL3125-1UE32-2AD0	O	O	O	O	O	O
SINAMICS S120 Combi Power Modules:	See SiePortal						
• 3-axis Power Modules	6SL3111-3VE2.-....	O	O	O	O	O	O
• 4-axis Power Modules	6SL3111-4VE2.-....	O	O	O	O	O	O
SINAMICS S120 booksize compact format as expansion for SINAMICS S120 Combi:	See SiePortal						
• Single Motor Modules	6SL3420-1TE1.-.AA1	O	O	O	O	O	O
• Double Motor Modules	6SL3420-2TE1.-.AA1	O	O	O	O	O	O
SINAMICS S120 chassis format Motor Modules Internal air cooling up to 490 A rated current (rated pulse frequency 2 kHz)	See SiePortal 6SL3320-1TE3.-.AA3	O	O	O	O	O	O
SINAMICS S120 chassis format Active Line Modules Internal air cooling up to 300 kW	6SL3330-7TE3.-.AA.	O	O	O	O	O	O
SINAMICS S120 chassis format Active Interface Modules to match the approved Active Line Modules	6SL3330-7TE3.-.AA.	O	O	O	O	O	O

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Drives (continued)							
SINAMICS G120 PM240-2 Power Modules standard variant Internal air cooling (Power Modules > 90 kW are not permissible) • Without integrated line filter: - 200 ... 240 V 1 AC/3 AC - 200 ... 240 V 3 AC - 380 ... 480 V 3 AC • With integrated line filter class A: - 200 ... 240 V 1 AC/3 AC - 200 ... 240 V 3 AC - 380 ... 480 V 3 AC	See SiePortal						
		6SL3210-1PB...-UL0	O	O	O	O	O
		6SL3210-1PC...-UL0	O	O	O	O	O
		6SL3210-1PE...-UL.	O	O	O	O	O
		6SL3210-1PB...-AL0	O	O	O	O	O
6SL3210-1PC...-AL0	O	O	O	O	O		
6SL3210-1PE...-AL.	O	O	O	O	O		
SINAMICS S120M Distributed servo drive	See SiePortal	O	O	O	O	O	
SINAMICS S120 CU310-2 PN Control Unit for positioning tasks of single-axis drives via PROFINET on PLC S7-1500 of the SINUMERIK ONE (no additional CompactFlash Card required in the CU)	6SL3040-1LA01-0AA0	O	O	O	O	O	
SINAMICS S120 CU320-2 PN Control Unit for positioning tasks via PROFINET on PLC S7-1500 of the SINUMERIK ONE (no additional CompactFlash Card required in the CU)	6SL3040-1MA01-0AA0	O	O	O	O	O	
CompactFlash card with SINAMICS firmware, license for basic performance (FW version 4.8)	6SL3054-0EJ00-1BA0	O	O	O	O	O	
CompactFlash card with SINAMICS firmware, license incl. performance expansion firmware option (FW version 4.8)	6SL3054-0EJ01-1BA0	O	O	O	O	O	
CUA31 Control Unit Adapter	6SL3040-0PA00-0AA1	O	O	O	O	O	
SINAMICS S220 booksize format							
• Smart Line Module 16 kW, C-type Internal air cooling	6SL5130-6UE21-6AC0	O	O	O	O	O	
• Smart Line Module 16 kW, D-type Internal air cooling	6SL5130-6UE21-6AD0	O	O	O	O	O	
• Smart Line Module 24 kW, C-type Internal air cooling	6SL5130-6UE22-4AC0	O	O	O	O	O	
• Smart Line Module 24 kW, D-type Internal air cooling	6SL5130-6UE22-4AD0	O	O	O	O	O	
SINAMICS S110 CU305 PN Control Unit for positioning tasks via PROFINET on PLC S7-1500 of the SINUMERIK ONE	6SL3040-0JA01-0AA0	O	O	O	O	O	

Function overview

SINUMERIK ONE

Drives

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Drives (continued)							
SINAMICS S120 Sensor Modules Cabinet-Mounted:							
• SMC10 for resolvers	6SL3055-0AA00-5AA3		O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	O
• SMC20 for sin/cos 1 V _{pp} encoders or absolute encoders: EnDat	6SL3055-0AA00-5BA3		O	O	O	O	O
• SMC30 for TTL/HTL encoders or SSI combi encoders	6SL3055-0AA00-5CA2		O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	O
• SMC40 for EnDat 2.2 encoders	6SL3055-0AA00-5DA0		O	O	O	O	O
SINAMICS S120 Sensor Modules External:							
• SME20 for sin/cos 1 V _{pp} encoders, IP67 degree of protection	6SL3055-0AA00-5EA3		O	O	O	O	O
• SME25 for EnDat 2.1 absolute encoders, IP67 degree of protection	6SL3055-0AA00-5HA3		O	O	O	O	O
• SME120 for sin/cos 1 V _{pp} encoders; PTC and KTY inputs with safe electrical isolation, IP67 degree of protection	6SL3055-0AA00-5JA3		O	O	O	O	O
• SME125 for EnDat 2.1 absolute encoders; PTC and KTY inputs with safe electrical isolation; IP67 degree of protection	6SL3055-0AA00-5KA3		O	O	O	O	O
SINAMICS S120 TB30 Terminal Board	6SL3055-0AA00-2TA0		–	–	–	–	–
SINAMICS S120 TM Terminal Modules:							
• TM15 for connecting probes and cam outputs	6SL3055-0AA00-3FA0		O	O	O	O	O
• TM31 with digital and analog I/Os	6SL3055-0AA00-3AA1		O	O	O	O	O
• TM41 with digital and analog I/Os as well as incremental encoder emulation	6SL3055-0AA00-3PA1		O	O	O	O	O
• TM120 for connecting PTC and KTY inputs	6SL3055-0AA00-3KA0		O	O	O	O	O
SINAMICS S120 VSM10 Voltage Sensing Module (for SINAMICS S120 Chassis format integrated)	6SL3053-0AA00-3AA1		O	O	O	O	O
AM600 adapter module	6SL3555-2BC10-0AA0		O	O	O	O	O
SINAMICS S120 DRIVE-CLiQ Hub Modules:							
• DMC20	6SL3055-0AA00-6AA1		O	O	O	O	O
• DME20, IP67	6SL3055-0AA00-6AB0		O	O	O	O	O
DRIVE-CLiQ extension	6SL3555-0AA00-6AB0		O	O	O	O	O
Hybrid cabinet bushing	6SL3555-2DA00-0AA0		O	O	O	O	O
Voltage protection for motors SIMOTICS M-1PH8/-1FE1/-1FE2/-2SP1, external via VPM 120 Voltage Protection Module for rated motor current 120 A, max. (see also SIMOTICS motors)	6SN1113-1AA00-1JA1		O	O	O	O	O
Voltage protection for motors SIMOTICS M-1PH8/-1FE1/-1FE2/-2SP1, external via VPM 200 Voltage Protection Module for rated motor current 200 A, max. (see also SIMOTICS motors)	6SN1113-1AA00-1KA1		O	O	O	O	O
Voltage protection for motors SIMOTICS M-1PH8/-1FE1/-1FE2/-2SP1, external via VPM 200 DYNAMIC Voltage Protection Module for rated motor current 200 A, max. (see also SIMOTICS motors)	6SN1113-1AA00-1KC1		O	O	O	O	O

¹⁾ No SINUMERIK Safety Integrated.

Function overview

SINUMERIK ONE

Connectable motors

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE							
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version			
Connectable motors										
Feed motors, synchronous motors: • SIMOTICS S-1FT2 (2 cable connections) • SIMOTICS S-1FT7 • SIMOTICS S-1FK7 • SIMOTICS S-1FK2 (2 cable connections) • SIMOTICS S-1FT7 with SP+ planetary gearbox • SIMOTICS S-1FK7 with SP+ planetary gearbox • SIMOTICS S-1FK7 with NP planetary gearbox • SIMOTICS S-1FK7-DYA G2 (integrated gearbox) • SIMOTICS S-1FG1 geared motors	See SiePortal See SiePortal See SiePortal See SiePortal See SiePortal See SiePortal See SiePortal See SiePortal See SiePortal		O	O	O	O	O			
Main spindle motors, asynchronous (induction) motors: • SIMOTICS M-1PH3 • SIMOTICS M-1PH8 • SIMOTICS M-1PH2 (SH 90/SH 110) • SIMOTICS M-1FE2 asynchronous	See SiePortal See SiePortal See SiePortal See SiePortal		O	O	O	O	O			
Main spindle motors, synchronous motors: • SIMOTICS M-1PH8 • SIMOTICS M-1FE1 • SIMOTICS M-1FE2 • SIMOTICS M-2SP1	See SiePortal See SiePortal See SiePortal See SiePortal		O	O	O	O	O			
Linear motors, synchronous motors: • SIMOTICS L-1FN3	See SiePortal		O	O	O	O	O			
Torque motors, synchronous motors: • SIMOTICS T-1FW6 • SIMOTICS T-1FW6 High Speed - Frame size 1FW6092 - Frame size 1FW6132 - Frame size 1FW6152 - Frame size 1FW6192 - Frame size 1FW6232 • SIMOTICS T-1FW67 external rotor • SIMOTICS T-1FW68 segment motor	See SiePortal See SiePortal See SiePortal See SiePortal See SiePortal See SiePortal See SiePortal See SiePortal See SiePortal		O	O	O	O	O			

Function overview

SINUMERIK ONE

Connectable measuring systems

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Connectable measuring systems							
SINAMICS S120 DRIVE-CLiQ on SIMOTICS motor with resolver			✓	✓	✓	✓	✓
SINAMICS S120 DRIVE-CLiQ on SIMOTICS motor with sin/cos 1 V _{pp}			✓	✓	✓	✓	✓
SINAMICS S120 DRIVE-CLiQ on SIMOTICS motor with EnDat 2.1			✓	✓	✓	✓	✓
Measuring systems per axis, maximum number			2	2	2	2	✓
Absolute encoders, with DRIVE-CLiQ interface (via SINAMICS S120)			✓	✓	✓	✓	✓
Absolute encoders, integrated in the motors SIMOTICS S-1FT7/-1FK7/-1FK2, SIMOTICS M-1PH8/-1PH3, via SINAMICS Sensor Module motor-integrated			✓	✓	✓	✓	✓
Absolute encoders, with SSI interface, via SINAMICS SMC30 Sensor Module			✓	✓	✓	✓	✓
Incremental encoders, integrated in the motors SIMOTICS S-1FT7/-1FK7, SIMOTICS M-1PH8, via SINAMICS Sensor Module motor-integrated			✓	✓	✓	✓	✓
Resolvers, integrated in the motors SIMOTICS S-1FK7, via SINAMICS Sensor Module motor-integrated			✓	✓	✓	✓	✓
Resolvers, as external machine encoders, via SINAMICS SMC10 Sensor Module			✓	✓	✓	✓	✓
Rotary measuring systems with RS422 (TTL), via SINAMICS SMC30 Sensor Module			✓	✓	✓	✓	✓
Rotary measuring systems with sin/cos 1 V _{pp} , via SINAMICS SMC20/SME20 Sensor Module			✓	✓	✓	✓	✓
Rotary measuring systems with distance-coded reference marks, via SINAMICS SMC20/SME20 Sensor Module			✓	✓	✓	✓	✓
Rotary measuring systems with EnDat 2.1, via SINAMICS SMC20/SME25 Sensor Module			✓	✓	✓	✓	✓
Rotary measuring systems with EnDat 2.2, via SINAMICS SMC40 Sensor Module			✓	✓	✓	✓	✓
Linear scale LMS with sin/cos 1 V _{pp} , via SINAMICS SMC20/SME20 Sensor Module			✓	✓	✓	✓	✓
Linear scale LMS with distance-coded reference marks, via SINAMICS SMC20/SME20 Sensor Module			✓	✓	✓	✓	✓
Linear scale LMS with EnDat 2.1, via SINAMICS SMC20/SME25 Sensor Module			✓	✓	✓	✓	✓
Linear scale LMS with EnDat 2.2, via SINAMICS SMC40 Sensor Module			✓	✓	✓	✓	✓

Function overview

SINUMERIK ONE

Drive functions

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Drive functions							
Closed-loop control:			✓	✓	✓	✓	✓
• Servo control			✓	✓	✓	✓	✓
• Vector control			–	–	–	–	–
• V/f control			✓	✓	✓	✓	✓
• Ability to mix servo/V/f control on an NCU/PPU, NX or CU, for example			–	–	–	–	–
• Setting the pulse frequency grid in fine steps (3.2 kHz/4 kHz/5.33 kHz/6.4 kHz/8 kHz)			✓ ¹⁾	✓ ¹⁾	✓ ¹⁾	✓ ¹⁾	✓
• Sine-wave filter			–	–	–	–	–
• Unit switchover US/SI etc.			–	–	–	–	–
• Direction reversal without changing the setpoint			–	–	–	–	–
• Technology controller			–	–	–	–	–
• k_T estimator			–	–	–	–	–
• $k_T(iq)$ 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 braking:							
- Internal			✓	✓	✓	✓	✓
- External			✓	✓	✓	✓	✓
• DC braking			✓	✓	✓	✓	✓
Internal motor winding switchover			✓	✓	✓	✓	✓
Motor changeover			✓ ²⁾	✓ ²⁾	✓ ²⁾	✓ ²⁾	✓
Suspended axis/electronic weight counterbalance			✓	✓	✓	✓	✓
Dynamic energy management (DC link voltage management)			✓	✓	✓	✓	✓
Operating hours counter			✓	✓	✓	✓	✓
I^2t motor monitoring			✓	✓	✓	✓	✓
Automatic restart mechanism (servo/infeed)			–	–	–	–	–
Technology function: Friction characteristic			–	–	–	–	–
Drive Control Chart DCC		6AU1810-1HA24-1X.0	– ³⁾	– ³⁾	– ³⁾	– ³⁾	–

¹⁾ Requires current control cycle of 62.5 µs or 31.25 µs in some cases.

²⁾ Note general conditions.

³⁾ Not possible for integrated drives.

Function overview

SINUMERIK ONE

Drive functions

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Drive functions (continued)							
Star-delta changeover for spindle motors can be controlled via the PLC (FC17) The function can be used to save energy.			✓	✓	✓	✓	✓
Simulated motor encoder Operation of a motor without encoder on SINUMERIK ONE SW license for 1 axis Note: The achievable accuracies must be observed.	6FC5800-0BD30-0YB0	D31...D39	O	O	O	O	O
SINAMICS Technology Extension: CHATDTEC (Chatter Detection) ¹⁾ Chatter detection in the drive	6SL3077-0AA03-3AH0		O	O	O	O	O
SINAMICS Technology Extension: DCDCCONV (DC-DC Converter) Operation of a SINAMICS S120 Motor Module in booksize format as a DC-DC converter, e.g. for implementing DC power supply for external energy storage The function can be used to save energy.	6SL3077-0AA02-0AH0		O	O	O	O	O
SINAMICS Technology Extension: DYNEGMA (Dynamic Energy Management) Dynamic energy management during operation of SINAMICS S120 drives The function can be used to save energy.	6SL3077-0AA03-0AH0		O	O	O	O	O
SINAMICS Technology Extension: FASTBRK (Fast Brake Reaction for Coupled Axes) Fast braking and error response integrated in the drive for mechanically coupled axes	6SL3077-0AA01-7AH0		O	O	O	O	O
SINAMICS Technology Extension: POLYGON (Polygonal Line) Signal generator as value table, e.g. for test stands	6SL3077-0AA00-7AH0		O	O	O	O	O
SINAMICS Technology Extension: ROTDTEC (Rotation Detection) ¹⁾ Rotation detection to determine the speed	6SL3077-0AA02-5AH0		O	O	O	O	O
SINAMICS Technology Extension: SERVCOUP (Servo Coupling) Coupling of multiple SINAMICS S120 Motor Modules, e.g. allowing motors to be operated, which due to their size and/or type of construction, cannot be operated from a single SINAMICS power unit (e.g. segment motors).	6SL3077-0AA00-8AH0		O	O	O	O	O
SINAMICS Technology Extension: SETPGEN (Setpoint Generator) ¹⁾ Setpoint signal generator in drive cycles	6SL3077-0AA00-3AH0		O	O	O	O	O
SINAMICS Technology Extension: SIVALU (Signal Evaluation) ¹⁾ Fast signal evaluation in drive cycles	6SL3077-0AA01-4AH0		O	O	O	O	O
SINAMICS Technology Extensions In addition to the already available SINAMICS Technology Extensions, further drive-related functions can be developed in partnership with Siemens on request.	On request		O	O	O	O	O

¹⁾ Software option that is not generally released. Requires machine-specific release process.
Please contact your local Siemens sales office or Regional Company.

Function overview

SINUMERIK ONE

Drive functions

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Drive functions (continued)							
Basic positioner			_1)	_1)	_1)	_1)	–
2 command data sets			–	–	–	–	–
Parallel connection of SINAMICS S120 Motor Modules			–	–	–	–	–
Maximum configuration valid for standard PROFIBUS DP cycle for:							
• Current/speed controller cycle 125 µs:							
- Axes/spindles			12	12	31	31	✓
- Axes/spindles per NCU/PPU or NX			6	6	6	6	✓
- Motor measuring systems and direct measuring systems per NCU or NX			12	12	12	12	✓
• Current/speed controller cycle 62.5 µs:							✓
- Axes/spindles			11	11	11	11	✓
- Axes/spindles per NCU/PPU or NX			3	3	3	3	✓
• Current/speed controller cycle 31.25 µs:							✓
- Axes/spindles			1	1	1	1	✓
• SINAMICS S120 chassis format Motor Modules per NCU/PPU or NX			6	6	6	6	✓
Current/speed controller cycle:							
• SINAMICS S120 booksize format, minimum			31.25 µs	31.25 µs	31.25 µs	31.25 µs	✓
• SINAMICS S120 chassis format, minimum			125 µs	125 µs	125 µs	125 µs	✓
• Maximum			250 µs	250 µs	250 µs	250 µs	✓
Drive data sets, maximum number			32	32	32	32	✓
Motor data sets, maximum number			16	16	16	16	✓
Encoder data sets, maximum number			8	8	8	8	✓

¹⁾ Not possible for integrated drives. Included in basic scope on external SINAMICS S120 drives.

Function overview

SINUMERIK ONE

Axis functions – Spindle functions

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Axis functions							
Traversing range			± 9 decades	± 9 decades	± 9 decades	± 9 decades	✓
Rotary axis, turning endlessly			✓	✓	✓	✓	✓
Velocity, maximum			300 m/s	300 m/s	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			✓	✓	✓	✓	✓
Jerk adaptation	6FC5800-0BS22-0YB0	S22	O	O	O	O	O
Travel to fixed stop			✓	✓	✓	✓	✓
Travel to fixed stop with Force Control	6FC5800-0BM01-0YB0	M01	O	O	O	O	O
Setpoint exchange	6FC5800-0BM05-0YB0	M05	O	O	O	O	O
Tangential control	6FC5800-0BM06-0YB0	M06	O	O	O	O	O
Position switching signals/cam sequencer	6FC5800-0BM07-0YB0	M07	O	O	O	O	O
• Pairs, maximum number			16	16	16	16	
Advanced Position Control ECO	6FC5800-0BM12-0YB0	M12	O	O	O	O	O
Advanced Position Control	6FC5800-0BM13-0YB0	M13	O	O	O	O	O
Axis container (within 31 axes)			✓	✓	✓	✓	✓
Link axes (axis container distributed among several NCUs):			–	–	–	–	–
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	10 ⁶ · 10 ⁻⁴	10 ⁶ · 10 ⁻⁴	✓
Gear stages			5	5	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			✓	✓	✓	✓	✓
Run MyCC /SANS ¹⁾ Scalable analog setpoint Requirement: Loadable compile cycle	6FC5800-0BN48-0YB0	N48	O	O	O	O	–

¹⁾ Compile cycle that is not generally released. Requires machine-specific release process.
Please contact your local Siemens sales office or Regional Company.

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Interpolations							
Typical block change times (block processing times) Requirement: Use of the compressor Note: The planned utilization of the system is under the control of the machine manufacturer. When various CNC options/functions are combined, the CNC can reach its performance limit. The remedy here is to use the next largest hardware. The machine manufacturer must ensure by configuration that the functions/options used can be executed on the NCU.			0.7 ms	0.7 ms	0.3 ms	0.2 ms	✓
Floating point accuracy			✓ 80 bits	✓ 80 bits	✓ 80 bits	✓ 80 bits	✓
Linear interpolating axes:			4	4	4	4	✓
• Maximum number			12	12	20	20	✓ ¹⁾
Circle via center point and end point			✓	✓	✓	✓	✓
Circle via interpolation point			✓	✓	✓	✓	✓
Helical interpolation			2D+6	2D+6	2D+6	2D+6	✓ ²⁾
Universal interpolator NURBS (non-uniform rational B splines)			✓	✓	✓	✓	✓
Continuous-path mode with programmable rounding clearance			✓	✓	✓	✓	✓
Compressor for 3-axis/5-axis machining			✓	✓	✓	✓	✓
Run MyCC /RESU Continue machining at the contour, e.g. for laser machining (retrace support) Requirement: Loadable compile cycle, cross-mode actions ASUB and synchronized actions (option M43)	6FC5800-0BM24-0YB0	M24	O	O	O	O	O
Spline interpolation (A, B and C splines)	6FC5800-0BS16-0YB0	S16	O	O	O	O	O
Polynomial interpolation	6FC5800-0BM18-0YB0	M18	O	O	O	O	O
Involute interpolation	6FC5800-0BM21-0YB0	M21	O	O	O	O	O
Multi-axis interpolation > 4 interpolating axes	6FC5800-0BM15-0YB0	M15	O	O	O	O	–
Run MyCC /CRIP ⁴⁾ Crank interpolation Requirement: Loadable compile cycle	6FC5800-0BN04-0YB0	N04	O	O	O	O	–
Motion control:							
Advanced Surface	6FC5800-0BS07-0YB0	S07	O	O	O	O	O
Top Surface ⁵⁾ Requirement: Advanced Surface (option S07)	6FC5800-0BS17-0YB0	S17	O ³⁾	O ³⁾	O	O	O
Top Speed plus	6FC5800-0BS62-0YB0	S62	O ³⁾	O ³⁾	O	O	O
Path acceleration limitation Limitation of the path acceleration	6FC5800-0BP26-0YB0	P26	O	O	O	O	O
Reduced dynamics / gentle mode Intelligent adaptation of the machine's dynamic response The function can be used to save energy. Requirement: CNC software ≥ SW version 6.20	NEW 6FC5800-0BS65-0YB0	S65	O	O	O	O	O
Advanced Rapid Movement (COMPPATH) Intelligent adaptation of the machine paths outside of the workpiece Requirement: CNC software ≥ SW version 6.20	NEW 6FC5800-0BS64-0YB0	S64	O	O	O	O	O

¹⁾ Restricted functionality of the export version:
The number of simultaneously traversing axes is restricted to 4.

²⁾ Restricted functionality of the export version: 2D+2

³⁾ From CNC SW version 6.21, 5-axis function is possible (otherwise only 3-axis).

⁴⁾ Compile cycle that is not generally released. Requires machine-specific release process. Please contact your local Siemens sales office or Regional Company.

⁵⁾ Not released in combination with Protect MyMachine /3D STL (option S02)

Function overview

SINUMERIK ONE

Interpolations

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Interpolations (continued)							
Run MyCC /PRIO ¹⁾ Path-related switching signals Requirement: Loadable compile cycle	6FC5800-0BN88-0YB0	N88	○	○	○	○	○
Run MyCC /AJET Setting of the jerk filter time Intelligent adaptation of the machine's dynamic response Requirement: Loadable compile cycle	MCS21101		○	○	○	○	–

¹⁾ Compile cycle that is not generally released. Requires machine-specific release process. Please contact your local Siemens sales office or Regional Company.

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Couplings							
Pair of synchronized axes (gantry axes):	6FC5800-0BM02-0YB0	M02	O	O	O	O	O
• Maximum number			8	8	8	8	✓
Main axis/sub axis for drives	6FC5800-0BM03-0YB0	M03	O	O	O	O	O
Generic couplings (Electronic gear):							
• CP-Standard: - 4 axis pairs in simultaneous coupled motion			✓	✓	✓	✓	✓
• CP-Static: - 1 × simple synchronous spindle, coupling ratio 1:1, no multi-edge machining			6FC5800-0BM75-0YB0	M75	O	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			6FC5800-0BM72-0YB0	M72	O	O	O ¹⁾
• 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 ta- ble interpolation, without cascading			6FC5800-0BM73-0YB0	M73	O	O	O ¹⁾
• 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 gears for 3 leading axes with curve table interpolation, with cascading and - 5 × electronic gears for 5 leading axes with curve table interpolation, with cascading			6FC5800-0BM74-0YB0	M74	O	O	O ¹⁾
Electronic transfer CP Contains the function: I/O interfacing via PROFIBUS DP Contains the options: • Position switching signals/cam sequencer (option M07) • Polynomial interpolation (option M18) • Generic coupling CP-Comfort (option M73) • Cross-mode actions ASUB and synchronized actions (option M43) • Synchronized actions stage 2 (option M36) • Pairs of synchronized axes (gantry axes) (option M02)	6FC5800-0BM76-0YB0	M76	–	O	O	O	O ¹⁾
Run MyCC /AMOV ²⁾ Variable-based axis movement Requirement: Loadable compile cycle	6FC5800-0BN62-0YB0	N62	O	O	O	O	–

¹⁾ Restricted functionality of the export version:
The number of simultaneously traversing axes is restricted to 4.

²⁾ Compile cycle that is not generally released. Requires machine-specific release process. Please contact your local Siemens sales office or Regional Company.

Function overview

SINUMERIK ONE

Transformations

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Transformations							
Cartesian Point-to-Point travel PTP			✓	✓	✓	✓	✓
Concatenated transformations (inclined axis TRAANG after TRAORI/ cardanic milling head/TRANSMIT/TRACYL)			✓	✓	✓	✓	✓
Generic transformation Requirement: Machining package 5 axes (option M30) or SINUMERIK ONE Dynamics 5 axes (option S43)			✓	✓	✓	✓	–
TRANSMIT/cylinder surface transformation	6FC5800-0BM27-0YB0	M27	O	O	O	O	O
Inclined axis	6FC5800-0BM28-0YB0	M28	O	O	O	O	O
Run MyCC /RDCC ¹⁾ Transformation: Redundant and spatially distributed axes at workpiece in Cartesian coordinate system Requirement: Loadable compile cycle	6FC5800-0BN26-0YB0	N26	O	O	O	O	–
Run MyCC /2RPT ¹⁾ Transformation: Rotating workpiece and tool Requirement: Loadable compile cycle	6FC5800-0BN43-0YB0	N43	O	O	O	O	–
Run MyCC /SW2A ¹⁾ Transformation: Swivel by 2 linear axes Requirement: Loadable compile cycle	6FC5800-0BN45-0YB0	N45	O	O	O	O	–
Run MyCC /2TRA ¹⁾ Transformation: DOUBLETRANSMIT Requirement: Loadable compile cycle	6FC5800-0BM25-0YB0	M25	O	O	O	O	–
Run MyCC /DSTT ¹⁾ Transformation: Dynamic Swivel TRIPOD, Basis 5 axes Requirement: Loadable compile cycle	6FC5800-0BM84-0YB0	M84	O	O	O	O	–
Run MyCC /ECCA ¹⁾ Transformation: Eccentric axis Requirement: Loadable compile cycle	6FC5800-0BN44-0YB0	N44	O	O	O	O	–
Run MyCC /ECCE ¹⁾ Transformation: Eccentric Requirement: Loadable compile cycle	6FC5800-0BN41-0YB0	N41	O	O	O	O	–
Run MyCC /HEX ¹⁾ Transformation: HEXAPOD 6-axis transformation Requirement: Loadable compile cycle	6FC5800-0BM71-0YB0	M71	O	O	O	O	–
Run MyCC /PACO Transformation: PARACOP 3 axes Requirement: Loadable compile cycle	6FC5800-0BM44-0YB0	M44	O	O	O	O	–
Run MyCC /RCTRA Transformation: Handling Requirement: Loadable compile cycle	6FC5800-0BM31-0YB0	M31	O	O	O	O	–
Run MyRobot /Direct control ROBX AR Transformation for articulated arm robot Can only be used together with Run MyRobot /Direct Control Contains the options: • Lock MyCycles (option P54) • SINUMERIK Operate Display Manager (option P81)	6FC5800-0BR05-0YB0	R05	O	O	O	O	–
Run MyCC /ROBX ¹⁾ Transformation robotic extended Requirement: Loadable compile cycle	6FC5800-0BN54-0YB0	N54	O	O	O	O	–
Run MyCC /SCRA ¹⁾ Transformation SCARA 2/3 axes Requirement: Loadable compile cycle	6FC5800-0BM68-0YB0	M68	O	O	O	O	–

¹⁾ Compile cycle that is not generally released. Requires machine-specific release process.
Please contact your local Siemens sales office or Regional Company.

Function overview

SINUMERIK ONE

Transformations

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Transformations (continued)							
Run MyCC /ROTE ¹⁾ Transformation: Rotating eccentric Requirement: Loadable compile cycle	6FC5800-0BN37-0YB0	N37	O	O	O	O	–
Run MyCC /SCIS ¹⁾ Transformation: Pantograph kinematics Requirement: Loadable compile cycle	6FC5800-0BM51-0YB0	M51	O	O	O	O	–
Run MyCC /THYK ¹⁾ Transformation: TRIPOD hybrid kinematics Requirement: Loadable compile cycle Note: Function can only be executed on the 1st channel.	6FC5800-0BN36-0YB0	N36	O	O	O	O	–
Run MyCC /TRIC ¹⁾ Transformation: TRICEPT 5-axis transformation Requirement: Loadable compile cycle	6FC5800-0BM46-0YB0	M46	–	–	O	O	–
Run MyCC /TR-6A ¹⁾ 6-axis transformation, additional function sixth axis Requirement: Loadable compile cycle	6FC5800-0BM66-0YB0	M66	O	O	O	O	–
Run MyCC /DTOW ¹⁾ Differential Tower Transformation Requirement: Loadable compile cycle	6FC5800-0BN68-0YB0	N68	O	O	O	O	–
Run MyCC /SKID ¹⁾ Transformation: Double slide Requirement: Loadable compile cycle	6FC5800-0BM80-0YB0	M80	O	O	O	O	–
Run MyCC /WZTR ¹⁾ Transformation: W-Z Tracking Requirement: Loadable compile cycle	6FC5800-0BN22-0YB0	N22	O	O	O	O	–
Run MyCC /SCTR SC ¹⁾ Run MyCC /SCTR SC transformation Requirement: Loadable compile cycle	6FC5800-0BR03-0YB0	R03	O	O	O	O	–
Run MyCC /DIFA+FASTIPO ¹⁾ Drive-interpolating following axis Requirement: Loadable compile cycle	6FC5800-0BR04-0YB0	R04	O	O	O	O	–

¹⁾ Compile cycle that is not generally released. Requires machine-specific release process.
Please contact your local Siemens sales office or Regional Company.

Function overview

SINUMERIK ONE

Measuring – Technologies

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Measuring							
Logging of measurement results in automatic mode			✓	✓	✓	✓	✓
Measuring stage 1 2 probes (switching) with/without deletion of distance-to-go			✓	✓	✓	✓	✓
Measuring stage 2: • Axial measurement • Measurements from synchronized actions • Cyclic measurement • Fast measurement MEASF (SW version 6.20 and higher)	NEW 6FC5800-0BM32-0YB0	M32	O	O	O	O	O
Measuring cycles for drilling/milling and turning: • Calibrating workpiece probes • Workpiece measurement • Tool measurement	6FC5800-0BP28-0YB0	P28	O	O	O	O	O
Measure kinematics (Cycle 996)	6FC5800-0BP18-0YB0	P18	O	O	O	O	O
Run MyCC /KPXT ¹⁾ Drive current measurement Requirement: Loadable compile cycle	6FC5800-0BM82-0YB0	M82	O	O	O	O	–
Technologies							
Handwheel override			✓	✓	✓	✓	✓
Contour handwheel	6FC5800-0BM08-0YB0	M08	O	O	O	O	O
Punching/nibbling	6FC5800-0BM33-0YB0	M33	O	O	O	O	O
Slot shape recognition (recognition of slot shape)	6FC5800-0BS18-0YB0	S18	O	O	O	O	O
Balance cutting, 4-axis roughing Requirement: additional machining channel (option C10)	6FC5800-0BS05-0YB0	S05	O	O	O	O	O
Interpolation turning	6FC5800-0BP57-0YB0	P57	O	O	O	O	O
Y-turning Y-parting (Y-axis parting)/multi-edge parting Requirement: CNC software ≥ SW version 6.20	NEW 6FC5800-0BS56-0YB0	S56	O	O	O	O	O
Comb grooving Grooving in a comb pattern	6FC5800-0BS58-0YB0	S58	O	O	O	O	O
SMTE cone turning ²⁾ Requirement: CNC software ≥ SW version 6.15	NEW 6FC5800-0BR52-0YB0	R52	O	O	O	O	O
SMTE engraving ²⁾ Engraving cycle Requirement: CNC software ≥ SW version 6.15	NEW 6FC5800-0BR54-0YB0	R54	O	O	O	O	O
SMTE QR code ²⁾ Cycle for generating a QR code on the workpiece Requirement: CNC software ≥ SW version 6.15	NEW 6FC5800-0BR53-0YB0	R53	O	O	O	O	O
Machining package 5 axes Contains the option: Multi-axis interpolation > 4 interpolating axes (option M15)	6FC5800-0BM30-0YB0	M30	O	O	O	O	–
Machining package 5 axes Additional function 7th axis Requirement: Machining package 5 axes (option M30)	6FC5800-0BS01-0YB0	S01	O	O	O	O	–
SINUMERIK ONE Dynamics Operate Milling/turning technology package for job shop manufacturing Contains the options: • ShopTurn/ShopMill (option P17) • DXF Reader (option P56) • Residual material detection and machining for contour pockets and stock removal (option P13) • 3D simulation 1 (finished part) (option P25) • Simultaneous recording (option P22) • TRANSMIT/cylinder surface transformation (option M27) • Execution from External Storage (EES) (option P75)	6FC5800-0BS41-0YB0	S41	O	O	O	O	O

¹⁾ Compile cycle that is not generally released. Requires machine-specific release process.
Please contact your local Siemens sales office or Regional Company.

²⁾ Regarding delivery, please contact your local Siemens sales office or Regional Company.

Function overview

SINUMERIK ONE

Technologies

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Technologies (continued)							
SINUMERIK ONE Dynamics 3 Axis Milling Milling technology package Contains the options: • ShopTurn/ShopMill (option P17) • DXF Reader (option P56) • Residual material detection and machining for contour pockets and stock removal (option P13) • 3D simulation 1 (finished part) (option P25) • Simultaneous recording (option P22) • TRANSMIT/cylinder surface transformation (option M27) • Advanced Surface motion control (option S07) ¹⁾ • Top Surface (option S17) ^{1) 2)} • Top Speed plus (option S62) ¹⁾ • Measuring cycles for drilling/milling and turning (option P28) • HMI user memory, expanded on SD card of the NCU/PPU (option P12) • Execution from External Storage (EES) (option P75)	6FC5800-0BS42-0YB0	S42	O	O	O	O	O
SINUMERIK ONE Dynamics 5 Axis Milling Milling technology package Contains the options: • Machining package 5 axes (option M30) • 3D tool radius compensation (option M48) • Measure kinematics (option P18) • ShopTurn/ShopMill (option P17) • DXF Reader (option P56) • Residual material detection and machining for contour pockets and stock removal (option P13) • 3D simulation 1 (finished part) (option P25) • Simultaneous recording (option P22) • TRANSMIT/cylinder surface transformation (option M27) • Advanced Surface motion control (option S07) • Top Surface (option S17) ²⁾ • Top Speed plus (option S62) • Measuring cycles for drilling/milling and turning (option P28) • HMI user memory, expanded on SD card of the NCU/PPU (option P12) • Execution from External Storage (EES) (option P75)	6FC5800-0BS43-0YB0	S43	–	–	O	O	–
Optimize MyMachining /Trochoidal Machining cycle for trochoidal milling Requirements: SINUMERIK Edge > SW version V3.2 (including HW, IoT ValuePlan and Edge Management), polynomial interpolation (option M18), Run MyScreens (option P64)	NEW MCS2250		O	O	O	O	–
Run MyCC /FXSC ³⁾ Cartesian travel to fixed stop Requirement: Loadable compile cycle	6FC5800-0BN38-0YB0	N38	O	O	O	O	–
Run MyCC /MSPZ ³⁾ Metal spinning protection zone Requirement: Loadable compile cycle	6FC5800-0BN42-0YB0	N42	O	O	O	O	–
Orientation offset static/dynamic	6FC5800-0BS14-0YB0	S14	O	O	O	O	O
Run MyCC /SYMO ³⁾ Synchronous motion Requirement: Loadable compile cycle	6FC5800-0BN66-0YB0	N66	O	O	O	O	–
Run MyCC /SUTI ³⁾ Utility programs for the servo Requirement: Loadable compile cycle	6FC5800-0BN10-0YB0	N10	O	O	O	O	–

¹⁾ Maximum 3+2 interpolating axes.

²⁾ Not released in combination with Protect MyMachine /3D STL (option S02)

³⁾ Compile cycle that is not generally released. Requires machine-specific release process.
Please contact your local Siemens sales office or Regional Company.

Function overview

SINUMERIK ONE

Technologies

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE					
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version	
Technologies (continued)								
Grinding:								
• Multiple feedrates in one block, e.g. for calipers			✓	✓	✓	✓	✓	
• Continuous dressing, parallel dressing online modification of the tool offset			✓	✓	✓	✓	✓	
• Grinding Advanced extended functions for grinding such as axis-parallel dressing/pre-profiling cycle		6FC5800-0BS35-0YB0	S35	O	O	O	O	O
• Oscillation functions block-related, modal and asynchronous		6FC5800-0BM34-0YB0	M34	O	O	O	O	O
Optimize MyMachining /CCG compiler For programming any closed non-circular contours as DLL for SIMATIC IPC for SINUMERIK (SINUMERIK PCU) Requirements: TRANSMIT/cylinder surface transformation (option M27), polynomial interpolation (option M18)		NEW MCS21001		O	O	O	O	O
Handling package Contains the options: • 3 additional axes (option A03) • 3 additional machining channels (option C13) • Transformation: Handling (option M31) • Synchronized actions stage 2 (option M36) Requirement: Loadable compile cycle Note: No tool offsets or spindles possible.		6FC5800-0BS31-0YB0	S31	O	O	O	O	–

Function overview

SINUMERIK ONE

Technologies

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Technologies (continued)							
Run MyRobot /Direct Control Package for SINUMERIK ONE for selected types of robot Contains: Engineering documents by means of SIZER/TST Requirement: Robot equipped with SINUMERIK ONE CNC control with CNC-SW ≥ 6.15, SINAMICS S120 drives and SIMOTICS S-1FT/-1FK motors (specific to robot), Create MyConfig commissioning tool (required once). The following options are required for operation of the robot: • 3 additional axes/spindles (option A03) • 6 Safety Integrated axes/spindles (option K06) • Multi-axis interpolation (> 4 interpolating axes) (option M15) • Cross-mode actions ASUB and synchronized actions (option M43) • Transformation for articulated arm robot Run MyRobot /Direct control ROBX AR (option R05) • SINUMERIK Operate /NCU (option S00) • Safety Integrated F-PLC (option S60)	On request		–	–	O	O	–
SINUMERIK Run MyRobot /Direct Handling Handling package for Run MyRobot /Direct Control with SINUMERIK ONE Contains the options: • 4 additional axes (option A04) • 7 Safety Integrated axes/spindles (option K07) • Multi-axis interpolation (> 4 interpolating axes) (option M15) • Cross-mode actions ASUB and synchronized actions (option M43) • Lock MyCycles (option P54) • SINUMERIK Operate Display Manager (option P81) • Transformation for articulated arm robot Run MyRobot /Direct control ROBX AR (option R05) • Safety Integrated F-PLC (option S60) Requirement: Engineering documents by means of SIZER/TST, and commissioning tool Create MyConfig (required once), robot equipped with SINUMERIK ONE CNC control with CNC-SW ≥ 6.15, SINAMICS S120 drives and SIMOTICS S-1FT/-1FK motors (specific to robot) The following option is additionally required for operation of the robot: SINUMERIK Operate /NCU (option S00) Note: No tool offsets and no spindles possible and IPO cycle ≥ 12 ms	6FC5800-0BP84-0YB0		–	–	O	O	–
Electrical equipment for robotics Panel building for machine tools at the Siemens Systems Engineering Plant Chemnitz (WKC).	NEW See SiePortal		O	O	O	O	O

Function overview

SINUMERIK ONE

Motion-synchronous actions

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE							
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version			
Motion-synchronous actions										
High-speed inputs/outputs Number onboard Drive I/O (X122, X132) CNC I/O: NCU (X141), PPU (X242, X252): • Digital inputs on-board • Digital outputs on-board • Digital inputs or outputs on-board • Analog outputs on-board • High-speed inputs/outputs, expansion via SIMATIC S7 I/O: - Digital inputs - Digital outputs - Analog inputs - Analog outputs			36	28	28	28	✓			
			20	16	16	16	✓			
			8 ¹⁾	4	4	4	✓			
			8	8	8	8	✓			
			1	–	–	–	–			
			O	O	O	O	O			
			32	32	32	32	✓			
			32	32	32	32	✓			
			4	4	4	4	✓			
			4	4	4	4	✓			
			Synchronized actions and fast auxiliary function output incl. 3 synchronous functions (max. 159 elements for synchronized actions) • Number of simultaneously active synchronous functions SYNFC			✓	✓	✓	✓	✓ ²⁾
						24	24	24	24	✓
Synchronized actions stage 2	6FC5800-0BM36-0YB0	M36	O	O	O	O	O ³⁾			
Positioning axes and spindles via synchronized actions (command axes)			✓	✓	✓	✓	✓			
Analog value control in interpolation cycle (IPO cycle) Requirement: Analog input			✓	✓	✓	✓	✓			
Path velocity-dependent analog output (laser power control)	6FC5800-0BM37-0YB0	M37	O	O	O	O	O			
Run MyCC /HSLC Laser switching signal, high-speed Requirement: Loadable compile cycle	6FC5800-0BM38-0YB0	M38	O	O	O	O	O			
Clearance control:										
Clearance control 1D in interpolation cycle via synchronized actions:			✓	✓	✓	✓	✓			
Run MyCC /CLC-FD 1D/3D clearance control in position control cycle with free direction Requirement: Loadable compile cycle and clearance control Run MyCC /CLCX	6FC5800-0BM65-0YB0	M65	O	O	O	O	O ⁴⁾			
Run MyCC /CLCX Clearance control Requirement: Loadable compile cycle	6FC5800-0BN78-0YB0	N78	O	O	O	O	O			
Run MyCC /XOUT ⁵⁾ Extrapolated switching signals, max. number 64 Requirement: Loadable compile cycle	6FC5800-0BN51-0YB0	N51	O	O	O	O	–			
Evaluation of internal drive variables	6FC5800-0BM41-0YB0 MCS51001	M41	O	O	O	O	O			

¹⁾ 2 of 8 DO depending on the analog output used on board.

²⁾ Restricted functionality of the export version:
The number of simultaneously traversing axes is restricted to 4.

³⁾ Restricted functionality of the export version:
The number of simultaneously traversing path and positioning axes is restricted to 4.

⁴⁾ Restricted functionality of export version:
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⁾ Compile cycle that is not generally released. Requires machine-specific release process.
Please contact your local Siemens sales office or Regional Company.

Motion-synchronous actions – CNC programming language

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Motion-synchronous actions (continued)							
Asynchronous subprograms ASUB High-speed CNC inputs/outputs			✓	✓	✓	✓	✓
Interrupt routines with fast retraction from the contour	6FC5800-0BM42-0YB0	M42	O	O	O	O	O
ASUB Cross-mode actions and synchronized actions in all control operating modes	6FC5800-0BM43-0YB0	M43	O	O	O	O	O
CNC programming language							
Programming language DIN 66025 and high-level language expansion			✓	✓	✓	✓	✓
Main program call from main program and subprogram			✓	✓	✓	✓	✓
Subroutine levels, maximum			16	16	16	16	✓
Interrupt routines, maximum			2	2	2	2	✓
Number of subprogram passes			9999	9999	9999	9999	✓
Number of levels for skip blocks			0 ... 8	0 ... 8	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	INT 2 ³¹ -1	INT 2 ³¹ -1	✓
Auxiliary function output 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	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			✓	✓	✓	✓	✓

Function overview

SINUMERIK ONE

CNC programming language

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
CNC programming language (continued)							
Program functions:							
• Preprocessing memory, dynamic FIFO			✓	✓	✓	✓	✓
• Look Ahead, no. of recorded part program blocks (ONE Dynamics, MDynamics, Top Surface or COMP-SURF active)			3000	3000	4000	6000	✓
• Look Ahead, IPO blocks, buffered			1000	1000	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			✓	✓	✓	✓	✓
Program/workpiece management			1000	1000	1000	1000	✓
Part programs, maximum number (in total a maximum of 512 files per directory)							
Program/workpiece management Workpieces, maximum number (in total a maximum of 256 files per directory)			250	250	250	250	✓
Program/workpiece management Workpieces on the SSD of the SIMATIC IPC for SINUMERIK, maximum number (in total a maximum of 10000 user files)			10000	10000	10000	10000	✓
Templates for programs and workpieces			✓	✓	✓	✓	✓
Job lists			✓	✓	✓	✓	✓
Program/workpiece management on additional HMI user memory on the SD card of the SINUMERIK NCU/PPU (in total a maximum of 10000 user files and directories) Requirement: HMI user memory, expanded on SD card of the NCU/PPU			✓	✓	✓	✓	✓
Program/workpiece management on CompactFlash card to be plugged in additionally in the SIMATIC IPC for SINUMERIK Requirement: CF card in the PCU			✓	✓	✓	✓	✓
Program/workpiece management on integrated SSD in the SIMATIC IPC for SINUMERIK			✓	✓	✓	✓	✓
Program/workpiece management on USB storage medium, e.g. flash drive Requirement: USB storage medium			✓	✓	✓	✓	✓
Program/workpiece management on the network drive			✓	✓	✓	✓	✓
Basic frames, maximum number			16	16	16	16	✓
Settable offsets, maximum number			100	100	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⁾	✓ ¹⁾	✓ ¹⁾	✓ ¹⁾	✓

¹⁾ Function depends on operating software.

Function overview

SINUMERIK ONE

Programming support

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Programming support							
Program editor in SINUMERIK Operate:							
• Text editor: selecting, copying, deleting			✓	✓	✓	✓	✓
• Dual editor			✓	✓	✓	✓	✓
• Multi-editor, maximum			4	4	4	4	✓
• Write protection for lines			✓	✓	✓	✓	✓
• Suppression of lines in the display			✓	✓	✓	✓	✓
Technology cycles in SINUMERIK Operate:							
• Drilling			✓	✓	✓	✓	✓
• Milling			✓	✓	✓	✓	✓
• Pocket milling with free contour definition and islands			✓	✓	✓	✓	✓
• Turning			✓	✓	✓	✓	✓
• Grinding			✓	✓	✓	✓	✓
programGUIDE in SINUMERIK Operate:							
• Programming support for cycles			✓	✓	✓	✓	✓
• Dynamic programming graphics			✓	✓	✓	✓	✓
• Animated elements			✓	✓	✓	✓	✓
ShopTurn/ShopMill:	6FC5800-0BP17-0YB0	P17	O	O	O	O	O
• Machining step programming							
• Multiple clamping of identical/different workpieces							
• Manual machine							
DXF Reader	6FC5800-0BP56-0YB0	P56	O	O	O	O	O
integrated in SINUMERIK Operate:	MCS41301						
• Accepting contours							
• Accepting point patterns							
programSYNC	6FC5800-0BP05-0YB0	P05	O	O	O	O	O
Residual material detection and machining for contour pockets and stock removal	6FC5800-0BP13-0YB0	P13	O	O	O	O	O
Programming support can be expanded, e.g. user cycles, See Engineering, Run MyScreens			✓	✓	✓	✓	✓

Function overview

SINUMERIK ONE

Simulation

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Simulation							
Machining channels capable of simulation, maximum; Requirement: programSYNC (option P05)			4	4	4	4	✓
Simulation of program X, while program Y is being executed			–	–	✓	✓	✓
Quickview for mold-making programs			✓	✓	✓	✓	✓
Turning/drilling/milling:							
• Turning			✓	✓	✓	✓	✓
• Counterspindle			✓	✓	✓	✓	✓
• Turn-milling			✓	✓	✓	✓	✓
• Mill-turning with support for kinematics (application-specific by machine manufacturer)			✓	✓	✓	✓	✓
• Milling up to 5-axis machining with TRAORI			✓	✓	✓	✓	–
• 2D simulation (finished part)			✓	✓	✓	✓	✓
• 3D simulation 1 (finished part) Stock removal simulation of milling, drilling and turning operations in 3D representation	6FC5800-0BP25-0YB0	P25	O	O	O	O	O
• Simultaneous recording Real-time simulation of current machining operation	6FC5800-0BP22-0YB0	P22	O	O	O	O	O
Simulation of virtual machine tools with SINUMERIK ONE during production							
Run MyVirtual Machine /Operate Control-identical programming station for NC programs or for training and apprenticeship purposes	MCS4220 ¹⁾ MCS4220n ²⁾ MCS4220a ³⁾		O	O	O	O	O
Run MyVirtual Machine /Open Extension with an open communications interface for inte- gration into a simulation system	MCS4230 ¹⁾ MCS4230n ²⁾ MCS4230a ³⁾		O	O	O	O	O
Run MyVirtual Machine /3D Extension to the virtual machine during work preparation	MCS4240 ¹⁾ MCS4240n ²⁾ MCS4240a ³⁾		O	O	O	O	O

¹⁾ Floating: Server-based licenses, can be used on multiple workstations (not simultaneously); order recommendation.

²⁾ Node-locked Server: Server license that is connected to particular clients (work station/PC)
Node-locked Standalone: Local license file that is connected to a particular client (work station/PC)

³⁾ Academics: For non-commercial use.

For more information, request the detailed description of licenses.

Function overview

SINUMERIK ONE

Operating modes

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE					
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version	
Operating modes								
JOG CNC operating mode:			✓	✓	✓	✓	✓	
• Handwheel selection			✓	✓	✓	✓	✓	
• Inch/metric changeover			✓	✓	✓	✓	✓	
• Manual measurement of work offset			✓	✓	✓	✓	✓	
• Manual measurement of tool offset			✓	✓	✓	✓	✓	
• Automatic tool/workpiece measurement			✓	✓	✓	✓	✓	
• Reference point approach automatic/via CNC program			✓	✓	✓	✓	✓	
• Repos (repositioning on the contour) via operator action/semiautomatically/program:			✓	✓	✓	✓	✓	
MDI CNC operating mode (Manual Data Automatic/Input):			✓	✓	✓	✓	✓	
• Input in text editor			✓	✓	✓	✓	✓	
• Save MDI program			✓	✓	✓	✓	✓	
• Teach positions in MDI buffer			✓	✓	✓	✓	✓	
• Teach-in function Handling			✓	✓	✓	✓	✓	
AUTO CNC operating mode:			✓	✓	✓	✓	✓	
• Execute directly:			✓	✓	✓	✓	✓	
- from real CNC user memory (in line with basic scope)			(10 MB)	(10 MB)	(10 MB)	(10 MB)	(10 MB)	
- from CNC user memory, expanded Requirement: CNC user memory expanded (option P77)			O	O	O	O	O	
- from CNC user memory on SD card of the NCU Requirement: HMI user memory, expanded on SD card of the NCU/PPU (option P12)			O	O	O	O	O	
• Process from external source (EXTCALL):			✓	✓	✓	✓	✓	
- Data storage medium on USB interface								
- User memory on the SSD of the SIMATIC IPC for SINUMERIK								
- from a network drive Requirement: SINUMERIK TCU or SIMATIC IPC for SINUMERIK								
• Execution from External Storage (EES):			6FC5800-0BP75-0YB0 MCS51101	P75	O	O	O	O
- Execution from external drives and memories e.g. server, local area network, USB flash drive, ...								
- One part program memory for several NCUs								
- Backward jumps, far jumps, long program loops (GOTOF/GOTOB) Contains: CNC user memory, expanded, for programs and OEM cycles, on SD card (option P77)								
• DRF offset					✓	✓	✓	✓
• Program control			✓	✓	✓	✓	✓	
• Program editing			✓	✓	✓	✓	✓	
• Block search with/without calculation			✓	✓	✓	✓	✓	
• Overstore			✓	✓	✓	✓	✓	
• Configured Stop			6FC5800-0BS24-0YB0	S24	O	O	O	O

Function overview

SINUMERIK ONE

Tools

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
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 (3D-WRK)	6FC5800-0BM48-0YB0	M48	O ¹⁾	O ¹⁾	O	O	O
Angle head adapter	6FC5800-0BM56-0YB0	M56	O	O	O	O	O
Identify tool demand	6FC5800-0BM77-0YB0	M77	O	O	O	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: Machining package 5 axes (option M30) or SINUMERIK ONE Dynamics 5 axes (option S43)			✓	✓	✓	✓	–
Tool length compensation, online			✓	✓	✓	✓	✓

¹⁾ Cannot be used in combination with TRAORI and Top Surface.

Function overview

SINUMERIK ONE

Tools

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE							
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version			
Tools (continued)										
Operation <u>without</u> tool 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:			600	600	600	1500	✓			
• Cutting edges in the tool list:			1500	1500	1500	3000	✓			
Operation <u>with</u> tool management:										
• Operation with tool management, up to 4 magazines			✓	✓	✓	✓	✓			
• Operation with tool management, with more than 4 magazines			6FC5800-0BM88-0YB0	M88	O	O	O	O	O	
• Monitoring for maximum tool speed/ acceleration			6FC5800-0BS08-0YB0	S08	O	O	O	O	O	
• System displays in standard software			✓	✓	✓	✓	✓			
• User-friendly commissioning via system displays			✓	✓	✓	✓	✓			
• Tool list			✓	✓	✓	✓	✓			
• Configurable tool list			✓	✓	✓	✓	✓			
• Tools in the tool list, maximum:			600	600	600	1500	✓			
• Cutting edges in the tool list, maximum:			1500	1500	1500	3000	✓			
• Magazine list			✓	✓	✓	✓	✓			
• Configurable magazine list			✓	✓	✓	✓	✓			
• Magazines, maximum			32	32	32	64	✓			
• Magazine locations, maximum			600	600	600	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	64	64	✓			
• Adapter data			✓	✓	✓	✓	✓			
• Location-dependent offsets			✓	✓	✓	✓	✓			
Tool identification for loading/unloading tools with code carrier			See SiePortal							
• Tool Ident Connection			6FC5800-0BP52-0YB0 MCS51301	P52	O	O	O	O	O	

Function overview

SINUMERIK ONE

Communication/data management

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Communication/data management							
CNC user memory for programs and OEM cycles, buffered internally on NCU/PPU:			✓ 10 MB	✓ 10 MB	✓ 10 MB	✓ 10 MB	✓
• CNC user memory, expanded by 2 MB each for programs and OEM cycles, buffered internally on NCU/PPU, to maximum configuration	6FC5800-0BD00-0YB0	D01...D09	○	○	○	○	○
- Maximum configuration			28 MB	28 MB	28 MB	28 MB	✓
CNC user memory, expanded, for programs and OEM cycles, on SD card	6FC5800-0BP77-0YB0	P77	○ 100 MB	○ 100 MB	○ 100 MB	○ 100 MB	○
HMI user memory, expanded on SD card of the NCU/PPU Requirement: CNC user memory expanded (option P77) Note: Not in combination with SIMATIC IPC for SINUMERIK	6FC5800-0BP12-0YB0	P12	○ 6 GB	○ 6 GB	○ 6 GB	○ 6 GB	○
User memory for CNC programs, OEM cycles and HMI on SSD of the SIMATIC IPC for SINUMERIK Requirement: CNC user memory expanded (option P77)			–	see memory IPC	see memory IPC	see memory IPC	✓
• On external storage medium (e.g. local network, server, USB flash drive, ...) Requirement: Execution from external storage EES (option P75)			○ Unlimited	○ Unlimited	○ Unlimited	○ Unlimited	○
Data on storage medium on the rear USB interface of the operator panel, e.g. memory stick Requirement: USB connection socket			✓	✓	✓	✓	✓
Manage additional drives via:							
• Ethernet			4	4	4	4	✓
• USB			✓	✓	✓	✓	✓
COM (RS232C) serial interface			–	–	–	–	–
I/O interfacing via PROFIBUS DP			–	✓	✓	✓	✓
Run MyCC /COPA ¹⁾ Reading of actual positions correlated with output signal Requirement: Loadable compile cycle	6FC5800-0BN61-0YB0	N61	○	○	○	○	–
Data backup:							
• SD card of the NCU/PPU (backup/restore) on flash drive or on network			✓	✓	✓	✓	✓
• On the integrated SSD of the SIMATIC IPC for SINUMERIK			✓	✓	✓	✓	✓
• With Ghost (backup/restore) on SIMATIC IPC for SINUMERIK or on network			✓	✓	✓	✓	✓
Access MyMachine /OPC UA OPC UA server for SINUMERIK ONE	6FC5800-0BP67-0YB0 MCS31403	P67	○	○	○	○	○
Access MyMachine /OPC UA – OEM Second server instance of the SINUMERIK OPC UA Server for machine manufacturers and WinCC (separate user management with its own management of rights)	6FC5800-0BP83-0YB0 MCS31407	P83	○	○	○	○	○
Access MyMachine /OPC UA – Advanced Connection to production management systems with tool management and pallet handling (can be used as possible successor solution for Create MyInterface)	6FC5800-0BP85-0YB0	P85	○	○	○	○	○
Access MyMachine /OPC UA – PLC OPC UA server/client license of the PLC S7-1500 integrated in SINUMERIK ONE	6FC5800-0BP82-0YB0	P82	○	○	○	○	○

¹⁾ Compile cycle that is not generally released. Requires machine-specific release process.
Please contact your local Siemens sales office or Regional Company.

Function overview

SINUMERIK ONE

Communication/data management

Description	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
✓ Basic version O Option – Not available							
Communication/data management (continued)							
IT security: • Secure and unique identification by means of device certificate • Software integrity thanks to signed software and Secure Boot • Secure protection of access data • Secure protection of critical data thanks to hardware-supported Security Controller • Program block and cycle encryption • Encrypted communication with OPC UA			✓	✓	✓	✓	✓
Lock MyCycles Access protection for cycles	6FC5800-0BP54-0YB0 MCS11001	P54	○	○	○	○	○
Switch SCALANCE SC622-2C Industrial security appliance for protecting equipment and networks in discrete manufacturing and the process industry for protection of industrial communication with a firewall Additional functions: Address translation (NAT/NAPT); Connection to SINEMA RC; 2 × combo ports, electrical or optical; 10/100/1000 Mbps RJ45 or 1000 Mbps SFP Degree of protection IP20	6GK5622-2GS00-2AC2		○	○	○	○	

Function overview

SINUMERIK ONE

HMI components

Description	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
✓ Basic version I O Option I – Not available							
HMI components							
SINUMERIK ONE panel-based							
Compact CNC with multi-touch panel blackline plus for installation on the machine:							
• PPU 1740-1900, with 19" multi-touch panel blackline plus, maximum resolution 1920 × 1080 px Mounting position: horizontal Dimensions: 464 × 294 × 138 mm (cutout 448 × 278 mm)	6FC5317-4AA00-1DA0		O	–	–	–	O
• PPU 1740-1500, with 15" multi-touch panel blackline plus, maximum resolution 1366 × 768 px Mounting position: horizontal Dimensions: 398 × 257 × 138 mm (cutout 382 × 241 mm)	6FC5317-4AA00-1CA0		O	–	–	–	O
Operator panels blackline plus in new neutral design							
SIMATIC Thin Client Operator Panel for SINUMERIK ONE:							
• SIMATIC ITC2200 V3, Industrial Thin Client, 22" widescreen TFT display, capacitive touch sensor, supported protocols: RDP, VNC, SMARTSERVER HTML5 and more Maximum resolution 1920 × 1080 px Mounting position: horizontal and vertical Dimensions: 529 × 331 × 73 mm (cutout 513 × 315 mm)	6AV6646-1BA22-1NA0		–	O	O	O	O
• SIMATIC ITC1900 V3, Industrial Thin Client, 19" widescreen TFT display, capacitive touch sensor, supported protocols: RDP, VNC, SMARTSERVER HTML5 and more Maximum resolution: 1366 × 768 px Mounting position: horizontal Dimensions: 464 × 294 × 73 mm (cutout 448 × 278 mm)	6AV6646-1BA18-0NA0		O ¹⁾	O	O	O	O
• SIMATIC ITC1500 V3, Industrial Thin Client, 15" widescreen TFT display, capacitive touch sensor, supported protocols: RDP, VNC, SMARTSERVER HTML5 and more Maximum resolution: 1366 × 768 px Mounting position: horizontal Dimensions: 398 × 257 × 138 mm (cutout 382 × 241 mm)	6AV6646-1BA15-0NA0		O	O	O	O	O

¹⁾ SIMATIC ITC1900 V3 can only be operated on PPU 1740-1900.

Function overview

SINUMERIK ONE

HMI components

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
HMI components (continued)							
SIMATIC Panels for SINUMERIK ONE:							
- SIMATIC IFP2400 V2 extended 24" multi-touch display (16:9), built-in unit for 24 V DC, display port/DVI interface, can be placed up to 100 m away, HDBaseT, USB interface on the rear Maximum resolution: 1920 × 1080 px Mounting position: horizontal and vertical Dimensions: 585 × 363 × 63.4 mm (cutout 569 × 347 mm) Requirement: IPC427E - SIMATIC IFP2200 V2 extended 22" multi-touch display (16:9), built-in unit for 24 V DC, display port/DVI interface, can be placed up to 100 m away, HDBaseT, USB interface on the rear Maximum resolution: 1920 × 1080 px Mounting position: horizontal and vertical Dimensions: 585 × 363 × 63.4 mm (cutout 569 × 347 mm) Requirement: IPC427E - SIMATIC IFP1900 V2 extended 19" multi-touch display (16:9), built-in unit for 24 V DC, display port/DVI interface, can be placed up to 100 m away, HDBaseT, USB interface on the rear Maximum resolution: 1920 × 1080 px Mounting position: horizontal Dimensions: 464 × 294 × 63.4 mm (cutout 448 × 278 mm) Requirement: IPC427E - SIMATIC IFP1500 V2 extended 15" multi-touch display (16:9), built-in unit for 24 V DC, display port/DVI interface, can be placed up to 100 m away, HDBaseT, USB interface on the rear Maximum resolution: 1920 × 1080 px Mounting position: horizontal Dimensions: 398 × 257 × 63.4 mm (cutout 382 × 241 mm) Requirement: IPC427E	6AV7863-7MA10-2NA0	–	O	O	O	O	
	6AV7863-4MA10-2NA0	–	O	O	O	O	
	6AV7863-6MA10-2NA0	–	O	O	O	O	
	6AV7863-5MA10-2NA0	–	O	O	O	O	
Accessories for SIMATIC Flat Panel Monitor V2							
- Extended V2 host module, HDBaseT V2 transceiver Display port, USB to HDBaseT, 24 V power supply - Cable set, comprising CAT6 cable, host module V2 (HDBaseT) Length 10 m Length 15 m Length 20 m Length 30 m - CAT6A (RJ45) plug for assembly of Ethernet cable by customer without tools, 2 units - CAT6A cable, sold by the meter and non-pre-assembled, without plug - DVI-D cable Length 3 m Length 5 m	6AV7860-3EH00-0AA0	–	O	O	O		
	6AV7860-1EX21-0AB1 6AV7860-1EX21-5AB1 6AV7860-1EX22-0AB1 6AV7860-1EX23-0AB1	–	O	O	O		
	6AV7860-1EY00-0AA0	–	O	O	O		
	6XV1878-2C	–	O	O	O		
	6AV7860-0BH30-0AA0 6AV7860-0BH50-0AA0	–	O	O	O		

Function overview

SINUMERIK ONE

HMI components

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
HMI components (continued)							
SIMATIC Panel PCs with integrated IPC for SINUMERIK ONE:							
SIMATIC IPC477E, 24", multi-touch, neutral Core i5-6442EQ, Microsoft Windows 10 Requirement: SINUMERIK PCU base software (option P86)	6AV7241-5SB07-0FA0		–	O	O	O	O
SIMATIC IPC477E, 22", multi-touch, neutral Core i3-6102E, Microsoft Windows 10 Requirement: SINUMERIK PCU base software (option P86)	6AV7241-3YA05-0FA0		–	O	O	O	O
SIMATIC IPC477E, 19", multi-touch, neutral Core i3-6102E, Microsoft Windows 10 Requirement: SINUMERIK PCU base software (option P86)	6AV7241-1XB05-0FA0		–	O	O	O	O
SIMATIC IPC477E, 15", multi-touch, neutral Celeron G3902E, Microsoft Windows 10 Requirement: SINUMERIK PCU base software (option P86)	6AV7241-1WA05-0FA0		–	O	O	O	O
SIMATIC IPC for SINUMERIK ONE							
SIMATIC IPC427E, Core i5-6442EQ, Microsoft Windows 10 Requirement: SINUMERIK PCU base software (option P86)	6AG4141-5AB17-0FA0		–	O	O	O	O
SIMATIC IPC427E, Core i5-6442EQ, Microsoft Windows 10 NEW LTSC 2019 with pre-installed PCU base software Requirement: SINUMERIK PCU base software (option P86)	6AG4141-5DB15-0FX0		–	O	O	O	O
SIMATIC IPC427E, Celeron G3902E, Microsoft Windows 10 Requirement: SINUMERIK PCU base software (option P86)	6AG4141-1AA15-0FA0		–	O	O	O	O
SIMATIC IPC427E, Celeron G3902E, Microsoft Windows 10 NEW LTSC 2019 with pre-installed PCU Base Software Requirement: SINUMERIK PCU base software (option P86)	6AG4141-1DA15-0FX0		–	O	O	O	O
- DIN rail mounting kit for SIMATIC IPC427E	6ES7648-1AA21-0YM0		–	O	O	O	O
- Mounting kit for wall mounting for SIMATIC IPC427E	6ES7648-1AA20-0YN0		–	O	O	O	O
- Mounting kit for vertical mounting for SIMATIC IPC427E	6ES7648-1AA20-0YP0		–	O	O	O	O
SIMATIC IPC227G, Atom 4C, 8 GB, 256 GB SSD, Microsoft Windows 10 LTSC 2019 Requirement: SINUMERIK PCU base software >V14 SP2 (option P86)	6ES7647-8CE21-2AB0		–	O	O	O	O
SIMATIC IPC227G, Atom 2C, 4 GB, 256 GB SSD, Microsoft Windows 10 LTSC 2019 Requirement: SINUMERIK PCU base software >V14 SP2 (option P86)	6ES7647-8CD11-2AB0		–	O	O	O	O
Connection of SIMATIC Comfort Panel Requirement: WinCC and Option Run MyHMI /SIMATIC OP	See SiePortal		–	O	O	O	O
Connection of SIMATIC Mobile Panel Requirement: WinCC and Option Run MyHMI /SIMATIC OP	See SiePortal		–	O	O	O	O

Function overview

SINUMERIK ONE

HMI components

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
HMI components (continued)							
SINUMERIK ONE machine control panels							
• SINUMERIK ONE MCP 2400 for SIMATIC Operator Panel for SINUMERIK ONE - 24" - Horizontal mounting position - with QWERTY keyboard and Powerride - includes the option Configured Stop (option S24) for using the Powerride function	6FC5303-0AP04-0AA0	O	O	O	O	O	
• SINUMERIK ONE MCP 2200 for SIMATIC Operator Panel for SINUMERIK ONE - 22" - Horizontal mounting position - with QWERTY keyboard and Powerride - includes the option Configured Stop (option S24) for using the Powerride function	6FC5303-0AP03-0AA0	O	O	O	O	O	
• SINUMERIK ONE MCP 2200c for SIMATIC Operator Panel for SINUMERIK ONE - 22" - Horizontal mounting position, custom made - includes the option Configured Stop (option S24) for using the Powerride function	6FC5303-0AP51-0DA0	O	O	O	O	O	
• SINUMERIK ONE MCP 1900 for SIMATIC Operator Panel for SINUMERIK ONE - 19" - Horizontal mounting position - with Powerride - includes the option Configured Stop (option S24) for using the Powerride function	6FC5303-0AP02-0AA0	O	O	O	O	O	
• SINUMERIK ONE MCP 1500 for SIMATIC Operator Panel for SINUMERIK ONE - 15" - Horizontal mounting position - with Powerride - includes the option Configured Stop (option S24) for using the Powerride function	NEW 6FC5303-0AP01-0AA0	O	O	O	O	O	
• SINUMERIK ONE KB 1900 CNC keyboard (QWERTY) for SIMATIC Operator Panel for SINUMERIK ONE - 19" - Dimensions 464 × 135 × 37 mm	NEW 6FC5303-0AP47-0BA0	O	O	O	O	O	
• SINUMERIK ONE KB 1500 CNC keyboard (QWERTY) for SIMATIC Operator Panel for SINUMERIK ONE - 15" - Dimensions 398 × 135 × 37 mm	NEW 6FC5303-0AP47-0AA0	O	O	O	O	O	
• SINUMERIK ONE EM 464 expansion module with 13 slots for equipment version with dummy elements for customer's own components Dimensions: 464 × 95 × 38 mm	NEW 6FC5303-1AF68-0AA0	O	O	O	O	O	
• SINUMERIK ONE EM 464/S01 expansion module with 7 slots for equipment version with dummy elements for customer's own components Dimensions: 464 × 95 × 38 mm	NEW 6FC5303-1AF68-0AB0	O	O	O	O	O	
• SINUMERIK ONE key caps, square, can be laser-labeled - Set consisting of: 90 units, iron gray - For more information and examples, see: https://support.industry.siemens.com/cs/ww/en/view/109802036	NEW 6FC5303-0AF27-1AA0	O	O	O	O	O	
• SINUMERIK ONE key caps, square, for inserting labeling plates - Set consisting of: 90 units, clear - For more information and examples, see: https://support.industry.siemens.com/cs/ww/en/view/109802036	NEW 6FC5248-0AF21-0AA0	O	O	O	O	O	

Function overview

SINUMERIK ONE

HMI components

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
HMI components (continued)							
SINUMERIK machine control panels blackline plus for operator panels blackline plus:							
• SINUMERIK MCP 398C (for 15" operator panels, to be connected via X120):	6FC5303-0AF25-0AA0		O	O	O	O	O
- EM 66 expansion module (for 19" operator panels MCP 398C + EM 66)	6FC5303-0AF30-0AA0		O	O	O	O	O
- EM 131 expansion module (for 22" operator panels MCP 398C + EM 131)	6FC5303-0AF31-0AA0		–	O	O	O	O
- EM 187 expansion module (for 24" operator panels MCP 398C + EM 187)	6FC5303-0AF28-0AA0		–	O	O	O	O
Accessories for operator panels:							
• Switch SCALANCE XB005 unmanaged, IP20	6GK5005-0BA00-1AB2		O	O	O	O	O
• Switch SCALANCE X005 unmanaged, IP30	6GK5005-0BA10-1AA3		O	O	O	O	O
• Switch SCALANCE XC108 unmanaged, IP30	6GK5108-0BA00-2AC2		O	O	O	O	O
• Switch SCALANCE XC208 managed, IP30	6GK5208-0BA00-2AC2		O	O	O	O	O
• Switch SCALANCE X208 PRO managed, IP65	6GK5208-0HA10-2AA6		O	O	O	O	O
Accessories for operator panels:							
• Terminal kit for PPU 1740-1500 and PPU 1740-1900, (1 × 24 V connector, 4 × I/O connectors, 4 × dust protection blanking plugs for DRIVE-CLiQ ports)	6SL3064-4CB00-0AA0		O	–	–	–	–
• Hinged cover for PPU 1740-1500, PPU 1740-1900 (spare part)	6FC5348-0AA30-4AA0		O	–	–	–	–
• Service package mounting clips for SIMATIC IFP, SIMATIC IPC 477E	6AV6881-6AD10-0AA0		O	O	O	O	O
• USB interface for mounting in control cabinet, with connection between cabinet mounting component and the USB connector, length 1 m	6FC5347-0AF01-1AA0		O	O	O	O	O

Function overview

SINUMERIK ONE

HMI components

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
HMI components (continued)							
Accessories for machine control panels MCP 483 PN, MCP 483C PN, MCP 398C:							
• Cable set for additional machine control panel control devices, length 500 mm (1 set = 60 units)	6FC5247-0AA35-0AA0		O	O	O	O	O
• Spindle/rapid traverse override rotary switch, 1×16G, T=24, cap, button, pointer, rapid-traverse and spindle dials	6FC5247-0AF12-1AA0		O	O	O	O	O
• Feedrate/rapid traverse override rotary switch, 1×23G, T=32, cap, button, pointer, rapid traverse and feedrate dials	6FC5247-0AF13-1AA0		O	O	O	O	O
MPP Machine Push Button Panel with machine control panel functions:							
• SINUMERIK MPP 398 IEH - with connection for HT 8/HT 2 - with feedrate override	6FC5303-1AF50-8AA0		O	O	O	O	O
• SINUMERIK MPP 464 IEH - with connection for HT 8/HT 2 - with feedrate override	6FC5303-1AF60-8AA0		O	O	O	O	O
• SINUMERIK MPP 1500E - with connection for HT 8 - with EKS	6FC5303-1AF31-0AA0		O	O	O	O	O
Interface for customer machine control panel SINUMERIK MCP Interface PN	6FC5303-0AF03-0AA0		O	O	O	O	O
Electronic handwheels: Note: Third handwheel can be operated as contour hand-wheel			2 (3) ¹⁾	2 (3) ²⁾	2 (3) ²⁾	2 (3) ²⁾	✓
• With 120 mm × 120 mm front panel, 5 V DC, RS422	6FC9320-5DB01		O	O	O	O	O
• With 76.2 mm × 76.2 mm front panel, 5 V DC, RS422	6FC9320-5DC01		O	O	O	O	O
• With 76.2 mm × 76.2 mm front panel, 24 V DC, HTL	6FC9320-5DH01		O	O	O	O	O
• Without front panel, without setting wheel, 5 V DC, RS422	6FC9320-5DF01		O	O	O	O	O
• Without front panel, with setting wheel, 5 V DC, RS422	6FC9320-5DM00		O	O	O	O	O
• Portable in housing, 2.5 m spiral cable, 5 V DC, RS422	6FC9320-5DE02		O	O	O	O	O
Accessories for handwheels:							
• Flange socket for portable handwheel	6FC9341-1AQ		O	O	O	O	O
• Adapter set for three-point fixing of the handwheel	6FC9320-5DN00		O	O	O	O	O
• Holder for mini handheld unit 6FX2007-1AD03 / -1AD13 and electronic handwheel in housing 6FC9320-5DE02	6FX2006-1BG70		O	O	O	O	O
• Signal connector, 9-pin	6FX2003-0SA01		O	O	O	O	O
• Signal cable, pre-assembled for handwheel on COM Board							
- Length 0,2 m	6FX8002-2CP00-1AA2		O	O	O	O	O
- Length 0,3 m	6FX8002-2CP00-1AA3		O	O	O	O	O
- Length 0,7 m	6FX8002-2CP00-1AA7		O	O	O	O	O
- Length 1 m	6FX8002-2CP00-1AB0		O	O	O	O	O
- Length 2 m	6FX8002-2CP00-1AC0		O	O	O	O	O
- Length 3 m	6FX8002-2CP00-1AD0		O	O	O	O	O
- Length 5 m	6FX8002-2CP00-1AF0		O	O	O	O	O
- Length 7 m	6FX8002-2CP00-1AH0		O	O	O	O	O
- Length 10 m Other lengths available	6FX8002-2CP00-1BA0		O	O	O	O	O

1) On PPU on-board.

2) For NCU via MCP or connection box.

Function overview

SINUMERIK ONE

HMI components

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
HMI components (continued)							
Siemens control panel solutions Customized Operator Panels (cOP) and customized Machine Control Panels (cMCP)	See SiePortal		O	O	O	O	O
Electrical equipment for machines and plants Panel building for machine tools at the Siemens Systems Engineering Plant Chemnitz (WKC)	See SiePortal		O	O	O	O	O
Handheld units:							
SINUMERIK HT 10 handheld terminal Screen size 10.1", capacitive multi-touch, 16:10 format, resolution 1280 × 800 px, 7 mechanical keys, 1 non illuminated EMERGENCY STOP button, 1 three-step enabling button, IP65	6FC5403-0AA21-0AA1		O	O	O	O	O
SINUMERIK HT 10 handheld terminal additionally equipped with handwheel	6FC5403-0AA21-1AA1		O	O	O	O	O
• Standard connection box for HT 10 without EMERGENCY STOP override for mounting in the plant, IP65	6AV2125-2AE13-0AX0		O	O	O	O	O
• Advanced connection box for HT 10 with EMERGENCY STOP override for mounting in the plant, IP65	6AV2125-2AE23-0AX0		O	O	O	O	O
• Connection cable for HT 10 - Length 2 m - Length 5 m - Length 8 m - Length 10 m - Length 15 m - Length 20 m - Length 25 m	6XV1440-4BH20 6XV1440-4BH50 6XV1440-4BH80 6XV1440-4BN10 6XV1440-4BN15 6XV1440-4BN20 6XV1440-4BN25		O	O	O	O	O
• Wall holder for HT 10 handheld terminal	6FC5348-0AA20-0AA0		O	O	O	O	O
• Touch pen for HT 10 ELO touch pen system, including adhesive holder	NEW 6AV6881-0AV21-0AA0		O	O	O	O	O
• Touch pen caps for ELO touch pen system	NEW 6AV2181-8AV60-0AX0		O	O	O	O	O
SINUMERIK HT 2 handheld terminal with 128 × 64 pixel display	6FC5303-0AA00-2AA0		O	O	O	O	O
• Magnetic clamp for HT 2	6FC5348-0AA08-0AA0		O	O	O	O	O
• Holder for HT 2	6FC5348-0AA08-1AA0		O	O	O	O	O
• Slide-in labels for HT 2, inscribable (3 A4 sheets)	6FC5348-0AA08-2AA0		O	O	O	O	O
• Connection module/connection cable for SINUMERIK HT 2/HT 8 handheld terminals			O	O	O	O	O
- Basic PN connection module for HT 2/HT 8 without EMERGENCY STOP override for mounting in the control cabinet with switch	6FC5303-0AA01-1AA0		O	O	O	O	O
- Spiral connection cable For SINUMERIK HT 2/HT 8 Length 1.5 m, extendable to 3.5 m	6FC5348-0AA08-3AA0		O	O	O	O	O

Function overview

SINUMERIK ONE

HMI components

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
HMI components (continued)							
Mini handheld unit EMERGENCY STOP button (2-channel), enabling button (3-step), metal connector, handwheel with magnetic latching • With coiled connecting cable Length 2.1 m, extendable to 3.5 m • With straight cable, length 5 m • Connection kits for mini handheld units, 6FX2007-1AD03/-1AD13 - non-assembled, for connection to machine control panel <u>without</u> Industrial Ethernet, metal version with terminating connector - assembled, for connection to machine control panel <u>with</u> Industrial Ethernet, metal version with terminating connector - assembled, for connection to machine control panel with PROFINET, with metal connector - Adapter plate for connection kit for mini handheld unit non-assembled, plastic on metal version - 90 degree angle socket for connection kit, non-assembled, metal version							
	6FX2007-1AD03	O	O	O	O	O	
	6FX2007-1AD13	O	O	O	O	O	
	6FX2006-1BG03	O	O	O	O	O	
	6FX2006-1BG11	O	O	O	O	O	
	6FX2006-1BG20	O	O	O	O	O	
	6FX2006-1BG45	O	O	O	O	O	
	6FX2006-1BG56	O	O	O	O	O	
Memory and storage devices:							
• SIMATIC USB flash drive 32 GB	6AV6881-0AS42-0AA1		O	O	O	O	O

Function overview

SINUMERIK ONE

Operation

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Operation							
SINUMERIK Operate /NCU Machine operation with SINUMERIK Operate on a SINUMERIK ONE NCU or PPU Single license, without data storage medium for approved SINUMERIK/SIMATIC Panels	6FC5800-0BS00-0YB0	S00	O	O	O	O	O
SINUMERIK Operate /PCU Machine operation with SINUMERIK Operate on a SINUMERIK or SIMATIC IPC Software option, supply of an electronic license (PDF) Requirement: SINUMERIK PCU base software /IPC (option P86) Note: SINUMERIK Operate, see CNC software DVD-ROM	6FC5800-0BP88-0YB0	P88	–	O	O	O	O
SINUMERIK PCU base software /IPC for SIMATIC IPC with Microsoft Windows 10 Software option, supply of an electronic license (PDF) Requirement: SIMATIC IPC for SINUMERIK SINUMERIK Operate (option P88)	6FC5800-0BP86-0YB0	P86	–	O	O	O	O
SINUMERIK Operate /PC Software for machine operation with SINUMERIK Operate on PC License key on SD card of NCU/PPU, Single license without data storage medium for general PCs, Note: SINUMERIK Operate on CNC software DVD-ROM Option P87 cannot be used in combination with EES (option P75) and CNC user memory expanded (option P77)	6FC5800-0BP87-0YB0	P87	–	O	O	O	O
SINUMERIK Operate /universal client Machine operation with SINUMERIK Operate on universal thin clients (SINUMERIK Operate on NCU/PPU) Single license, without data storage medium for general panels	6FC5800-0BS87-0YB0	S87	–	O	O	O	O
Software for machine operation with PC: Machine operation with SINUMERIK Operate /PC, License key locally on PC, Single license without data storage medium for general PCs, Alternative to option P87, Note: SINUMERIK Operate, see CNC software DVD-ROM	6FC5860-2YF00-1YB0		–	O	O	O	O
SINUMERIK Operate Display Manager Multi-window technology for SINUMERIK Operate Single license, without data storage medium Requirement: SINUMERIK Operate /universal client (option S87) or SINUMERIK Operate /NCU (option S00) or SINUMERIK Operate /PCU (option P88) or SINUMERIK Operate /PC (option P87) Note: Resolution > 1920 × 1080 px	6FC5800-0BP81-0YB0	P81	–	O	O	O	O
Sidescreen			✓	✓	✓	✓	✓
Tooltips			✓	✓	✓	✓	✓

Function overview

SINUMERIK ONE

Operation

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Operation (continued)							
Control unit management:							
• Identical display on all OPs with TCU:			✓	✓	✓	✓	✓
- Simultaneous operation interlock			✓	✓	✓	✓	✓
- Activate/deactivate MCP/MPP			✓	✓	✓	✓	✓
- Different resolutions			✓	✓	✓	✓	✓
Number of operator panel fronts with TCU on an NCU/PPU			2	2	4	4	✓
Number of operator panel fronts with TCU on a SIMATIC IPC for SINUMERIK (1 additional control panel front directly on the IPC):			–	5	5	5	✓
• From 2/4 operator panel fronts, as many operator panel fronts as required due to intelligent suppression			✓	✓	✓	✓	✓
• One or several TCUs which can be switched over via several NCUs/PPUs and SIMATIC IPCs for SINUMERIK			–	–	–	–	–
• One HMI switchable via several NCUs/PPUs			–	–	–	–	–
• One integrated HMI and one SINUMERIK Operate simultaneously on one NCU/PPU (only for loading/unloading tools)			✓	✓	✓	✓	✓
Operation via VNC viewer SINUMERIK VNC Viewer for PC/PG on DVD	6FC5852-1.C..-0YA8		✓	✓	✓	✓	✓
Plain text display of user variables			✓	✓	✓	✓	✓
Multi-channel display, number of machining channels			4	4	4	4	✓
Workpiece-related actual value system			✓	✓	✓	✓	✓
CNC program messages			✓	✓	✓	✓	✓
Automatic, time-controlled screen blanking The function can be used to save energy. Requirement: SINUMERIK Operate			✓	✓	✓	✓	✓
Access protection			7–level	7–level	7–level	7–level	✓
Electronic Key System EKS Single license, without data storage medium	6FC5800-0BP53-0YB0	P53	○	○	○	○	○
Languages of the operating software SINUMERIK Operate and SINUMERIK ONE:			✓	✓	✓	✓	✓
• Chinese Simplified, English, French, German, Italian, Spanish							
• Language switchover online			✓	✓	✓	✓	✓
• Pre-installed languages (for IPC without limitation)			✓	✓	✓	✓	✓
Additional languages of the operating software SINUMERIK Operate and SINUMERIK ONE ¹⁾	6FC5800-0BN00-0YB0	N00	○	○	○	○	○
Language extensions for the operating software SINUMERIK Operate and SINUMERIK ONE, CNC SW ≥ 6.15 SP1 on DVD-ROM without license: Languages: Bulgarian, Chinese Traditional, Croatian, Czech, Danish, Dutch, Greek, Hungarian, Japanese, Korean, Polish, Portuguese/Brazilian, Romanian, Russian, Slovakian, Swedish, Turkish	6FC5860-0YC45-0YB0		○	○	○	○	○

¹⁾ Available languages and SW versions on request.

Function overview

SINUMERIK ONE

Operation

Description	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
✓ Basic version I O Option I – Not available							
Operation (continued)							
SINUMERIK documentation Provision of documentation for further processing (copyright) Delivery of a license Valid for use on one control (see license conditions)	6FC5395-0BP00-0XB0		O	O	O	O	O
SINUMERIK Collection User, manufacturer and service documentation displayed as a download and in the browser, from CNC SW 6.15 Language: German	NEW 6FC5397-0AE16-1AA0		✓	✓	✓	✓	✓
SINUMERIK Collection User, manufacturer and service documentation displayed as a download and in the browser, from CNC SW 6.15 Language: English	NEW 6FC5397-0AE16-1BA0		✓	✓	✓	✓	✓
SINUMERIK Collection User, manufacturer and service documentation displayed as a download and in the browser, from CNC SW 6.20 Language: German	NEW 6FC5397-0AE16-2AA0		✓	✓	✓	✓	✓
SINUMERIK Collection User, manufacturer and service documentation displayed as a download and in the browser, from CNC SW 6.20 Language: English	NEW 6FC5397-0AE16-2BA0		✓	✓	✓	✓	✓

Function overview

SINUMERIK ONE

Monitoring functions

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
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	6FC5800-0BM53-0YB0 MCS31001	M53	O	O	O	O	O
Contour monitoring			✓	✓	✓	✓	✓
Contour monitoring with tunnel function	6FC5800-0BM52-0YB0	M52	O	O	O	O	O
Axis limitation from the PLC			✓	✓	✓	✓	✓
Spindle speed limitation			✓	✓	✓	✓	✓
Integrated spindle monitor (S-Monitor) Requirement: WEISS spindle sensor module	6FC5800-0BP55-0YB0	P55	O	O	O	O	O
Protect MyMachine /3D Primitives Control-integrated function for collision avoidance on machine tools Protection area elements are primitive bodies (cube, cylinder, sphere, ...). Monitoring for collisions for up to 64 protection elements, 64 protection areas and 20 collision pairs in the 1st channel	6FC5800-0BS03-0YB0 MCS41201	S03	O	O	O	O	O
Protect MyMachine /3D Primitives, additional channel Software options for the 2nd to 10th channel, can be used in each module up to the max. number of channels (see Maximum configuration machining channels) Requirements: Protect MyMachine /3D Primitives (option S03), Machining channel, each additional (option C11 ... C19)	6FC5800-0BE00-0YB0	E01 ... E09	O	O	O	O	O
Protect MyMachine /3D STL Control-integrated function for collision avoidance on machine tools Protection area elements are primitive bodies (cube, cylinder, sphere, ...) or bodies in STL format in the 1st channel.	6FC5800-0BS02-0YB0 MCS41001	S02	–	–	O	O	O
Protect MyMachine /3D STL, additional channel Software options for the 2nd to 10th channel, can be used in each module up to the max. number of channels (see Maximum configuration machining channels) Requirements: Protect MyMachine /3D STL (option S02), Machining channel, each additional (option C11 ... C19)	6FC5800-0BG00-0YB0 MCS4265	G01 ... G09	–	–	O	O	O
Protect MyMachine /Open Control-integrated interface for connecting the external CAS collision avoidance from ModuleWorks Software option for 1st channel Requirements: SIMATIC IPC427E, ModuleWorks package (ModuleWorks GmbH), OPC UA	6FC5800-0BS04-0YB0 MCS41101	S04	–	–	O	O	O
Protect MyMachine /Open, additional channel Software options for the 2nd to 10th channel, can be used in each module up to the max. number of channels (see Maximum configuration machining channels) Requirements: Protect MyMachine /Open (option S04), Machining channel, each additional (option C11 ... C19)	6FC5800-0BF00-0YB0 MCS4264	F01 ... F09	–	–	O	O	O

Function overview

SINUMERIK ONE

Monitoring functions

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Monitoring functions (continued)							
Protect MyMachine /3D Twin Function for collision avoidance on machine tools Requirements: Industrial Edge for Machine Tools 427 Type of delivery: Software option for 1st channel	MCS4260		O	O	O	O	
Protect MyMachine /CC Axis Monitor Axis collision protection Requirement: Loadable compile cycle	6FC5800-0BN06-0YB0 MCS41401	N06	O	O	O	O	–
Run MyCC /GPM ¹⁾ Geometry monitoring interface Requirement: Loadable compile cycle	6FC5800-0BM83-0YB0	M83	O	O	O	O	–
ESR							
Drive-autonomous stop and retract (ESR) Software option Supply of an electronic license (PDF)	6FC5800-0BM60-0YB0	M60	O	O	O	O	O
Extended stop and retract ESR NC-controlled and drive-autonomous Software option Supply of an electronic license (PDF)	6FC5800-0BM61-0YB0	M61	O	O	O	O	O

¹⁾ Compile cycle that is not generally released. Requires machine-specific release process.
Please contact your local Siemens sales office or Regional Company.

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Compensations							
Backlash compensation			✓	✓	✓	✓	✓
Leadscrew error compensation			✓	✓	✓	✓	✓
Measuring system error compensation			✓	✓	✓	✓	✓
Feedforward control:							
• Velocity-dependent			✓	✓	✓	✓	✓
• Acceleration-dependent			✓	✓	✓	✓	✓
Weight counterbalance, electronic (basic function of SINAMICS S120)			✓	✓	✓	✓	✓
Temperature compensation			✓	✓	✓	✓	✓
Quadrant error compensation			✓	✓	✓	✓	✓
Circularity test			✓	✓	✓	✓	✓
Friction compensation with adaptive characteristics (Friction Compensation)	6FC5800-0BS06-0YB0	S06	O	O	O	O	O
Leadscrew error compensation, bidirectional	6FC5800-0BM54-0YB0	M54	O	O	O	O	O ¹⁾
Sag compensation, multi-dimensional	6FC5800-0BM55-0YB0	M55	O	O	O	O	O ¹⁾
Run MyCC /LECO ²⁾ Learning error compensation Requirement: Loadable compile cycle	6FC5800-0BN77-0YB0	N77	O	O	O	O	–
Nodding compensation ECO	6FC5800-0BS20-0YB0	S20	O	O	O	O	O
Nodding compensation ADVANCED	6FC5800-0BS21-0YB0	S21	O	O	O	O	O
Nodding compensation Run MyCC /NOCO ²⁾ Requirement: Loadable compile cycle	6FC5800-0BN63-0YB0 MCS21301	N63	O	O	O	O	–
Run MyCCI /UCI ²⁾ Universal spatial compensation interface Requirement: Loadable compile cycle	6FC5800-0BN75-0YB0	N75	O	O	O	O	–
Run MyCC /VCS-A3 Spatial compensation for 3 axes Requirement: Loadable compile cycle	6FC5800-0BN15-0YB0	N15	O	O	O	O	–
Run MyCC /VCS-A5 Spatial compensation for 5 axes Requirement: Loadable compile cycle	6FC5800-0BN16-0YB0	N16	–	–	O	O	–
Run MyCC /VCS-A5 plus Spatial compensation for 5 axes plus Requirement: Loadable compile cycle	6FC5800-0BN17-0YB0	N17	–	–	O	O	–
Run MyCC /VCS-ECO Spatial compensation for 5 axes Requirement: Loadable compile cycle	6FC5800-0BN18-0YB0	N18	O	O	O	O	–
Run MyCC /VCS-ROT Spatial compensation for 2 rotary axes Requirement: Loadable compile cycle	6FC5800-0BN31-0YB0	N31	O	O	O	O	–
Run MyCC /VIBX Vibration extinction Requirement: Loadable compile cycle	6FC5800-0BN11-0YB0	N11	O	O	O	O	–
Run MyCC /COCO ²⁾ Magnetic cogging torque compensation Requirement: Loadable compile cycle	6FC5800-0BN46-0YB0	N46	O	O	O	O	–
Cogging torque compensation axis/spindle, each additional (alternative to option N46)	6FC5800-0BD50-0YB0	D51...D59	O	O	O	O	O

¹⁾ Restricted functionality of export version:
The tolerance band that can be corrected is limited to 1 mm.

²⁾ Compile cycle that is not generally released. Requires machine-specific release process.
Please contact your local Siemens sales office or Regional Company.

Function overview

SINUMERIK ONE

Compensations – Programmable logic controller (PLC)

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Compensations (continued)							
Run MyCC /AXCO Compensation of a forced mechanical coupling in the machine coordinate system Requirement: Loadable compile cycle	6FC5800-0BM81-0YB0	M81	O	O	O	O	–
Run MyCC /SEC-KT Spatial compensation for kinematic transformations Requirement: Loadable compile cycle	6FC5800-0BM57-0YB0	M57	O	O	O	O	–
Run MyCC /ROCO Accuracy ¹⁾ RObot COmpensation Accuracy Requirement: Loadable compile cycle	6FC5800-0BN83-0YB0	N83	–	–	–	O	–
Run MyCC /ROCO Productivity ¹⁾ RObot COmpensation Productivity Requirement: Loadable compile cycle	6FC5800-0BN84-0YB0	N84	–	–	–	O	–
Intelligent Load Control (ILC) Intelligent load adjustment	6FC5800-0BS11-0YB0	S11	O	O	O	O	O
Intelligent Dynamic Control (IDC) Intelligent dynamic response adaptation	6FC5800-0BS23-0YB0	S23	O	O	O	O	O
Run MyCC /EMC ¹⁾ Model-based engineered motion control Requirement: Loadable compile cycle Contains: Option N63 Nodding compensation Run MyCC /NOCO	MCS21201		O	O	O	O	–
Programmable logic controller (PLC)							
SIMATIC S7-1500F integrated			✓	✓	✓	✓	✓
PLC user memory: Program memory in MB / Data memory in MB			✓ 1.5 / 5	✓ 1.5 / 5	✓ 1.5 / 5	✓ 1.5 / 5	✓
• Expansion of the PLC memory by 1.5 MB program memory / 5 MB data memory	6FC5800-0BD10-0YB0	D11...D13	O 3 / 10	O 3 / 10	O 6 / 20	O 6 / 20	O
PROFINET IO controller			✓	✓	✓	✓	✓
PROFINET IO device			✓	✓	✓	✓	✓
Fieldbus communication via PROFINET IO RT/IRT (X150):			✓	✓	✓	✓	✓
Number of interfaces / Number of ports (RJ45)			1 / 2	1 / 2	1 / 2	1 / 2	✓
Distributed I/O via PROFINET (RT/IRT):							
• Via integrated interface, data transfer rate X150, max.			100 Mbps	100 Mbps	100 Mbps	100 Mbps	✓
• Minimum update time for IRT (min. update time is determined by the time slice set for PROFINET IO communication, by the number of IO devices used, and by the amount of configured user data)			1 ms	1 ms	1 ms	1 ms	✓
• Minimum update time for RT (min. update time is determined by the time slice set for PROFINET IO communication, by the number of IO devices used, and by the amount of configured user data)			1 ms	1 ms	1 ms	1 ms	✓
Distributed PROFINET IO devices, maximum number	See SiePortal		255	255	255	255	✓
• including IO devices with IRT, max.			64	64	64	64	✓

¹⁾ Compile cycle that is not generally released. Requires machine-specific release process.
Please contact your local Siemens sales office or Regional Company.

Function overview

SINUMERIK ONE

Programmable logic controller (PLC)

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Programmable logic controller (PLC) (continued)							
Plant communication via PROFINET IO RT (X160):			✓	✓	✓	✓	✓
Number of interfaces / Number of ports (RJ45)			1 / 1	1 / 1	1 / 1	1 / 1	✓
Distributed I/O via PROFINET (RT):							
• Via integrated interface, data transfer rate X160, max.			100 Mbps	100 Mbps	100 Mbps	100 Mbps	✓
• Update time for RT (for a send clock of 1 ms) (min. update time is determined by the time slice set for PROFINET IO communication, by the number of IO Devices used, and by the amount of configured user data)			1 ms ... 512 ms	1 ms ... 512 ms	1 ms ... 512 ms	1 ms ... 512 ms	✓
Distributed PROFINET IO devices for RT, max. number		See SiePortal	128	128	128	128	✓
Fieldbus communication via PROFIBUS DP (X126):							
Number of interfaces:			–	1	1	1	✓
• Data transfer rate X126, max.			–	12 Mbps	12 Mbps	12 Mbps	✓
Distributed PROFIBUS DP devices, max. number			–	125	125	125	✓
I/O address range			32 KB	32 KB	32 KB	32 KB	✓
Inputs – all inputs are in the process image (16 KB via integrated PROFINET IO interface X150, 8 KB via integrated PROFINET IO interface X160 and 8 KB via integrated PROFIBUS DP interface X126) ¹⁾							
I/O address range			32 KB	32 KB	32 KB	32 KB	✓
Outputs – all outputs are in the process image (16 KB via integrated PROFINET IO interface X150, 8 KB via integrated PROFINET IO interface X160, 8 KB via integrated PROFIBUS DP interface X126) ¹⁾							
Bit memory			16 KB	16 KB	16 KB	16 KB	✓
S7 timers			2048	2048	2048	2048	✓
IEC timers			Any	Any	Any	Any	✓
S7 counters			2048	2048	2048	2048	✓
IEC counters			Any	Any	Any	Any	✓
Retentive data area			768 KB	768 KB	768 KB	768 KB	✓
Usable retentive memory for bit memories, timers, counters, DBs and technological data (axes)			700 bytes	700 bytes	700 bytes	700 bytes	✓
PLC blocks			12000	12000	12000	12000	✓
Total number of elements (blocks OB, FB, FC, DB) and UDTs							
FBs:							
• max. size			1 MB	1 MB	1 MB	1 MB	✓
• Largest number (usable nos. 30 ... 999, 1024 ... 24999)			65535	65535	65535	65535	✓
FC:							
• max. size			1 MB	1 MB	1 MB	1 MB	✓
• Largest number (usable nos. 30 ... 999, 1024 ... 24999)			65535	65535	65535	65535	✓
DB:							
• max. size (optimized/non-optimized block access)			16 MB/ 64 KB	16 MB/ 64 KB	16 MB/ 64 KB	16 MB/ 64 KB	✓
• Largest number (usable nos. 62 ... 70, 1100 ... 24999)			59999	59999	59999	59999	✓

¹⁾ Note:
PROFIBUS DP interface X126 not available on PPU 1740.

Function overview

SINUMERIK ONE

Programmable logic controller (PLC)

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Programmable logic controller (PLC) (continued)							
Know-how protection:							
• User program protection			✓	✓	✓	✓	✓
• Copy protection			✓	✓	✓	✓	✓
• Block protection			✓	✓	✓	✓	✓
• Access protection			✓	✓	✓	✓	✓
• "Write protection" protection level			✓	✓	✓	✓	✓
• "Read/write protection" protection level			✓	✓	✓	✓	✓
• "Complete protection" protection level			✓	✓	✓	✓	✓
SINUMERIK PP 72/48D PN I/O module	6FC5311-0AA00-0AA0		O	O	O	O	O
SINUMERIK PP 72/48D 2/2A PN I/O module	6FC5311-0AA00-1AA0		O	O	O	O	O
• Terminal strip converter for SINUMERIK I/O module PP 72/48D from 50-pin IDC connector to screw terminal for 1-to-1 connection	6EP5406-5AA0		O	O	O	O	O
• Set of cables for SINUMERIK I/O module PP 72/48D for self-assembly, consisting of: - 6 m ribbon cable, 50-pin - 8 insulation displacement connectors, 50-pin - Strain relief clamp	6EP5306-5BG00		O	O	O	O	O
Standard motion control functionality: NEW			✓ 640	✓ 640	✓ 720	✓ 1540	✓
Extended number of motion control resources, maximum Requirement: from CNC SW 6.20							
Company network interface (X130):			✓	✓	✓	✓	✓
Number of interfaces / Number of ports (RJ45)			1 / 1	1 / 1	1 / 1	1 / 1	✓
• Data transfer rate X130, max.			1 Gbps	1 Gbps	1 Gbps	1 Gbps	✓
System network interface (X120):			✓	✓	✓	✓	✓
Number of interfaces / Number of ports (RJ45)			1 / 1	1 / 1	1 / 1	1 / 1	✓
• Data transfer rate X120, max.			1 Gbps	1 Gbps	1 Gbps	1 Gbps	✓
Service network interface (X127):			✓	✓	✓	✓	✓
Number of interfaces / Number of ports (RJ45)			1 / 1	1 / 1	1 / 1	1 / 1	✓
• Data transfer rate X127, max.			1 Gbps	1 Gbps	1 Gbps	1 Gbps	✓

Function overview

SINUMERIK ONE

Safety functions

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Safety functions							
SINUMERIK Safety Integrated Basic Safety Integrated functions: • Safe Torque Off (STO) ¹⁾ • Safe Stop 1 (SS1) (time-controlled) ¹⁾ • Safe Brake Control (SBC)							
			✓	✓	✓	✓	✓
Extended Safety Integrated functions: • Safe shutdown (stops) via PROFIsafe: - Safe Torque Off (STO) - Safe Stop 1 (SS1), time or speed-controlled shutdown - Safe Stop 2 (SS2), safe shutdown combined with Safe Operating Stop (SOS) - Safe Stop 2e (SS2e), safe shutdown via external stop - Safe Stop 2 (SS2 ESR), extended stop and retract, e.g. in the event of a power failure							
			O	O	O	O	O
			O	O	O	O	O
			O	O	O	O	O
			O	O	O	O	O
			O	O	O	O	O
Safe monitoring functions: • Safe Operating Stop (SOS)							
			O	O	O	O	O
• Safely-Limited Speed (SLS) incl. SLS override with closed-loop control between 0-100%							
			O	O	O	O	O
• Safe Speed Monitor (SSM)			O	O	O	O	O
			O	O	O	O	O
• Safe Acceleration Monitor (SAM)			O	O	O	O	O
			O	O	O	O	O
• Safe Brake Ramp (SBR)			O	O	O	O	O
			O	O	O	O	O
• Safely-Limited Position (SLP)			O	O	O	O	O
			O	O	O	O	O
• Safe Cam (SCA)			O	O	O	O	O
			O	O	O	O	O
• Safe Position (SP)			O	O	O	O	O
			O	O	O	O	O
• Safely-Limited Speed (SLS), encoderless			O	O	O	O	O
			O	O	O	O	O
• Safe Direction (SDI)			O	O	O	O	O
			O	O	O	O	O
• Safely-Limited Acceleration (SLA)			O	O	O	O	O
			O	O	O	O	O
• Safe Brake Management (SBM): - Safe Brake Control (SBC) - Safe Brake Test (SBT) – diagnostic function			O	O	O	O	O
			O	O	O	O	O
• Safety-related communication via standard bus (PROFIsafe with SIMATIC ET 200 range)							
			O	O	O	O	O
• Integrating sensors in a safety-related fashion via SIMATIC DP / AS-i F-Link							
			O	O	O	O	O
Perform Safety Integrated acceptance test with SINUMERIK Operate			✓	✓	✓	✓	✓

See SiePortal

See SiePortal

¹⁾ Via on-board terminals on NCU/PPU or via PROFIsafe.

Function overview

SINUMERIK ONE

Safety functions

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Safety functions (continued)							
• Safety Integrated F-PLC Enabling of the F-PLC integrated in the SINUMERIK for failsafe programming, axis monitoring not included	6FC5800-0BS60-0YB0	S60	O	O	O	O	O
• Safety Integrated axis/spindle Safe function for motion monitoring 1 axis/spindle Requirement: Safety Integrated F-PLC (option S60)	6FC5800-0BK00-0YB0	K01...K09	O	O	O	O	O
• Safety Integrated multi-axis package Safe function for motion monitoring for all axes/spindles activated in the SINUMERIK Requirement: Safety Integrated F-PLC (option S60)	6FC5800-0BS61-0YB0	S61	O	O	O	O	O

Function overview

SINUMERIK ONE

Engineering software

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Engineering software							
Development, commissioning and simulation of virtual machine tools with SINUMERIK ONE							
Create MyVirtual Machine /Operate Virtual test environment for SINUMERIK ONE	MCS4250f ²⁾ MCS4250n ³⁾ MCS4250a ⁴⁾		O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	O
Create MyVirtual Machine /Open Virtual test environment for SINUMERIK ONE Extension with an open communications interface	MCS4255f ²⁾ MCS4255n ³⁾ MCS4255a ⁴⁾		O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	O
Create MyVirtual Machine /3D Virtual test environment for SINUMERIK ONE Extension comprising a Virtual Machine Creator for JobShop applications	MCS4210 ²⁾ MCS4210n ³⁾ MCS4210a ⁴⁾		O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	O
Create MyVirtual Machine /SIMIT Connector Virtual test environment for SINUMERIK ONE Extension for coupling the Closed Loop Engineering	MCS4212 ²⁾ MCS4212n ³⁾ MCS4212a ⁴⁾		O ¹⁾	O ¹⁾	O ¹⁾	O ¹⁾	O
PLC programming language STEP 7 Professional, with TIA Portal from V17:	See SiePortal		O	O	O	O	O
• Ladder diagram (LAD)			O	O	O	O	O
• Function block diagram (FBD)			O	O	O	O	O
• Statement list (STL)			O	O	O	O	O
• Structured Control Language (SCL)			O	O	O	O	O
• GRAPH for sequential processes			O	O	O	O	O
TIA Portal Openness	Free option package for TIA Portal		O	O	O	O	O
SIMATIC S7-PLCSIM Advanced V4.0, floating license	See SiePortal		O	O	O	O	O
SIMATIC S7, F programming tool STEP 7 Safety Advanced V17; engineering software	See SiePortal		O	O	O	O	O
TIA Portal library SafeUserData Safe signals (Bool, Int, DInt) configurable via SINUMERIK Operate	NEW		O	O	O	O	O
Commissioning the SINUMERIK ONE CNC and SINAMICS S120 drive system integrated in SINUMERIK Operate Requirement: SINUMERIK Operate			✓	✓	✓	✓	✓

¹⁾ In Create MyVirtual Machine, no distinctions are mapped between the hardware types/classes. Projects created with Create/Run MyVirtual Machine can be loaded into SINUMERIK ONE NCU/PPU, taking into consideration the HW configurations and constraints.

²⁾ Floating: Server-based licenses, can be used on multiple workstations (not simultaneously); order recommendation.

³⁾ Node-locked Server: Server license that is connected to particular clients (work station/PC)
Node-locked Standalone: Local license file that is connected to a particular client (work station/PC)

⁴⁾ Academics: For non-commercial use.

For more information, request the detailed description of licenses.

Function overview

SINUMERIK ONE

Engineering software

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Engineering software (continued)							
Auto Servo Tuning AST			✓	✓	✓	✓	✓
Commissioning functions for the SINAMICS S120 drive system with 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 using a Bode plot			✓	✓	✓	✓	✓
• Optimization of path interpolation			✓	✓	✓	✓	✓
• Assignment of torque feedforward control			✓	✓	✓	✓	✓
• Complete user strategy, freely parameterizable			✓	✓	✓	✓	✓
• Backward and forward during optimization, re-optimization of the speed controller			✓	✓	✓	✓	✓
• Generating reports, individual axis and path interpolation			✓	✓	✓	✓	✓
• Optimization project can be loaded and optimized offline on the PC			✓	✓	✓	✓	✓
AST call Call Auto Servo Tuning from the part program	6FC5800-0BS10-0YB0	S10	O	O	O	O	O
Trace Requirement: SINUMERIK Operate			✓	✓	✓	✓	✓
Circularity test Requirement: SINUMERIK Operate			✓	✓	✓	✓	✓
Measuring functions for manual drive optimization			✓	✓	✓	✓	✓
Series commissioning via:							
• USB interface with storage medium, e.g. memory stick			✓	✓	✓	✓	✓
• Network drive			✓	✓	✓	✓	✓
SINUMERIK Toolbox Tools for SINUMERIK ONE • CNC software 6.1x for SINUMERIK ONE NCU/PPU • CNC software 6.1x with SINUMERIK Operate • STEP 7 toolbox in TIA Portal for SINUMERIK ONE • SINUMERIK Operate for PCU • SINUMERIK Operate for PC • PCU base software • SINUMERIK Operate commissioning tool • Eboot system • Protector - cycle protection tool • SINUMERIK VNC viewer • WKonvert-Assistant - Tool for parameterizing Tool Ident Connection • Access MyMachine P2P - Tool for communication with SINUMERIK ONE • Documentation for SINUMERIK ONE in En/De Note: Supplied on DVD-ROM for the CNC software (Article No. 6FC5852-1.C...0YA8)			O	O	O	O	O

Function overview

SINUMERIK ONE

Engineering software

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Engineering software (continued)							
SIMATIC STEP 7 Professional (TIA Portal) Software on PC/PG for programming and commissioning the PLC S7-1500F of the SINUMERIK ONE	See SiePortal		O	O	O	O	O
SIMATIC STEP 7 Safety (TIA Portal) Software option for programming and commissioning the F-functions of the PLC S7-1500F of the SINUMERIK ONE	See SiePortal		O	O	O	O	O
Create MyWorkflow /ESW (Automated Engineering & Service Workflow) Data workflow in engineering for SINUMERIK ONE using Openness Clients: • Drive-axis assignment • Configuration data • Simplified commissioning of Failsafe modules ("initialization") • Creating a DSF archive Supplied on DVD-ROM for the CNC software (Article No. 6FC5852-1.C...-0YA8), functions contained in Toolbox Delivery of a software license, SW version 1.2	6FC5862-2YF60-0YA0		O	O	O	O	
Create MyConfig Software for series production and software upgrade of a SINUMERIK ONE, SW version 6.4 Delivery of the software package via download	MCS1025		O	O	O	O	
Create MyConfig /Diff Functions for identifying differences by comparison	MCS1030		O	O	O	O	
Create MyConfig ADDON /ECAD Import (option for Automation License Manager ALM) "EPLAN Add/In" Requirement: ePlan Professional EADN270 license	MCS10201		O	O	O	O	
Create MyConfig ADDON /DIFF SCRIPTING (option for Automation License Manager ALM) "EPLAN Add/In" Requirement: ePlan Professional EADN270 license	MCS10202		O	O	O	O	
Analyze MyMachine /SINUMERIK Tuning Center Software for path and axis optimization of a machine tool with SINUMERIK ONE including Diagnostic Trace Requirement: SINUMERIK Operate commissioning tool (supplied on DVD-ROM for the CNC software, Article No. 6FC5852-1.C...-0YA8)	NEW MCS2157		O	O	O	O	
SIZER for Siemens Drives V3.22	See Siemens Industry Online Support		✓	✓	✓	✓	✓
STARTER Commissioning tool for SINAMICS and MICROMASTER (for topology and diagnostics) As alternative functionality to SINUMERIK Operate for: • S120 drives integrated in SINUMERIK ONE • SINAMICS S120 CU3x0-2 PN (NC-controlled and HMI-assigned) As the sole commissioning function for: • External SINAMICS S120 CU320-2 (PLC-controlled; SMC function)	6SL3072-0AA00-0AG0		O	O	O	O	
Alarms and messages			✓	✓	✓	✓	✓
Action log can be activated for diagnostic purposes: • Logbook for alarms and keys.			✓	✓	✓	✓	✓
Machine logbook, electronic			✓	✓	✓	✓	✓
Trace: CNC, PLC and drives			✓	✓	✓	✓	✓
PLC status (generally possible via SIMATIC STEP 7 on PG/PC)			✓	✓	✓	✓	✓

Function overview

SINUMERIK ONE

Engineering software

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Engineering software (continued)							
SIMATIC STEP 7 & STEP 7 Safety In TIA Portal V 17 for SINUMERIK ONE hardware for service functions Requirement: SIMATIC IPC with SINUMERIK PCU base software (option P86) • Single license on DVD-ROM • Single license without data storage medium	NEW						
	NEW 6FC5862-1YC17-0YA0		–	O	O	O	O
	NEW 6FC5862-1YC17-0YH0	C17	–	O	O	O	O
Access MyMachine /P2P Service tool for PC/PG with Microsoft Windows 10, single license, current SW version Note: Supplied on DVD-ROM for the CNC software (Article No. 6FC5852-1.C...0YA8)	MCS31405		O	O	O	O	
Run MyScreens: • Integrate screens in SINUMERIK Operate, Max. number of screens than can be freely created			5	5	5	5	✓
Run MyScreens: • Integrate screens in SINUMERIK Operate > 5 screens, extended functions	6FC5800-0BP64-0YB0	P64	O	O	O	O	O
Create MyHMI /3GL: • Program screens, operating areas, and user interfaces in high-level languages Single license and for download, without data storage medium, 3 languages (en, de, zh)	MCS1200		O ¹⁾	O	O	O	
Run MyHMI /3GL: Use extended HMI applications Contains: Run MyScreens (option P64) Special note: Option P64 is only active if a 3GL application is used.	6FC5800-0BP60-0YB0 MCS11101	P60	O ¹⁾	O	O	O	O
Create MyHMI /WinCC: • Configure screens and operating areas with WinCC Software for PC, Single license without data storage medium	MCS1210		–	O	O	O	
Run MyHMI /WinCC: • Single license, electronic license as PDF	6FC5800-0BP61-0YB0 MCS11601	P61	–	O	O	O	O
Run MyHMI /WinCC Frame IPC: Configure screens and user interfaces Requirement: SIMATIC IPC for SINUMERIK	6FC5800-0BP62-0YB0 MCS11701	P62	–	O	O	O	O
Run MyHMI /SIMATIC OP: • Utilize the user interface on SIMATIC Panel Requirement: SIMATIC Comfort or Mobile Panels	6FC5800-0BP03-0YB0 MCS11501	P03	–	O	O	O	O

¹⁾ Applies exclusively to programming the Embedded HMI with Qt.
 You can obtain the Qt license key directly from:
 The Qt Company: <https://www.qt.io>

Function overview

SINUMERIK ONE

Engineering software

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Engineering software (continued)							
Create MyHMI /WinCC Unified Configure screens and operating areas with WinCC Single license, SW version V17 Requirements: CNC software ≥ SW version 6.20 For multi-window display on ≥ 19" displays with full HD resolution (1920 × 1080), option SINUMERIK Operate Display Manager (option P81) is additionally required. Note: The remaining HMI user memory on SD card (option P12) is restricted to 5 GB.	NEW 6FC5872-3YC17-0YA0		–	O ¹⁾	O	O	
Run MyHMI /WinCC Unified for NCU	NEW 6FC5800-0BU01-0YB0		–	–	O	O	O
Run MyHMI /WinCC Unified for IPC	NEW 6FC5800-0BU03-0YB0		–	O	O	O	O
Run MyHMI /WinCC Unified for Unified Comfort Panel	NEW 6FC5800-0BU04-0YB0		–	O	O	O	O
Create MyHMI /PRO: • Integrate screens with variable layout in SINUMERIK Operate Single license, SW version 9.4	MCS1220		O	O	O	O	
Run MyHMI /PRO: • Use standardized and freely configurable operator screens for machine operation in SINUMERIK Operate	6FC5800-0BP47-0YB0 MCS11301	P47	O	O	O	O	O
For industry-specific solutions (assembly station in automotive industry plants):							
Software for SIMATIC Comfort Panel KTP900F Mobile and TP1200 for machine operation with HMI Lite Single license, current SW version	6FC5263-0PY11-0AG0		–	–	–	–	–
Software for SIMATIC Comfort Panel KTP900F Mobile and TP1200 for machine operation with HMI Lite Single license, SW version 8.2	6FC5263-8PY11-1AG0		–	–	–	–	–
Software for SIMATIC Comfort Panel KTP900F Mobile and TP1200 for machine operation with HMI Lite Single license, without data storage medium	6FC5263-0PY11-0AG1		–	–	–	–	–

¹⁾ Requirement: HMI on PC.

Function overview

SINUMERIK ONE

Boost productivity

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Boost productivity							
SINUMERIK Ctrl-Energy			✓	✓	✓	✓	✓
Industrial Edge for Machine Tools 227 Based on SIMATIC IPC227, firmware pre-installed, current firmware can be installed via MindSphere Requirements: MindSphere Account MindSphere Management applications See Siemens Industry Online Support under SIOS No. 109767936							
• For mounting on a DIN rail	NEW 6FC5865-1AD20-0YA0		O	O	O	O	
• For bracket mounting	NEW 6FC5865-1BD20-0YA0		O	O	O	O	
Industrial Edge for Machine Tools 427 Based on SIMATIC IPC427, firmware pre-installed, current firmware can be installed via MindSphere Requirements: MindSphere Account MindSphere Management applications See Siemens Industry Online Support under SIOS No. 109767936							
• For mounting on a DIN rail	NEW 6FC5865-1AD40-0YA0		O	O	O	O	
• For bracket mounting	NEW 6FC5865-1BD40-0YA0		O	O	O	O	
Connect MyMachines (Mcenter) Functions: • Application management: Filtering, tool statistics • AMP: Generic data, data collection/acquisition and buffering • Reset password • Usability: Keep width of table columns	MCS3150		O	O	O	O	
Manage MyResources /Tools Optimization of the entire tool cycle Functions: • Tool master data revisioning • OEM data updates • Tool statistics offline handling • Support for turning machines (without magazine configuration) Requirement: An Mcenter platform must be installed for operation.	MCS5140		O	O	O	O	
Manage MyResources /Tools OA	MCS5150		O	O	O	O	
Manage MyResources /Programs Functions: • Factory-wide management of CNC packages • Direct and secure data transfer to and from the machine • Seamless communication • Revisioning • Lifecycle Management package Requirement: An Mcenter platform must be installed for operation.	MCS5180		O	O	O	O	
Manage MyResources /Programs OA	MCS5190		O	O	O	O	

Function overview

SINUMERIK ONE

Boost productivity

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Boost productivity (continued)							
Optimize MyMachining /Adaptive Control Realtime adaptive feedrate control (Adaptive Control Auto) for high machine productivity with minimization of the cutting time and process stability with tool breakage protection	MCS2151		O	O	O	O	
Analyze MyWorkpiece /Tool Monitor ¹⁾ Realtime monitoring application for breakage monitoring of cutting tools, for detection of anomalous cutting conditions and excessive tool wear during machining. The application is integrated into SINUMERIK ONE and does not require any hardware components in the machine.	MCS2265		O	O	O	O	

2

¹⁾ Compile cycle that is not generally released. Requires machine-specific release process.
Please contact your local Siemens sales office or Regional Company.

Function overview

SINUMERIK ONE

Machine Services

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Machine Services							
Liability for material defects for SINUMERIK ONE products and software Duration: 12 months For the currently applicable conditions, please refer to the terms and conditions of sale and delivery in the respective countries. To do this, use the adjacent link to the terms and conditions of sale and delivery in SiePortal. The duration of the liability for material defects can be extended by the following additional offers: • Registration of the SINUMERIK ONE system • Repair Service Contract • Local Service Contract	See terms and conditions of sale and delivery in SiePortal		✓	✓	✓	✓	✓
Extended liability for material defects on SINUMERIK ONE system through registration Valid for all Siemens components in the machine, including the hardware components SINUMERIK ONE, SIMATIC, SINAMICS and SIMOTICS. Exclusion: Fans of SINUMERIK and SINAMICS modules, wearing parts, such as bearings and brakes of motors, as well as software. Requirement: Registration of the Siemens components in myRegistration via IdentSnapshot	See myRegistration		✓	✓	✓	✓	✓
Registration of SINUMERIK ONE Note, request and functionality for registration, e.g. via the Easy Registration function (standard function in SINUMERIK Operate for registering the SINUMERIK NCU/PPU via QR code). Benefit: With a registration of the machine and its equipment, service and support by Siemens can be provided faster and better. Requirement: SINUMERIK Operate			✓	✓	✓	✓	✓
IdentSnapshot Software for registration of machines and plants with products of the most varied product families, e.g. SINUMERIK, SINAMICS, and SIMATIC in myRegistration	See Siemens Industry Online Support		✓	✓	✓	✓	✓
Siemens Industry Online Support Free access to Siemens Industry Online Support (SIOS), where you will find product information, documentation, downloads, application examples, FAQs, forums, etc.	See Siemens Industry Online Support		✓	✓	✓	✓	✓
SINUMERIK Optimization Check Optimization of machine parameter settings and axes to increase productivity Analysis of the machine and advice to improve the machine dynamic response as a parameter list plus indications This analysis can also be performed via a remote connection. Requirement: SINUMERIK ONE from SW 6.13	See SiePortal		○	○	○	○	○
SINUMERIK Optimization Check – Mechanics For early detection of machine wear and quality checks after hardware has been replaced (e.g. ball screw). The frequency response and trace measurements are recorded from which a machine fingerprint is created. The machine fingerprint, i.e. the mechanical reference data, is repeatedly compared with new measurements in order to detect changes on the machine. A result report is generated and discussed with the customer.	NEW See SiePortal		○	○	○	○	○

Function overview

SINUMERIK ONE

Machine Services

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Machine Services (continued)							
SINUMERIK Service Assistance - Machine Transparency: Automatic acquisition of hardware components, firmware and software versions and their changes - Machine Condition: Intelligent evaluation of expanded state data of the control and drive technology - Error Analysis: Targeted identification and evaluation of error states and faults Requirements: MindSphere account See also Siemens Industry Online Support	See SiePortal		O	O	O	O	O
Remote Services for Machine Tools Remote Services offer the option of digitizing the reactive customer service. This service comprises remote fault analysis and support for fault rectification on a Siemens SINUMERIK control system by a remote expert from Siemens AG. Benefits - Reduction of unscheduled downtimes thanks to fast remote support and fault analysis by Siemens Service experts - Reduced service costs due to rapid service support and increased service availability - High safety standards using state-of-the-art remote technology Requirement: The availability of a remote infrastructure is a prerequisite for using the Remote Services for Machine Tools offering.	See SiePortal		O	O	O	O	O
Local service contract With the Local Service Contract (LSC), we offer machine users an individual, modular preventive program that ensures the availability of machine tools and manufacturing systems to a considerable extent and therefore makes an important contribution to efficient production.	See SiePortal		O	O	O	O	O
Retrofit with SINUMERIK ONE For example, retrofitting a machine tool with an older CNC to SINUMERIK ONE and SINAMICS drives to maintain or increase productivity, to increase IT security, and in preparation for digitalization of the machine.	See SiePortal		O	O	O	O	O
Courses and training for SINUMERIK ONE SITRAIN - Digital Industry Academy provides an extensive training offering for Siemens industrial products. You can find more information at www.siemens.com/sitrain . A range of courses specifically for SINUMERIK ONE is offered.	See SITRAIN		O	O	O	O	

Function overview

SINUMERIK ONE

Machine Services

Description ✓ Basic version I O Option I – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Machine Services (continued)							
Training rack for SINUMERIK ONE The training rack is suitable for practical exercises in commissioning, operation and programming, and maintenance tasks. Components: • SINUMERIK ONE NCU 1750 with SD card • CNC SW export version, current SW version • SINAMICS S120 Active Line Module 16 kW • SINAMICS S120 Active Interface Module 16 kW • Motor Module • Numeric Control Extension NX10.3 • SIMATIC IPC427E • ITC2200 neutral version • MCP2200c machine control panel • SIMATIC PROFIsafe I/Os Note: Option licenses must be ordered separately.	6ZB2410-0BQ00		–	–	O	–	O
Training case SINUMERIK OP Touch The SINUMERIK OP Touch training case for training and demonstration is suitable for operation of the training case SINUMERIK ONE (6ZB2410-0BN00). The training case contains a ready-to-use operating unit comprising: • ITC2200 • IPC427E with the current SINUMERIK Operate software • MCP 398C machine control panel with EM131 Note: Option licenses must be ordered separately.	6ZB2410-0BL00		–	–	O	–	O
Training case SINUMERIK ONE with NCU 1750 For training, testing, and demonstration • Connection: 230 V 1 AC • SINUMERIK ONE NCU 1750 with current CNC software with license and SINUMERIK Operate Export • SINAMICS Smart Line Module 5 kW, modified for 230 V • Double Motor Module 2 × 3 A • 2 SIMOTICS S-1FK7022 motors, DRIVE-CLiQ encoder absolute / incremental • Stroboscope for testing synchronous operation • SIMATIC ET 200SP IM 155-6PN with 4 modules DI, DQ, TM, AI • S7 mounting rail 85 mm with 24 V and PN connection • Operator box, can be removed for I/Os of the NCU 1750 or ET200 Note: Option licenses must be ordered separately.	6ZB2410-0BN00		–	–	O	–	O

Function overview

SINUMERIK ONE

Product Partner SINUMERIK Systems

Description ✓ Basic version O Option – Not available	Article No. Product ID	Order code	SINUMERIK ONE				
			PPU 1740	NCU 1740	NCU 1750	NCU 1760	in CNC SW export version
Product Partner SINUMERIK Systems							
Under the name Product Partner SINUMERIK Systems, leading companies present acknowledged know-how in specific fields. Their products and solutions, that they develop, produce and sell themselves, are a useful complement to our comprehensive portfolio. Our partner network also makes a crucial contribution toward you benefiting from maximally complete, high quality and efficient solutions, enabling you to sustainably improve your competitiveness. This partnership allows intensive cooperation, and ensures a high degree of compatibility and reliability in productive use with SINUMERIK CNCs.	See SiePortal						
Artis MARPOSS Monitoring Solutions GmbH							
• CTM	See SiePortal		O*)	O*)	O*)	O*)	
• Genior Modular	See SiePortal		O*)	O*)	O*)	O*)	
ModuleWorks GmbH							
• Real-time Collision Avoidance Requirement: IPC	See SiePortal		–	O*)	O*)	O*)	
Hofmann Mess- und Auswuchttechnik GmbH & Co. KG							
• AB 9000 Requirement: IPC	See SiePortal		–	O*)	O*)	O*)	
MCU GmbH & Co. KG							
• Toolinspect II	See SiePortal		O*)	O*)	O*)	O*)	
Dittel Messtechnik GmbH (MARPOSS Group)							
• DS6000 balancing and process monitoring Requirement: IPC	See SiePortal		–	O*)	O*)	O*)	
Renishaw							
• XM-60 multi-axis laser measurement system Requirements: Run MyCC /VCS-A3 (option N15) or Run MyCC /VCS-A5 (option N16 for NCU 1750/1760) or Run MyCC /VCS-A5 plus (option N17 for NCU 1750/1760)	See SiePortal		O*)	O*)	O*)	O*)	

^{*)} Siemens accepts no liability for the information in this table.
For release and compatibility of the displayed product for module types and SW versions SINUMERIK ONE, ask the Product Partner. For more information, contact the product partner listed in the "Article No." column directly.
You can find more information on the internet at:
<https://www.siemens.com/product-partner>

Function overview

Notes

2

Appendix

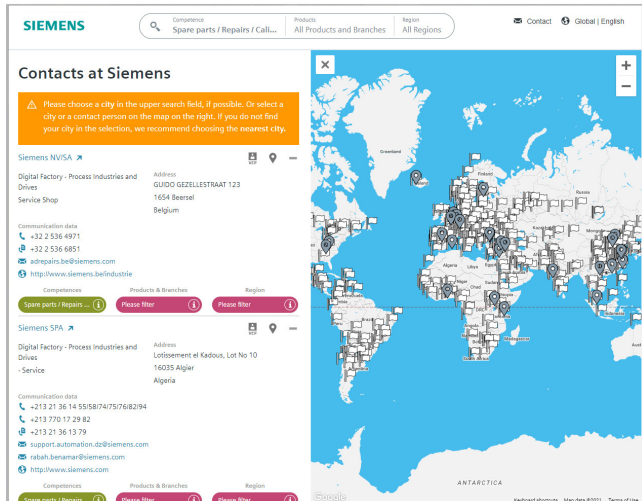


3/2	Partners
3/3	Notes on software
3/3	Software licenses
3/5	Setup texts and software update services
3/6	Metal surcharges
3/9	Conditions of sale and delivery/ Export regulations

Appendix

Partners

Partners at Siemens



At your service locally, around the globe for consulting, sales, training, service, support, spare parts on the entire portfolio of Digital Industries.

Your partner can be found in our Personal Contacts Database at: www.siemens.com/automation-contact

You start by selecting

- the required competence,
- products and branches,
- a country and a city

or by a

- location search or free text search.

Overview

Software types

Software requiring a license is categorized into types. The following software types have been defined:

- Engineering software
- Runtime software

Engineering software

This includes all software products for creating (engineering) user software, e.g. for configuring, programming, parameterizing, testing, commissioning or servicing.

Data generated with engineering software and executable programs can be duplicated for your own use or for use by third parties free-of-charge.

Runtime software

This includes all software products required for plant/machine operation, e.g. operating system, basic system, system expansions, drivers, etc.

The duplication of the runtime software and executable programs created with the runtime software for your own use or for use by third-parties is subject to a charge.

You can find information about license fees according to use in the ordering data (e.g. in the catalog). Examples of categories of use include per CPU, per installation, per channel, per instance, per axis, per control loop, per variable, etc.

Information about extended rights of use for parameterization/configuration tools supplied as integral components of the scope of supply can be found in the readme file supplied with the relevant product(s).

License types

Siemens Industry Automation & Drive Technologies offers various types of software license:

- Floating license
- Single license
- Rental license
- Rental floating license
- Trial license
- Demo license
- Demo floating license

Floating license

The software may be installed for internal use on any number of devices by the licensee. Only the concurrent user is licensed. The concurrent user is the person using the program. Use begins when the software is started. A license is required for each concurrent user.

Single license

Unlike the floating license, a single license permits only one installation of the software per license.

The type of use licensed is specified in the ordering data and in the Certificate of License (CoL). Types of use include for example per instance, per axis, per channel, etc.

One single license is required for each type of use defined.

Rental license

A rental license supports the "sporadic use" of engineering software. Once the license key has been installed, the software can be used for a specific period of time (the operating hours do not have to be consecutive).

One license is required for each installation of the software.

Rental floating license

The rental floating license corresponds to the rental license, except that a license is not required for each installation of the software. Rather, one license is required per object (for example, user or device).

Trial license

A trial license supports "short-term use" of the software in a non-productive context, e.g. for testing and evaluation purposes. It can be transferred to another license.

Demo license

The demo license support the "sporadic use" of engineering software in a non-productive context, for example, use for testing and evaluation purposes. It can be transferred to another license. After the installation of the license key, the software can be operated for a specific period of time, whereby usage can be interrupted as often as required.

One license is required per installation of the software.

Demo floating license

The demo floating license corresponds to the demo license, except that a license is not required for each installation of the software. Rather, one license is required per object (for example, user or device).

Certificate of License (CoL)

The CoL is the licensee's proof that the use of the software has been licensed by Siemens. A CoL is required for every type of use and must be kept in a safe place.

Downgrading

The licensee is permitted to use the software or an earlier version/release of the software, provided that the licensee owns such a version/release and its use is technically feasible.

Delivery versions

Software is constantly being updated.

The following delivery versions

- PowerPack
- Upgrade

can be used to access updates.

Existing bug fixes are supplied with the ServicePack version.

PowerPack

PowerPacks can be used to upgrade to more powerful software. The licensee receives a new license agreement and CoL (Certificate of License) with the PowerPack. This CoL, together with the CoL for the original product, proves that the new software is licensed.

A separate PowerPack must be purchased for each original license of the software to be replaced.

Upgrade

An upgrade permits the use of a new version of the software on the condition that a license for a previous version of the product is already held.

The licensee receives a new license agreement and CoL with the upgrade. This CoL, together with the CoL for the previous product, proves that the new version is licensed.

A separate upgrade must be purchased for each original license of the software to be upgraded.

Appendix

Notes on software

Software licenses

Overview

ServicePack

ServicePacks are used to debug existing products. ServicePacks may be duplicated for use as prescribed according to the number of existing original licenses.

License key

Siemens Industry Automation & Drive Technologies supplies software products with and without license keys.

The license key serves as an electronic license stamp and is also the "switch" for activating the software (floating license, rental license, etc.).

The complete installation of software products requiring license keys includes the program to be licensed (the software) and the license key (which represents the license).

Software Update Service (SUS)

As part of the SUS contract, all software updates for the respective product are made available to you free of charge for a period of one year from the invoice date. The contract will automatically be extended for one year if it is not canceled three months before it expires.

The possession of the current version of the respective software is a basic condition for entering into an SUS contract.

You can download explanations concerning license conditions from https://mall.industry.siemens.com/legal/ww/en/terms_of_trade_en.pdf

Overview

The "General License Conditions for Software Products for Automation and Drives" are applicable for supplies and deliveries of DI software products.

Legal notes during setup for new software products

All software products feature a uniform reference to the license conditions. The license conditions are enclosed either with the documentation or in the software pack. When software is downloaded from the Internet, the license contract is displayed before the ordering procedure and must be accepted by the user before downloading can continue.

Notice:

This software is protected by German and/or US copyright laws and the regulations of international agreements. Unauthorized reproduction or sale of this software or parts of it is a criminal offense. This will lead to criminal and civil prosecution, and may result in significant fines and/or claims for damages. Prior to installing and using the software, please read the applicable license conditions for this software. You will find these in the documentation or packaging.

If you have received this software on a CD-ROM that is marked Trial version, or accompanying software that is licensed for your use, the software is only permitted to be used for test and validation purposes in accordance with the accompanying conditions for the trial license. To this end, it is necessary for programs, software libraries, etc. are installed on your computer. We therefore urgently recommend that installation is performed on a single-user computer or on a computer that is not used in the production process or for storing important data, since it cannot be completely excluded that existing files will be modified or overwritten. We accept no liability whatsoever for damage and/or data losses that result from this installation or the non-observance of this warning. Every other type of use of this software is only permitted if you are in possession of a valid license from Siemens is obtained.

If you are not in possession of a valid license that can be proven by presenting an appropriate Certificate of License/software product certificate, please abort installation immediately and contact a Siemens office without delay to avoid claims for damages.

Software update services
Order

To order the software update service, an article number must be specified. The software update service can be ordered when the software products are ordered or at a later date. Subsequent orders require that the ordering party is in possession at least of a single license.

Note:

It is recommended that the software update service is ordered as early as possible. If a new software version of a software product is released for delivery by Siemens, only those customers will receive it automatically who are entered in the appropriate delivery list at Siemens at this time. Previous software versions, or the current software version are not supplied when the software update service is ordered. The software update service requires that the software product is up-to-date at the time of completion of the contract for the software update service.

Delivery

When a software update service is ordered, you will be sent the contractual conditions of this service and the price is due for payment. At the same time, you will be included in a delivery list for the software product to be updated. If Siemens releases a new software version for the corresponding software product for general sale (function version or product version), it will be delivered automatically to the goods recipient specified in the delivery address within the contract period.

Appendix

Metal surcharges

Explanation of the raw material/metal surcharges¹⁾

Surcharge calculation

To compensate for variations in the price of the raw materials silver, copper, aluminum, lead, gold, dysprosium²⁾ and/or neodym²⁾, surcharges are calculated on a daily basis using the so-called metal factor. These apply to products containing these raw materials and are calculated per raw material. These surcharges are added to the price of a product if the basic official price (BOP) of the raw material in question is exceeded. Surcharges are calculated in accordance with the following criteria:

Basic official price (BOP) of the raw material

- BOP of the workday prior to receipt of the order or prior to release order (Daily Price) for:
 - Silver (processed)³⁾
 - Gold (processed)³⁾
 - Aluminum (temporary constant 360.31 EUR per 100 kg, due to loss of DEL-Notiz)
 - Lead (constant 199.50 EUR per 100 kg)
- BOP of two workdays prior to receipt of the order or prior to release order (Daily Price) per 100 kg for:
 - Copper (LME-notation/10, converted from USD to EUR using LME-FX-Rate [MTLE] +1.2%) + 1%⁴⁾
- If BOP is suspended, the last one is used.

Metal factor of the products

Certain products are displayed with a metal factor. The metal factor determines the official price (for those raw materials concerned) as of which the metal surcharges are applied and the calculation method used (weight or percentage method). An exact explanation is given below.

Structure of the metal factor

Metal factor consists of several digits; the first digit indicates whether the percentage method of calculation refers to the list price or a discounted price (customer net price) (L = list price / N = customer net price).

The remaining digits indicate the method of calculation used for the respective raw material. If no surcharge is added for a raw material, a "-" is used.

1st digit	List or customer net price using the percentage method
2nd digit	for silver (AG)
3rd digit	for copper (CU)
4th digit	for aluminum (AL)
5th digit	for lead (PB)
6th digit	for gold (AU)
7th digit	for dysprosium (Dy) ²⁾
8th digit	for neodym (Nd) ²⁾

Weight method

The weight method uses the BOP, the daily price and the raw material weight. In order to calculate the surcharge, the BOP must be subtracted from the daily price. The difference is then multiplied by the raw material weight.

The BOP can be found in the table below using the number (1 to 9) of the respective digit of the metal factor. The raw material weight can be found in the respective product descriptions.

Percentage method

Use of the percentage method is indicated by the letters A-Z at the respective digit of the metal factor.

The surcharge is increased - dependent on the deviation of the daily price compared with the BOP - using the percentage method in "steps" and consequently offers surcharges that remain constant within the framework of this "step range". A higher percentage rate is charged for each new step. The respective percentage level can be found in the table below.

Metal factor examples

L E A - - - -	Basis for % surcharge: List price Silver Basis 150 €, Step 50 €, 0.5 % Copper Basis 150 €, Step 50 €, 0.1 % No surcharge for aluminum No surcharge for lead No surcharge for gold No surcharge for dysprosium No surcharge for neodym
N - A 6 - - -	Basis for % surcharge: Customer net price No surcharge for silver Copper Basis 150 €, Step 50 €, 0.1 % Aluminum acc. to weight, basic offic. price 225 € No surcharge for lead No surcharge for gold No surcharge for dysprosium No surcharge for neodym
- - 3 - - - -	No basis necessary No surcharge for silver Copper acc. to weight, basic official price 150 € No surcharge for aluminum No surcharge for lead No surcharge for gold No surcharge for dysprosium No surcharge for neodym

¹⁾ Refer to the separate explanation on the next page regarding the raw materials dysprosium and neodym (= rare earths).

²⁾ For a different method of calculation, refer to the separate explanation for these raw materials on the next page.

³⁾ Source: Umicore, Hanau (www.metalsmanagement.umicore.com).

⁴⁾ Source: The London Metal Exchange – an HKEX Company (<https://www.lme.com/>).

Siemens uses LME's data and trademarks within the scope of a license granted by LME, LME has no involvement and accepts no responsibility to any third party in connection with the use of data and trademarks, onward distribution of data and trademarks by third parties is not permitted.

Explanation of the raw material/metal surcharges for dysprosium and neodym (rare earths)

Surcharge calculation

To compensate for variations in the price of the raw materials silver¹⁾, copper¹⁾, aluminum¹⁾, lead¹⁾, gold¹⁾, dysprosium and/or neodym, surcharges are calculated on a daily basis using the so-called metal factor. This applies to products containing at least one of these raw materials. The surcharge for dysprosium and neodym is calculated as a supplement to the price of a product if the basic official price (BOP) of the raw material in question is exceeded.

The surcharge is calculated in accordance with the following criteria:

- Basic official price (BOP) of the raw material²⁾
Three-month basic average price (see below) in the period before the quarter in which the order was received or the release order took place (average official price) for
- Dysprosium (Dy metal, 99 % min. FOB China; USD/kg)
- Neodym (Nd metal, 99 % min. FOB China; USD/kg)
- Metal factor of the products
Certain products are displayed with a metal factor. The metal factor indicates (for those raw materials concerned) the BOP as of which the surcharges for dysprosium and neodym are calculated using the weight method. An exact explanation of the metal factor is given below.

Three-month average price

The prices of rare earths vary according to the foreign currency, and there is no freely accessible stock exchange listing. This makes it more difficult for all parties involved to monitor changes in price. In order to avoid continuous adjustment of the surcharges, but to still ensure fair, transparent pricing, an average price is calculated over a three-month period using the average monthly foreign exchange rate from USD to EUR (source: European Central Bank). Since not all facts are immediately available at the start of each month, a one-month buffer is allowed before the new average price applies.

Examples of calculation of the average official price:

Period for calculation of the average price:	Period during which the order/release order is effected and the average price applies:
Sep 2012 - Nov 2012	Q1 in 2013 (Jan - Mar)
Dec 2012 - Feb 2013	Q2 in 2013 (Apr - Jun)
Mar 2013 - May 2013	Q3 in 2013 (Jul - Sep)
Jun 2013 - Aug 2013	Q4 in 2013 (Oct - Dec)

Structure of the metal factor

The metal factor consists of several digits; the first digit is not relevant to the calculation of dysprosium and neodym.

The remaining digits indicate the method of calculation used for the respective raw material. If no surcharge is added for a raw material, a "-" is used.

1st digit	List or customer net price using the percentage method
2nd digit	for silver (AG) ¹⁾
3rd digit	for copper (CU) ¹⁾
4th digit	for aluminum (AL) ¹⁾
5th digit	for lead (PB) ¹⁾
6th digit	for gold (AU) ¹⁾
7th digit	for dysprosium (Dy)
8th digit	for neodym (Nd)

Weight method

The weight method uses the basic official price, the average price and the raw material weight. In order to calculate the surcharge, the BOP must be subtracted from the average price. The difference is then multiplied by the raw material weight.

The basic official price can be found in the table below using the number (1 to 9) of the respective digit of the metal factor. Your Sales contact can inform you of the raw material weight.

Metal factor examples

-----71	
↑	No basis necessary
↑	No surcharge for silver
↑	No surcharge for copper
↑	No surcharge for aluminum
↑	No surcharge for lead
↑	No surcharge for gold
↑	Dysprosium acc. to weight, basic official price 300 €
↑	Neodym acc. to weight, basic official price 50 €

¹⁾ For a different method of calculation, refer to the separate explanation for these raw materials on the previous page.

²⁾ Source: Asian Metal Ltd (www.asianmetal.com)

Appendix

Metal surcharges

Values of the metal factor

Percentage method	Basic official price in €	Step range in €	% surcharge 1st step	% surcharge 2nd step	% surcharge 3rd step	% surcharge 4th step	% sur- charge per addi- tional step
			Price in €	Price in €	Price in €	Price in €	
			150.01 - 200.00	200.01 - 250.00	250.01 - 300.00	300.01 - 350.00	
A	150	50	0.1	0.2	0.3	0.4	0.1
B	150	50	0.2	0.4	0.6	0.8	0.2
C	150	50	0.3	0.6	0.9	1.2	0.3
D	150	50	0.4	0.8	1.2	1.6	0.4
E	150	50	0.5	1.0	1.5	2.0	0.5
F	150	50	0.6	1.2	1.8	2.4	0.6
G	150	50	1.0	2.0	3.0	4.0	1.0
H	150	50	1.2	2.4	3.6	4.8	1.2
I	150	50	1.6	3.2	4.8	6.4	1.6
J	150	50	1.8	3.6	5.4	7.2	1.8
			175.01 - 225.00	225.01 - 275.00	275.01 - 325.00	325.01 - 375.00	
O	175	50	0.1	0.2	0.3	0.4	0.1
P	175	50	0.2	0.4	0.6	0.8	0.2
R	175	50	0.5	1.0	1.5	2.0	0.5
			225.01 - 275.00	275.01 - 325.00	325.01 - 375.00	375.01 - 425.00	
S	225	50	0.2	0.4	0.6	0.8	0.2
U	225	50	1.0	2.0	3.0	4.0	1.0
V	225	50	1.0	1.5	2.0	3.0	1.0
W	225	50	1.2	2.5	3.5	4.5	1.0
			150.01 - 175.00	175.01 - 200.00	200.01 - 225.00	225.01 - 250.00	
Y	150	25	0.3	0.6	0.9	1.2	0.3
			400.01 - 425.00	425.01 - 450.00	450.01 - 475.00	475.01 - 500.00	
Z	400	25	0.1	0.2	0.3	0.4	0.1
Price basis (1st digit)							
L	Calculation based on the list price						
N	Calculation based on the customer net price (discounted list price)						
Weight method	Basic official price in €						
1	50	Calculation based on raw material weight					
2	100						
3	150						
4	175						
5	200						
6	225						
7	300						
8	400						
9	555						
Miscella- neous							
-	No metal surcharge						

1. General Provisions

By using this catalog you can purchase products (hardware, software and services) described therein from Siemens Aktiengesellschaft subject to the following Terms and Conditions of Sale and Delivery (hereinafter referred to as "T&C"). Please note that the scope, the quality and the conditions for supplies and services, including software products, by any Siemens entity having a registered office outside Germany, shall be subject exclusively to the General Terms and Conditions of the respective Siemens entity. The following T&C apply exclusively for orders placed with Siemens Aktiengesellschaft, Germany.

1.1 For customers with a seat or registered office in European Union

For customers with a seat or registered office in European Union, the following terms and conditions apply subordinate to T&C:

- for products, which include specific terms and conditions in the description text, these specific terms and conditions shall apply and subordinate thereto,
- for stand-alone software products and software products forming a part of a product or project, the "General License Conditions for Software Products for Automation and Drives for Customers with a Seat or registered Office in Germany"¹⁾ and/or
- for consulting services the "Allgemeine Geschäftsbedingungen für Beratungsleistungen der Division DF – Deutschland" (available only in German) and/or
- for other services, the „Supplementary Terms and Conditions for Services ("BL")¹⁾ and/or
- for other supplies the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"¹⁾.

In case such supplies should contain Open Source Software, the conditions of which shall prevail over the "General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry"¹⁾, a notice will be contained in the scope of delivery in which the applicable conditions for Open Source Software are specified. This shall apply mutatis mutandis for notices referring to other third party software components.

1.2 For customers with a seat or registered office outside European Union

For customers with a seat or registered office outside European Union, the following terms and conditions apply subordinate to T&C:

- for products, which include specific terms and conditions in the description text, these specific terms and conditions shall apply and subordinate thereto,
- for consulting services the "Standard Terms and Conditions for Consulting Services of the Division DF for Customers with a Seat or Registered Office Outside of Germany"¹⁾ and/or
- for other services the "International Terms & Conditions for Services"¹⁾ supplemented by "Software Licensing Conditions"¹⁾ and/or
- for other supplies of hard- and software the "International Terms & Conditions for Products"¹⁾ supplemented by "Software Licensing Conditions"¹⁾

1.3 For customers with master or framework agreement

To the extent our supplies and/or services offered are covered by an existing master or framework agreement, the terms and conditions of that agreement shall apply instead of T&C.

2. Prices

The prices are in € (Euro) ex point of delivery, exclusive of packaging.

The sales tax (value added tax) is not included in the prices. It shall be charged separately at the respective rate according to the applicable statutory legal regulations.

Prices are subject to change without prior notice. We will charge the prices valid at the time of delivery.

To compensate for variations in the price of raw materials (e.g. silver, copper, aluminum, lead, gold, dysprosium and neodym), surcharges are calculated on a daily basis using the so-called metal factor for products containing these raw materials.

A surcharge for the respective raw material is calculated as a supplement to the price of a product if the basic official price of the raw material in question is exceeded.

The metal factor of a product indicates the basic official price (for those raw materials concerned) as of which the surcharges on the price of the product are applied, and with what method of calculation.

You will find a detailed explanation of the metal factor on the page headed "Metal surcharges".

To calculate the surcharge (except in the cases of dysprosium and neodym), the official price from the day prior to that on which the order was received or the release order was effected is used.

To calculate the surcharge applicable to dysprosium and neodym ("rare earths"), the corresponding three-month basic average price in the quarter prior to that in which the order was received or the release order was effected is used with a one-month buffer (details on the calculation can be found in the explanation of the metal factor).

3. Additional Terms and Conditions

The dimensions are in mm. In Germany, according to the German law on units in measuring technology, data in inches apply only to devices for export.

Illustrations are not binding.

Insofar as there are no remarks on the individual pages of this catalog – especially with regard to data, dimensions and weights given – these are subject to change without prior notice.

¹⁾ The text of the Terms and Conditions of Siemens AG can be downloaded at
https://mall.industry.siemens.com/legal/ww/en/terms_of_trade_en.pdf

Appendix

Conditions of sale and delivery/Export regulations

4. Export Regulations

We shall not be obligated to fulfill any agreement if such fulfillment is prevented by any impediments arising out of national or international foreign trade or customs requirements or any embargoes and/or other sanctions.

Export may be subject to license. We shall indicate in the delivery details whether licenses are required under German, European and US export lists.

Our products are controlled by the U.S. Government (when labeled with "ECCN" unequal "N") and authorized for export only to the country of ultimate destination for use by the ultimate consignee or end-user(s) herein identified. They may not be resold, transferred, or otherwise disposed of, to any other country or to any person other than the authorized ultimate consignee or end-user(s), either in their original form or after being incorporated into other items, without first obtaining approval from the U.S. Government or as otherwise authorized by U.S. law and regulations. Products labeled with "AL" unequal "N" are subject to European / national export authorization.

The export indications can be viewed in advance in the description of the respective goods on the Industry Mall, our online catalog system. Only the export labels "AL" and "ECCN" indicated on order confirmations, delivery notes and invoices are authoritative.

Products without label, with label "AL:N" / "ECCN:N", or label "AL:9X9999" / "ECCN: 9X9999" may require authorization from responsible authorities depending on the final end-use, or the destination.

If you transfer goods (hardware and/or software and/or technology as well as corresponding documentation, regardless of the mode of provision) delivered by us or works and services (including all kinds of technical support) performed by us to a third party worldwide, you shall comply with all applicable national and international (re-)export control regulations. In any event of such transfer of goods, works and services you shall comply with the (re-) export control regulations of the Federal Republic of Germany, of the European Union and of the United States of America.

Prior to any transfer of goods, works and services provided by us to a third party you shall in particular check and guarantee by appropriate measures that

- there will be no infringement of an embargo imposed by the European Union, by the United States of America and/ or by the United Nations by such transfer, by brokering of contracts concerning those goods, works and services or by provision of other economic resources in connection with those goods, works and services, also considering the limitations of domestic business and prohibitions of by-passing those embargoes;
- such goods, works and services are not intended for use in connection with armaments, nuclear technology or weapons, if and to the extent such use is subject to prohibition or authorization, unless required authorization is provided;
- the regulations of all applicable Sanctioned Party Lists of the European Union and the United States of America concerning the trading with entities, persons and organizations listed therein are considered.

If required to enable authorities or us to conduct export control checks, you, upon request by us, shall promptly provide us with all information pertaining to the particular end customer, the particular destination and the particular intended use of goods, works and services provided by us, as well as any export control restrictions existing.

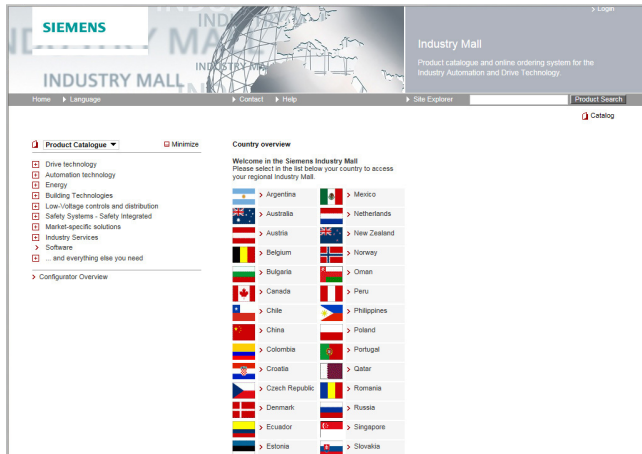
You acknowledge that under the EU embargo regulations against Iran, Syria and Russia respectively the sale of certain listed goods and related services is subject to authorization by the competent export control authorities of the European Union. If (i) the goods or services ordered by you are destined for Iran, Syria or Russia, and (ii) the contract for our supplies and/or services is subject to prior authorization of the competent export control authorities of the European Union, the contract between you and us shall come into force in this respect only upon granting of such authorization.

The products listed in this catalog may be subject to European/German and/or US export regulations. Any export requiring approval is therefore subject to authorization by the relevant authorities.

Errors excepted and subject to change without prior notice.

Selection and ordering at Siemens Industry Mall and downloading catalogs

Easy product selection and ordering: Industry Mall



Industry Mall

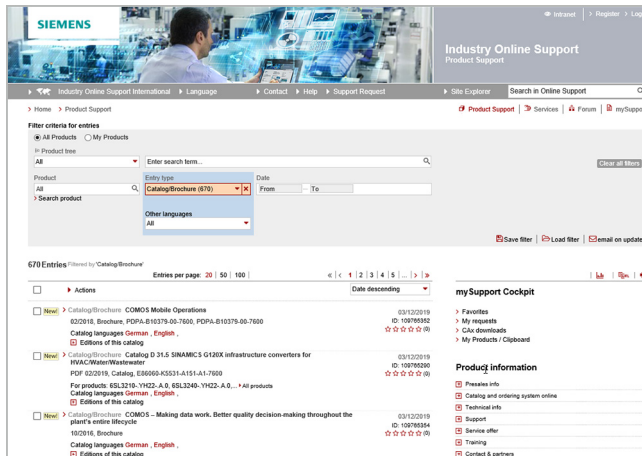
The Industry Mall is a Siemens AG Internet ordering platform. It provides you with online access to a comprehensive product spectrum that is presented in an informative, well-organized way.

Powerful search functions help you select the required products, while configurators enable you to configure complex product and system components quickly and easily. CAx data are also available for you to use.

Data transfer allows the entire procedure, from selection through ordering to tracking and tracing, to be carried out online. Availability checks, individual customer discounting, and quotation preparation are also possible.

www.siemens.com/industrymall

Downloading catalogs



Siemens Industry Online Support

You can download catalogs and brochures in PDF format from Siemens Industry Online Support without having to register.

The filter box makes it possible to perform targeted searches.

www.siemens.com/industry-catalogs

Get more information

SINUMERIK automation systems for machine tools:

www.siemens.com/sinumerik

The SINAMICS converter family:

www.siemens.com/sinamics

Motion Control Systems and Solutions for production machine and machine tool equipment:

www.siemens.com/motioncontrol

Local partners worldwide:

www.siemens.com/automation-contact

Published by
Siemens AG

Digital Industries
Motion Control
Postfach 31 80
91050 Erlangen, Germany

For the U.S. published by
Siemens Industry Inc.

390 Kent Avenue
Elk Grove Village, IL 60007
United States

PDF (Article No. E86060-K4463-A101-A7-7600)
V1.MKKATA.MTS.130
KG 0323 78 En
Produced in Germany
© Siemens 2023

Security information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that may be implemented, please visit <https://www.siemens.com/industrialsecurity>

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under <https://www.siemens.com/cert>

Subject to changes and errors. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

All product designations may be trademarks or product names of Siemens AG or other companies whose use by third parties for their own purposes could violate the rights of the owners.