

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

SIEMENS

6FC5370-6AA30-0AA0

SINUMERIK CNC OPERATOR UNIT

Used with the applicable Siemens industrial automation configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Siemens official manufacturer documentation

Overview of functions



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The functionality of the SINUMERIK 828 CNC controls complies with the export list restrictions. Accordingly, these CNC controls do not require official approval as a result of their type in accordance with EU or German law.

The following overview lists all the functions that are available with SINUMERIK 828 controls.

The information in the overview of functions of SINUMERIK 828 is based on the following software versions:

CNC	Software version
SINUMERIK 828D BASIC	4.7
SINUMERIK 828D	4.7

Overview of functions

CNC controls SINUMERIK 828

Control structure and configuration

✓ Basic version ○ Option – Not available	Article No.	SINUMERIK 828D				
	Notes	BASIC	SW 24x	SW 26x	SW 28x	SW 28xA
Control structure and configuration						
Panel-based compact CNC comprising:		✓	✓	✓		✓
• Compact operator-panel CNC		✓	✓	✓		✓
• CNC/PLC control unit		✓	✓	✓		✓
• Closed-loop control for drives		5	6	6		6
Design, drive-based/PC-based		–	–	–		–
Operator-panel CNC:						
• Horizontal		✓	✓	✓		✓
• Vertical		✓	✓	✓		✓
• Color display		8.4"	10.4"	10.4"		10.4"
• Integrated QWERTY keyboard with short-stroke keys		✓	✓	✓		✓
SINUMERIK operator panels with TCU		–	–	–		–
SINUMERIK operator panels with PCU		–	–	–		–
SINUMERIK 828D PPU:						
• PPU 240.3	6FC5370-4AA30-0AA0	○	–	–		–
• PPU 241.3	6FC5370-3AA30-0AA0	○	–	–		–
• PPU 260.3	6FC5370-6AA30-0AA0	–	○	–		–
• PPU 261.3	6FC5370-5AA30-0AA0	–	○	–		–
• PPU 280.3	6FC5370-8AA30-0AA0	–	–	○		○
• PPU 281.3	6FC5370-7AA30-0AA0	–	–	○		○
System software, export version, on CF card, with license						
• SINUMERIK 828D with PPU 240/PPU 241:						
- Turning	6FC5835-1GY40-4YA0	○	–	–		–
- Milling	6FC5835-2GY40-4YA0	○	–	–		–
- G-Tech Cylindrical/G-Tech Surface	6FC5835-3GY40-4YA0	○	–	–		–
• SINUMERIK 828D with PPU 260/PPU 261:						
- Turning	6FC5834-1GY40-4YA0	–	○	–		–
- Milling	6FC5834-2GY40-4YA0	–	○	–		–
- G-Tech Cylindrical/G-Tech Surface	6FC5834-3GY40-4YA0	–	○	–		–
• SINUMERIK 828D with PPU 280/PPU 281:						
- Turning	6FC5833-1GY40-4YA0	–	–	○		–
- Milling	6FC5833-2GY40-4YA0	–	–	○		–
- G-Tech Cylindrical/G-Tech Surface	–	–	–	–		–
• SINUMERIK 828D with PPU 280/PPU 281:						
- Turning advanced	6FC5836-1GY40-4YA0	–	–	–		○
- Milling advanced	6FC5836-2GY40-4YA0	–	–	–		○
- G-Tech Cylindrical advanced /G-Tech Surface advanced	6FC5836-3GY40-4YA0	–	–	–		○
SINUMERIK Operate embedded HMI		✓	✓	✓		✓
Windows-based HMI		–	–	–		–
DRIVE-CLiQ drive interface		✓	✓	✓		✓
Numeric Control Extension NX10.3 for applications with up to 8 axes or for reducing the current controller cycle clock to 62.5 µs:	6SL3040-1NC00-0AA0					
• Turning		–	–	○		○
• Milling		–	○	○		○
• G-Tech Cylindrical/G-Tech Surface		–	–	–		○

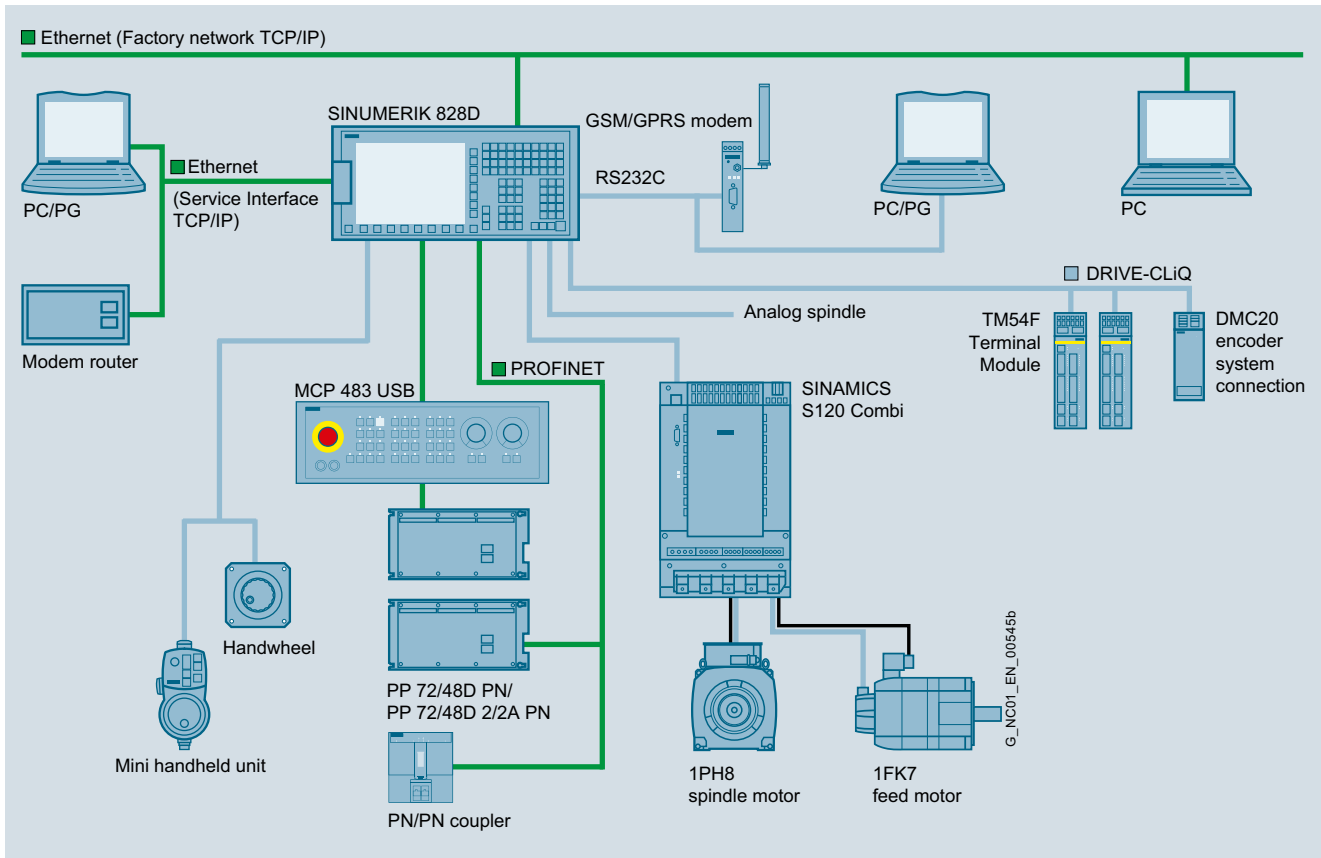
Overview of functions

CNC controls SINUMERIK 828

Control structure and configuration

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✓ Basic version ○ Option – Not available	Article No.	SINUMERIK 828D				
	Notes	BASIC	SW 24x	SW 26x	SW 28x	SW 28xA
Control structure and configuration (continued)						
Numeric Control Extension NX15.3 for applications with up to 10 axes or for reducing the current controller cycle clock to 62.5 µs:	6SL3040-1NB00-0AA0					
• Turning		–	–	–		○
• Milling		–	–	–		–
• G-Tech Cylindrical/G-Tech Surface		–	–	–		○
Machining channel, maximum:						
• Turning	Basic scope for SW 28xA	1	1	1		2
• Milling		1	1	1		1
• G-Tech Cylindrical/G-Tech Surface		1	1	–		2
Mode group, maximum:						
• Turning	Basic configuration: 1 mode group	1	1	1		2
• Milling	Basic configuration: 1 mode group	1	1	1		1
• G-Tech Cylindrical/G-Tech Surface	Basic configuration: 1 mode group	1	1	–		2
Mode group, each additional	6FC5800-0AC00-0YB0					
• Turning		–	–	–		○
• Milling		–	–	–		–
• G-Tech		–	–	–		○
CNC user memory (buffered) for CNC part programs:						
• Turning		3 MB	5 MB	8 MB		10 MB
• Milling		3 MB	5 MB	8 MB		10 MB
• G-Tech Cylindrical/G-Tech Surface		3 MB	5 MB	–		10 MB
CNC user memory expansion	6FC5800-0AP77-0YB0	–	○ 100 MB	○ 100 MB		○ 100 MB
Execution from external storage EES Central part program memory on server or USB stick	6FC5800-0AP75-0YB0	–	○	○		○
Additional CNC user memory on user CompactFlash card	The CompactFlash card must be ordered separately.	✓	✓	✓		✓
Additional 256 MB HMI user memory on CompactFlash card of the PPU		–	–	–		–
Axes/spindles or positioning axes/auxiliary spindle:						
• Basic quantity of axes/spindles:						
- Turning		3	3	3		3
- Milling		4	4	4		4
- G-Tech Cylindrical/G-Tech Surface		3	3	–		3
Axes/spindles or positioning axes/auxiliary spindle (continued):						
• Maximum configuration axes/spindles + PLC positioning axes:						
- Turning		5	6 + 2	8 + 2		10 + 2
- Milling		5	6 + 2	6 + 2		8 + 2
- G-Tech Cylindrical/G-Tech Surface		5	6 + 2	–		10 + 2
Axis/spindle, each additional	6FC5800-0AC20-0YB0	○	○	○		○
Positioning axis/auxiliary spindle, each additional	6FC5800-0AC30-0YB0	○	○	○		○
PLC-controlled axis		✓	✓	✓		✓
PLC positioning axis, e.g. CU310-2 PN via PROFINET, maximum		–	2	2		2
Systems and number of the TOOLCARR:						
• Turning		–	–	–		–
• Milling		–	–	–		–
• G-Tech Cylindrical/G-Tech Surface		2	2	–		4
CNC lock function	6FC5800-0AP76-0YB0	○	○	○		○

Integration (continued)


SINUMERIK 828D configuration with SINAMICS S120 Combi

CNC controls

SINUMERIK 828D

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Technical specifications

Article No.		6FC5370-5AA30-0AA0	6FC5370-6AA30-0AA0	6FC5370-7AA30-0AA0	6FC5370-8AA30-0AA0
Product brand name		SINUMERIK	SINUMERIK	SINUMERIK	SINUMERIK
Product type designation		828D	828D	828D	828D
Product designation		PPU 261.3	PPU 260.3	PPU 281.3	PPU 280.3
Design of operator panel		Horizontal	Vertical	Horizontal	Vertical
Mounting position of operator panel		Vertical	Vertical	Vertical	Vertical
Supply voltage at DC	V	24	24	24	24
• Relative negative tolerance at 24 V	%	15	15	15	15
• Relative positive tolerance at 24 V	%	20	20	20	20
Active power consumption maximum	W	60	60	60	60
Buffering time in the event of power failure	ms	3	3	3	3
• Note		20 ms with SITOP smart power supply	20 ms with SITOP smart power supply	20 ms with SITOP smart power supply	20 ms with SITOP smart power supply
Environmental category acc. to IEC 60721-3-3		Class 3K5 Condensation and icing excluded. Low air temperature 0 °C.	Class 3K5 Condensation and icing excluded. Low air temperature 0 °C.	Class 3K5 Condensation and icing excluded. Low air temperature 0 °C.	Class 3K5 Condensation and icing excluded. Low air temperature 0 °C.
Degree of protection					
• front		IP65	IP65	IP65	IP65
- Note		With closed front cover	With closed front cover	With closed front cover	With closed front cover
• rear		IP20	IP20	IP20	IP20
Relative humidity at 25 °C, during					
• storage	%	10 ... 100	10 ... 100	10 ... 100	10 ... 100
• transport	%	5 ... 95	5 ... 95	5 ... 95	5 ... 95
• operation	%	5 ... 90	5 ... 90	5 ... 90	5 ... 90
Ambient temperature, during					
• storage	°C	-25 ... +55	-25 ... +55	-25 ... +55	-25 ... +55
• transport	°C	-20 ... +60	-20 ... +60	-20 ... +60	-20 ... +60
• operation					
- front	°C	0 ... 45	0 ... 45	0 ... 45	0 ... 45
- rear	°C	0 ... 55	0 ... 55	0 ... 55	0 ... 55
Width	mm	483	310	483	310
Height	mm	220	380	220	380
Depth	mm	105	105	105	105
Net weight	kg	4.5	4.5	4.5	4.5
Certificate of suitability		CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC	CE, cULus, EAC

Selection and ordering data

Description	Article No.
Hardware components	
SINUMERIK 828D PPU 261.3 horizontal¹⁾ Without system software	6FC5370-5AA30-0AA0
SINUMERIK 828D PPU 260.3 vertical¹⁾ Without system software	6FC5370-6AA30-0AA0
SINUMERIK 828D PPU 281.3 horizontal¹⁾ Without system software	6FC5370-7AA30-0AA0
SINUMERIK 828D PPU 280.3 vertical¹⁾ Without system software	6FC5370-8AA30-0AA0
Software components	
System software for SINUMERIK 828D PPU 260.3/PPU 261.3¹⁾ On CompactFlash card with license software version 4.7 SP1, export	
• Turning	6FC5834-1GY40-4YA0
• Milling	6FC5834-2GY40-4YA0
• G-Tech	6FC5834-3GY40-4YA0
System software for SINUMERIK 828D PPU 280.3/PPU 281.3¹⁾ On CompactFlash card with license software version 4.7 SP1, export	
• Turning	6FC5833-1GY40-4YA0
• Turning advanced	6FC5836-1GY40-4YA0
• Milling	6FC5833-2GY40-4YA0
• Milling advanced	6FC5836-2GY40-4YA0
• G-Tech advanced	6FC5836-3GY40-4YA0
SINUMERIK 828D toolbox On DVD-ROM	6FC5830-0CY40-0YA8
SINUMERIK Integrate for engineering Access MyMachine /P2P For PC/PG on CD-ROM current software version	6FC5860-7YC00-0YA0
Language extensions On DVD-ROM without license	6FC5860-0YC40-0YA8
• For SINUMERIK 828D up to software version 4.7	
• For SINUMERIK Operate up to software version 2.7	
SIZER for Siemens Drives engineering tool For SINAMICS and MICROMASTER on DVD-ROM Languages: English, French, German, Italian	6SL3070-0AA00-0AG0
STARTER commissioning tool For SINAMICS and MICROMASTER on DVD-ROM Languages: English, French, German, Italian, Spanish	6SL3072-0AA00-0AG0

Description	Article No.
Additional hardware components	
SINAMICS Numeric Control Extension NX10.3	6SL3040-1NC00-0AA0
SINAMICS Numeric Control Extension NX15.3	6SL3040-1NB00-0AA0
SINAMICS TM54F Terminal Module	6SL3055-0AA00-3BA0
SIMATIC DP PN/PN coupler Coupling module for connecting 2 PROFINET networks	6ES7158-3AD01-0XA0
DRIVE-CLiQ signal cable, pre-assembled For PROFINET connection Connector with degree of protection IP20	
• In precise decimeter lengths ²⁾	6FX2002-1DC00-1..0
• In fixed lengths ²⁾	6SL3060-4A..0-0AA0
Accessories	
CompactFlash card, 2 GB, empty To expand user memory and replace a defective system CompactFlash card	6FC5313-5AG00-0AA2
Front cover With fixture (included in scope of delivery)	6FC5348-2AA00-0AA0

More information

The following hardware components are only available in packages and cannot be ordered separately:

- SINUMERIK 828D PPU 26x.3
- SINUMERIK 828D PPU 28x.3

When the package is delivered, the CompactFlash card containing the system software is installed in the SINUMERIK.

For more information, please contact your Siemens branch

¹⁾ Not available individually, see [More information](#).

²⁾ For complete Article No. and length code, see [MOTION-CONNECT connection systems](#).

CNC controls

Operator components

SINUMERIK 828 MCP 310 USB

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Overview



The SINUMERIK 828 MCP 310 USB machine control panel enables user-friendly operation of the machine functions. It can be used with a SINUMERIK 828D CNC for machine-level operation of turning, grinding and milling machines. The machine-specific keys have replaceable slide-in labels so that they can be adapted.

The machine control panel is mounted from the rear with special clamps supplied with the panel.

Design

Operator control and display elements:

- Mode selectors and function keys:
 - 39 keys with LEDs
 - Predefined keys for common functions, e.g. reset key, program control
 - Key group for operating as milling or turning machine. The slide-in labels for keys for milling or turning machines are included in the accessories pack.
 - Keys for individual use
- Spindle control with spindle override (rotary switch with 15 positions)
- Feed control with feed/rapid traverse override (rotary switch with 18 positions)
- 2-digit, 7-segment display for the tool number

Key type:

- Membrane keys with protective film

Interface:

- USB 2.0 for communication with the SINUMERIK PPU:
Transmission rate 12 Mbit/s

Expansion options:

- 1 slot for emergency stop button, e.g. switch ($d = 22$ mm)
- 4 slots for control devices e.g. switches ($d = 16$ mm)

Integration

The SINUMERIK 828 MCP 310 USB machine control panel can be used for:

- SINUMERIK 828D BASIC
- SINUMERIK 828D

Technical specifications

Article No.	6FC5303-0AF33-0AA0
Product brand name	SINUMERIK
Product type designation	MCP 310 USB machine control panel
Supply voltage at DC	5 V
Active power consumption maximum	2.5 W
Degree of protection	
• front	IP65
• rear	IP20
Environmental category acc. to IEC 60721-3-3	Class 3K5 Condensation and icing excluded. Low air temperature 0 °C.
Relative humidity at 25 °C, during	
• storage	5 ... 95 %
• transport	5 ... 95 %
• operation	5 ... 85 %
Ambient temperature, during	
• storage	-40 ... +70 °C
• transport	-40 ... +70 °C
• operation	
- front	0 ... 45 °C
- rear	0 ... 55 °C
Width	310 mm
Height	230 mm
Depth	49 mm
Net weight	1.1 kg
Certificate of suitability	CE, cULus, C-TICK, EAC, KCC

Selection and ordering data

Description	Article No.
SINUMERIK 828 MCP 310 USB machine control panel USB 2.0, width 310 mm, with membrane keys emergency stop button 22 mm	6FC5303-0AF33-0AA0
Accessories	
Emergency stop mushroom pushbutton, 22 mm Round, plastic, red, 40 mm, positive latching, rotate-to-unlatch mechanism, incl. holder	3SB3000-1HA20
Contact block with 2 contacts 1 NO + 1 NC, 2-pin, screw terminal	3SB3400-0A

Type	Page	Type	Page
Numerical		M	
1FE1	2/5	MCP 310C USB	2/20, 3/12
1FK7	1/6, 2/5, 5/2	MCP 483C USB	2/20, 3/13
1FN6	2/5	MD720-3	3/21
1FT7	2/5	MPP	2/20
1FW6	1/6, 2/5	N	
1PH8	1/6, 2/5, 5/6	NC 62	C2
2SP1	2/5	NX10.3	2/2, 2/31, 3/11, 7/5, 7/6
A		NX15.3	2/3, 2/31, 3/11, 7/5, 7/6
ADI 4	2/23	P	
AJT100	4/37	PAC3200	2/25, 3/23
AJT125	4/19, 4/30	PAC4200	2/25, 3/23
AJT17-1/2	4/19	PCU	2/2
AJT175	4/31	PCU 50.5	2/20
AJT250	4/30	PP 72/48D 2/2A PN	2/23, 2/31, 3/19
AJT35	4/5, 4/7, 4/19	PPU 240.3	2/2, 2/20, 3/2
AJT60	4/5, 4/7, 4/37	PPU 241.3	2/2, 2/20, 3/2
AJT80	4/19, 4/30	PPU 260.3	2/2, 2/20, 3/6
AM20DQI	5/4	PPU 261.3	2/2, 2/20, 3/6
ANT 794-4MR	3/21	PPU 280.3	2/2, 2/20, 3/6
AS20DQI	5/4	PPU 281.3	2/2, 2/20, 3/6
C		PSU100S	3/22
CA 01	C2, 8/14, 10/4	PSU300S	3/22
D		S	
DMC20	2/4, 4/52	SK8	4/57, 4/58, 4/54, 4/56
DME20	2/4, 4/53	SMC20	2/4, 4/56
G		SMC30	2/4, 4/57
gk803	5/7	SMC40	2/4, 4/58
gk813	5/7	SME120	2/4
gk826	5/7	SME125	2/4, 4/59
gk833	5/7	SME20	2/4
H		SME25	2/4
HT 2	2/20	T	
HT 8	2/20	TCU	2/11
I		TH 35	4/57, 4/58, 4/54, 4/56
IC22DQ	5/7	TM54F	4/54
IN19DQ	5/7		
IN20DQ	5/7		
ITC	C2		
K			
KBPC CG US	2/20		
KLBÜ 3-8 SC	4/12 – 4/14, 4/20, 4/38, 4/43		
KLBÜ CO 1	4/20, 4/54, 4/56 – 4/58		
KTY84	5/3		
KTY84-130	4/2, 4/12, 4/13, 4/31, 4/38, 4/43, 4/56, 4/57, 4/59		