

SIEMENS

SINUMERIK

InSight

Number 1 | September 2013 | siemens.com/sinumerik



News about
SINUMERIK
CNC systems

Sinumerik Operate

- 03 New version of Sinumerik Operate
- 04 Table-related raw part definition
- 04 Lateral machining
- 04 Manual Machine
- 05 Quick Viewer
- 05 Sinutrain for Sinumerik Operate
- 05 More usability

IT Integration

- 06 Sinumerik Integrate Run MyRobot
- 06 Sinumerik Integrate for Production
- 07 FTP protocol
- 07 VNC protocol

Sinumerik 840D sl

- 08 Sinumerik 840D sl Type 1B
- 08 Sinumerik PCU 50.5 with Windows 7
- 09 Sinumerik operator panels
- 09 Sinumerik Integrate Lock-it!
- 10 Collision Avoidance
- 10 Nodding Compensation compile cycle

Sinumerik 828D

- 11 Easy Extend
- 11 Extended Stop and Retract (ESR) function
- 11 Gearwheel milling
- 12 Third handwheel
- 12 Connection circuit board for machine control panels
- 12 Sitop lite

Sinumerik 808D

- 13 Sinumerik 808D Advanced
- 13 Sinumerik 808D Advanced – software

Motors and Drives

- 14 Sinamics V70
- 14 Simotics S-1FL6
- 14 Simotics M-1PH8 universal main motors
- 15 Drive-Cliq absolute measuring systems
- 15 Powerful new Sinamics S120 modules
- 15 Sinamics S120 high-frequency drive

SINUMERIK InSight 1/2013

Publisher:

Siemens AG, Industry Sector, Communications,
Werner-von-Siemens-Str. 50, 91052 Erlangen,
Germany
siemens.com/industry

Drive Technologies Division

CEO Ralf-Michael Franke

**Editorial responsibility in accordance
with the German press law:**

Benjamin Schröder

Responsible for technical content:

Bernd Heuchemer

Editorial committee:

Elke Pilhöfer

Publishing house: Publicis Publishing,
P.O. Box 32 40, 91050 Erlangen, Germany
magazines-industry@publicis.de
Editor: Gabriele Stadlbauer
Layout: Nadine Wachter
Copy editor: Susanne Wanke

Photos: Siemens AG, unless otherwise noted
Cover photo: Siemens AG

Print: Wünsch Offset-Druck GmbH, Germany

Circulation: 21,000

© 2013 by Siemens Aktiengesellschaft
Munich and Berlin.
All rights reserved.

Order number: E20001-A1720-P610-X-7600

This issue was printed on paper made from
environmentally friendly, chlorine-free bleached pulp.
Printed in Germany

**The following products are registered trademarks
of Siemens AG:**
DRIVE-CLiQ, ShopMill, ShopTurn, SIMATIC,
SIMOTICS, SINAMICS, SINUMERIK, SinuTrain, SITOP

If trademarks, trade names, technical solutions, etc.,
are not referred to specifically, it does not mean that
they are not protected.

The information in this journal only includes general
descriptions and/or performance characteristics, which
do not always apply in the form described in a specific
application, or which may change as products are
developed. The required performance characteristics
are only binding if they are expressly agreed at the
point of conclusion of the contract.

Dear readers,

in time for the EMO trade show we want to show you all the Sinumerik innovations at a glance. The Sinumerik portfolio is more diverse than ever. With Sinumerik 808D, 828D, and 840D sl, the portfolio has exactly the right product for every user – from simple entry-level CNC machines and standard machines to modular premium machines. The highlight: we are bringing the standard Sinumerik Operate user interface to all the prevalent machine tool technologies – from simple turning and milling to complex multitasking applications.

On the following pages we will present the latest functions of Sinumerik Operate.



In addition, you will also learn about the new functions we are offering for our Sinumerik 840D sl, 828D, and 808D CNC controls, as well as developments in the field of motors and drive systems. As software is playing an increasingly important role in production, you will

find innovations in IT integration under a separate heading.

We hope you enjoy the read!

The Editors

New version of Sinumerik Operate

Consistent user interface for efficient machine operation

Innovative software increases ease of use and efficiency during machine tool operation. Sinumerik Operate combines ShopMill and ShopTurn in one consistent and clear user and programming interface. It enables work-step and high-level language programming via a single user interface, thus ensuring particularly fast and efficient NC programming and production planning. Intelligent, context-sensitive functions and self-explanatory icons make Sinumerik Operate intuitive to use. Programming can be checked immediately thanks to integrated simulation and numerous workpiece views.

When an operator is setting up a workpiece, the measurement is clearly and transparently displayed by animated graphic elements. Through easy and fast handling, complex workpieces

can be manufactured in one clamping, and different kinematics can be easily set up.

The tool list provides all the relevant data clearly and offers a configurable display.

siemens.com/sinumerik-operate

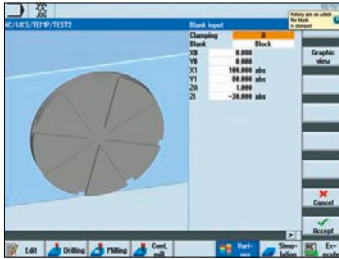
Loc	Type	Tool name	ST	D	Length	Ø
18	BOHRER_8,5	1	1	100.000	65.000	
19	DRILL_8,5	1	1	100.000	8.500	118.0
20	CENTER_DRILL_10	1	1	100.000	10.000	90.0
21	CENTERBOHRER_10	1	1	100.000	10.000	
22	GEWINDEBOHRER_M10	1	1	100.000	10.000	1.500
23	TSP_M10	1	1	100.000	10.000	1.500
24	SD_PRIME	1	1	100.000	0.000	
25	KONTAKTSTERN	1	1	100.512	5.000	

New features

- Different options for defining raw parts
- Lateral machining on milling machines
- Manual Machine function now available for milling
- Improved Quick Viewer
- Sinutrain for Sinumerik Operate
- More usability: clear tool management, faster programming, extended G-code functions with Sinumerik MDynamics
- Multiple clamping of different tools
- Easy set-up and commissioning
- Usable worldwide: extended to 26 operator languages

Table-related raw part definition with Sinumerik Operate

Improved simulation for raw parts



For even more flexible and easier programming, Sinumerik Operate now provides various ways to define raw parts. The simulation for the workpiece raw part definition has been complemented by a clamping for milling machines. For the raw-part holding fixture on milling machines, a table or a rotation axis are on offer. When setting up a new raw part in ShopMill work-step programming, it is now also possible to select an adjustable zero shift.

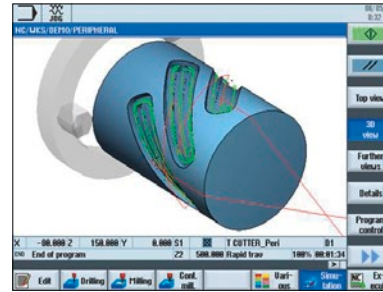
siemens.com/sinumerik-operate

New features

- Additional table-related raw part definition
- Zero shift selectable
- Even more flexible and easier programming, especially during HSC milling
- Increased productivity thanks to further improvements in usability

Lateral machining on milling machines with Sinumerik Operate

Easy programming of complex workpieces



The optimum use of an A axis includes appropriate programming options. ShopMill now enables machine operators to program and simulate complex workpieces directly on the machine – without the application of CAD/CAM systems.

Drilling patterns, position cycles or guiding grooves are easily programmable and the graphical representation corresponds to the actual machine with table-related definition of raw parts in a ratio of 1:1. In addition to that, obstacles can be considered, which ensures the perfect retraction path and further optimizes processing times.

siemens.com/sinumerik-operate

New features

- All drilling patterns on the generated surface
- Consideration of obstacles
- True to original display of simulation

Manual Machine with Sinumerik Operate

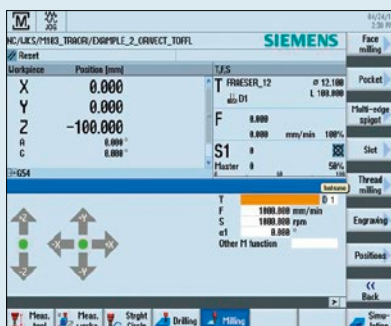
Handwheel as required

The Manual Machine function for Sinumerik 840D sl and 828D, which has now been integrated into the Sinumerik Operate interface, provides more flexibility for users even in highly automated pro-

duction processes, as it enables them to process workpieces manually if required – as rapidly and accurate as with a CNC control. In addition to turning, the Manual Machine function is now also available for milling with the

ShopTurn/ShopMill option. The proven features of Manual Machine have been extended with additional useful functions as well.

siemens.com/sinumerik-operate



New features

- Milling function: contour milling
- Free contour functionality allows you to use every blue-print in the stock removal cycle
- Setting of electrical stops with Stop limits function
- Functions such as graphical display, driven tools, animated support, and plunge turning

Quick Viewer in Sinumerik Operate

Perfected for mold and die production

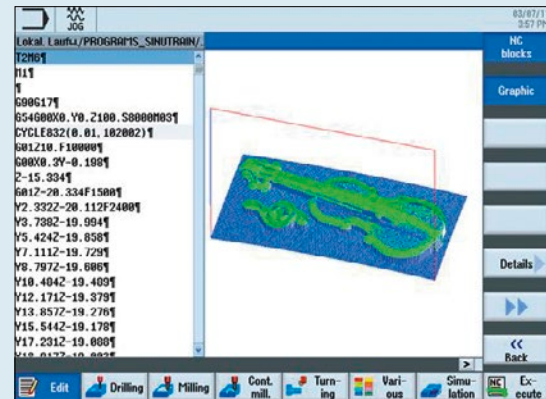
The Quick Viewer in Sinumerik Operate allows a quick visualization of the machining paths of

large mold-making programs, as provided by CAM or CAD/CAM systems. This allows users to control and, if necessary, correct the program. New functions are available in the mold-making quick view for an even better overview. G0/G1 blocks can now be shown or skipped separately; thus, mold-making workpieces are quickly recognizable even if there are no drawings available.

New features

- Ability to skip G0/G1 blocks and corresponding lines and points
- Quicker overview
- Better recognizability of mold-making workpieces

siemens.com/sinumerik-operate



Sinutrain for Sinumerik Operate

Practical training on the PC

Sinutrain, based on the original Sinumerik CNC kernel, is the practical solution for CNC training.

Sinutrain for Sinumerik Operate can be perfectly adapted to the axis configurations of different machines. This allows maximum compatibility of the CNC programs created offline with the machines used in production. Sinutrain for Sinumerik Operate 4.5 runs on the Windows Home Premium, Professional, Ultimate, Enterprise, and Basic (32- and 64-bit) operating systems as well as Windows XP Professional Service Pack 3. A free Sinutrain test version can be downloaded at siemens.com/cnc4you.



siemens.com/sinutrain

New features

- Based on Sinumerik CNC software V4.5 SP2
- Widescreen resolution (1280 x 1024)
- NC start ≥ single-channel possible
- Machine-specific data management
- New sample machines for mill-turning and ISO dialect

More usability for Sinumerik Operate

Greater user-friendliness for higher productivity

With the new version 4.5 SP2, Sinumerik Operate has become even more user-friendly thanks to many innovations. For instance, all relevant G-code functions for mold and die production in the Sinumerik MDynamics package for three-axis and five-axis milling can be marked under "All G-functions," allowing users a quicker overview.

The tool management features efficient search and filter functions for more user-friendly operation of the control. In addition, WAIT marks can now be programmed more quickly thanks to new masks.



siemens.com/sinumerik-operate

New features

- G-code functions in Sinumerik MDynamics
- Advanced filter functions in tool management (remaining quantity, remaining tool life, loading and unloading recognition)
- Quicker programming of WAIT marks thanks to user-friendly entry masks

Sinumerik Integrate Run MyRobot

Easy robot operation on the machine tool

Run MyRobot enables users to control, program, and diagnose KUKA robots easily from a machine tool. The robots' functionality and flexibility can be completely accessed from the familiar control of the machine tool thanks to Sinumerik Operate.

While traditional solutions connect the robot via a simple I/O interface, this solution is a command interface that allows robots to be controlled remotely. Special expertise or training on robot operation is not required.

The solution for Sinumerik 840D sl uses the openness of the control to make the necessary functions available, which then select mxAutomation function blocks from KUKA.

As a result, it is now possible to both configure and program KUKA robots completely via PLC modules.



An mxAutomation interpreter translates the PLC commands to path planning, and the robot implements them precisely and reliably. The robot control provides the robot's safety functions and makes them available via an interface, which also makes it possible to

move the robot by means of a Sinumerik handheld device while the safety door is open.

As a result, the robot can be taught safely in manual mode and operated in automatic mode.

siemens.com/handling

New features

- Robot control, programming, and diagnostics integrated in Sinumerik 840D sl
- Programming of robot with CNC expertise
- Configured for KUKA industrial robots

Sinumerik Integrate for Production

On the road to Industry 4.0

The software suite Sinumerik Integrate for Production enables easy networking and integration of machine tools into production IT. Productivity can be increased, for instance, in end customer production or machine manufacturer support. More parts can be manufactured due to optimized production, and high production costs (resulting, for example, from missing tools, incorrect CNC programs, high energy consumption, or large material and tool inventories) can be reduced.

The software runs directly under Sinumerik Operate on the Sinumerik 840D sl. Therefore it does not matter if the control is equipped with a PC-based operator panel or not. The central server provides various applications and is also able to integrate the existing machinery.

If the machines are connected to the server, new functions can be loaded easily. A great benefit is the consistency between the Siemens product line, as MES and PLM systems can also be connected for an even greater boost to productivity.

siemens.com/sinumerik

New features

- Easy connection of IT based on Sinumerik Operate
- Easy, cost-effective commissioning
- Future-proof technology, also for existing machines
- High scalability in function and scope
- Interfaces for PLM and MES systems



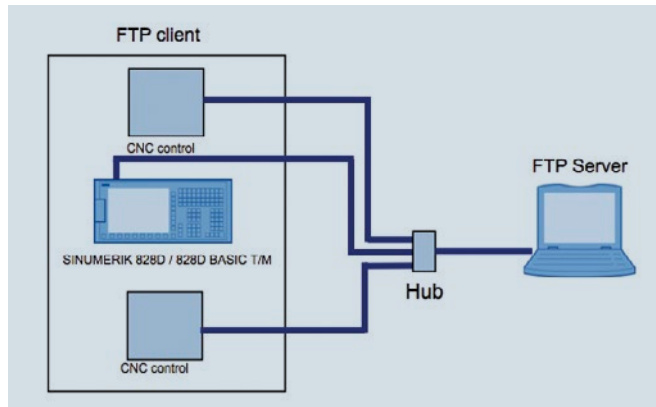
FTP protocol

Flexible networking

Thanks to the FTP client function, not only the Sinumerik 840D sl but also the Sinumerik 828D CNC can be connected to FTP servers in company networks as well as Windows servers. This enables users to directly copy and paste files, edit CNC programs on servers, and complete CNC programs from servers. Easy data transmission and program handling save a great deal of time.

Parts programs can be executed from external servers. Parts programs of the CNC control can also be read, shifted, and renamed.

siemens.com/sinumerik

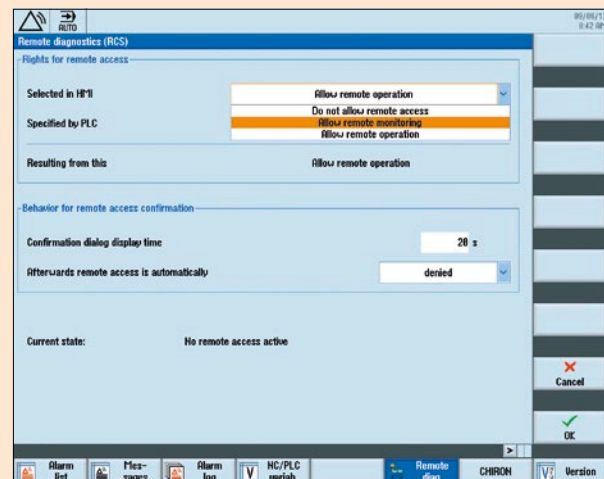


New features

- Support for FTP protocol also through Sinumerik 828D (with "Map network drives" CNC option)
- Access to all connected drives such as USB sticks and network drives
- Time savings thanks to easy data transfer and program handling

VNC protocol

Easy access from company networks



For presentations or remote maintenance, for instance, it is sometimes helpful to be able to access a Sinumerik 828D or Sinumerik 840D sl CNC via Virtual Network Computing (VNC). A VNC viewer that comes with the toolbox now makes it possible to connect Sinumerik CNCs with computers, TVs, or mobile devices in company networks directly or via the Internet. Remote access via the VNC protocol is possible via either a wired or wireless (Wi-Fi) connection. The VNC function is easy and secure thanks to the granting of access rights for remote monitoring and control, logins, and simple firewall rules.

siemens.com/sinumerik

New features

- VNC viewer in the Sinumerik toolbox
- Wired and wireless networking of Sinumerik
- Networking directly or via the Internet
- Easy and secure remote monitoring and, if necessary, limited remote control of the CNC

Sinumerik 840D sl Type 1B

Scalable and open

The latest version of Sinumerik 840D sl sets new standards in the high-end segment. The Sinumerik 840D sl Type 1B CNC is characterized by high scalability, maximum precision, and unmatched performance. Up to 93 axes and spindles ensure optimum quality and productivity. Multicore technology with short block cycle times of up to 0.4 ms and a more powerful PLC increase the performance. Based on the Sinamics S120 drive platform, which has also been optimized, Sinumerik 840D sl Type 1B provides increased precision and excellent control dynamics for perfect surface quality in machining.

Profinet functionality is standard. This makes engineering easier, reduces the time required for system cabling,

and enables more flexible diagnostics and maintenance. Thanks to its innovations, Sinumerik 840D sl Type 1B is perfect for sophisticated applications such as complete machining. And the new software version 4.5 SP2 now adds even more improvements and tailored functionalities to the premium, high-performance Sinumerik CNC.

siemens.com/sinumerik



New features

- Sinumerik Operate: more functionality in tool management, simulation, diagnostics, and program management
- Sinumerik PCU 50.5 with Windows 7
- Sinumerik Operator Panel: robust and distributed
- Lock MyPLC: protection of the PLC program thanks to S7-Block Privacy
- Collision Avoidance
- Nodding Compensation
- Extension of the CBA quantity structure of the integrated PLC

Sinumerik PCU 50.5 with Windows 7

Increased performance

The powerful Sinumerik PCU 50.5 panel control unit is now available with the Windows 7 Ultimate 64 Bit operating system for Sinumerik 840D sl



as of V4.5 SP2. The latest version of the PCU features considerably more storage space than the previous version with Windows XP SP3, as well as new functions tailored to specific requirements. As Microsoft will no longer provide extended support for Windows XP after April 8, 2014, we recommend the migration to Sinumerik PCU 50.5 in the course of the year. Further details are available at your Siemens office by means of a migration guide for Sinumerik 840D sl Type 1A to Type 1B.

siemens.com/sinumerik

New features

- Sinumerik PCU 50.5 with long-term available Windows 7
- Four times random access memory and double mass storage
- Modern 64-bit architecture
- Increased security
- Greater flexibility due to new Windows functions

Sinumerik operator panels

Remote operation: robust and distributed

The use of operator panels with thin client units enables the spatial separation of Sinumerik NCUs and PCUs and the use of several operator stations on one machine tool. Moreover, thin client units enable the set-up of robust operator stations with low depth. To do so, Sinumerik thin client units (TCU 20.2 and TCU 30.2) are available in connection with a Sinumerik operator panel or Simatic industrial

thin clients (ICT 1200, ICT 1500 and ITC 1900).

The proven functionality of the new Sinumerik TCU 20.2 with better graphic and computing power is extended by the direct key connection and high-performance interfaces. The TCU 20.2 can be combined with any operator panel and therefore meets all requirements. In addition, the new Sinumerik TCU 30.2 allows for the remote operation of

Sinumerik OP 019. For industrial use, Simatic ITCs integrate a thin client unit into the operator panels with touch-screen. Simatic ITCs with 12", 15" and 19" screens can be used on the Sinumerik 840D sl V4.5 SP2. In addition to that, Simatic ITCs also support Simatic S7 controls and the use of web content.

siemens.com/sinumerik



New features

- Sinumerik TCUs in connection with Sinumerik operator panels
 - Better graphic and computing power
 - Connection of direct keys
 - Industrial Ethernet 10/100/1000 MBit
 - 3 or 4 x USB 2.0
- Simatic ITC with integrated thin client units
 - High-resolution 12", 15", and 19" touch screen (resistive)
 - Simatic ITC 1200, ITC 1500, and ITC 1900 suitable for Sinumerik 840D sl as of V4.5 SP2
 - Simatic ITC 1200 and ITC 1500 suitable for HMI Pro sl as of V4.5 SP2

Sinumerik Integrate Lock-it!

Improved know-how protection

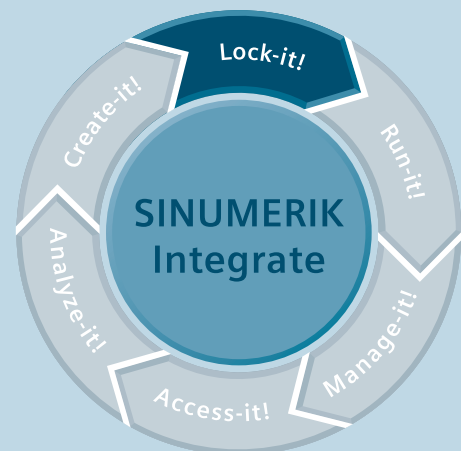
Sinumerik provides solutions to successfully protect technological knowledge against unauthorized access. The encryption of the PLC program module has been improved for better know-how protection of the PLC machine program (Lock MyPLC). Thanks to S7-Block Privacy as of software version Step 7 V5.5 SP3, it is no longer possible to

access the program modules of Sinumerik 840D sl Type 1B as of V4.5 SP2 or their contents without knowing the password. Following secured encryption, the module can only be processed again after the user has unlocked it.

siemens.com/sinumerik

New features

- Protection against unauthorized access to PLC program modules with integrated know-how protection
- Improved module encryption
- New processing of modules only after unlocking



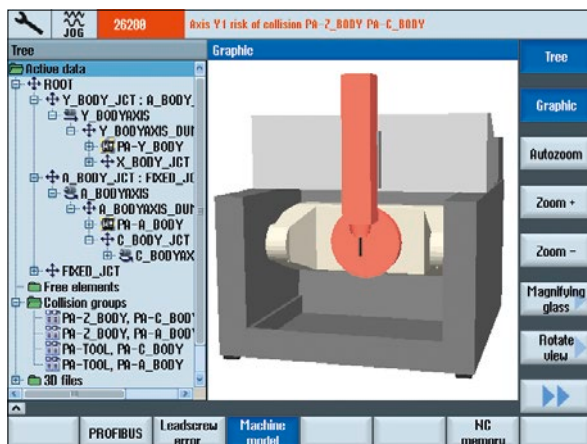
Collision Avoidance

Reliable collision protection

The Collision Avoidance function, which has been integrated into the Sinumerik 840D sl V4.5, provides optimum protection against collisions between moving machine elements and static machine elements in the machine tool's working environment – rapidly and efficiently. Thanks to a powerful and intelligent system architecture, 3-D collision monitoring in real time works even for complex operations such as five-axis simultaneous milling or turning with a B axis.

Thanks to full 3-D visualization on the CNC screen, the area of collision danger can be identified rapidly and efficiently. With Collision Avoidance, machine manufacturers are now able to derive the machine model subject to collision monitoring from existing design data offline on the computer.

siemens.com/sinumerik

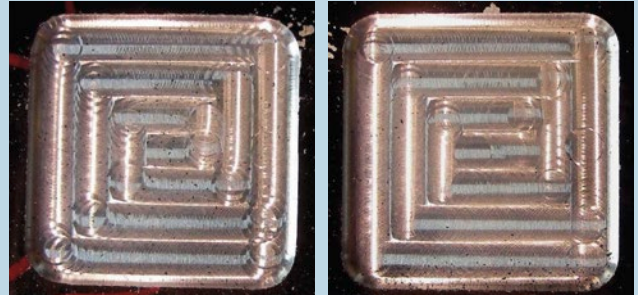


New features

- 3-D collision monitoring in real time in all operating modes on the CNC screen
- Monitoring of static and moving machine elements among each other and against the cutting edge
- Generation of automatic data for collision monitoring of cutting edges from available tool data filed for processing

Nodding Compensation compile cycle

Greater precision on workpieces



Original setting

With Nodding Compensation

The new Nodding Compensation compile cycle enables increased precision during workpiece machining.

It is, for instance, useful for column milling machines, where acceleration and braking movements can lead to "nodding" movements of the tower due to inertia. Nodding Compensation monitors the other axes and models the system. Because the acceleration processes of all the axes are known, nodding movements can be predicted and compensated by other axes. Nodding Compensation thus increases machining precision and improves surface quality.

siemens.com/sinumerik

New features

- Compensation of nodding movements, for instance, in the tower of a column milling machine
- Greater machining precision and better surface quality

Easy Extend

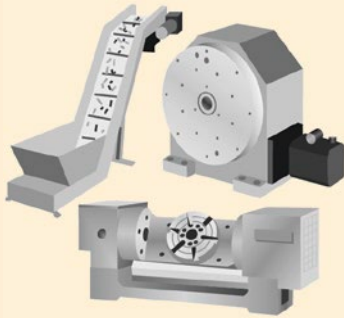
Effortlessly extending machines

Sinumerik 828D and Sinumerik 828D Basic enable machine manufacturers to prepare optional machine components already during the start-up phase in the factory.

With Easy Extend, necessary system parameters such as for an additional subunit (A axis) can be stored in a script file. The machine manufacturer starts up the machine with the A axis but delivers the basic machine

version only. If the user wants to extend the machine later to increase productivity, he or she simply installs the additional A axis in the machine. One push of a button is enough to activate the preset data records (PLC, machine, and drive data) and to start up the axis.

siemens.com/sinumerik



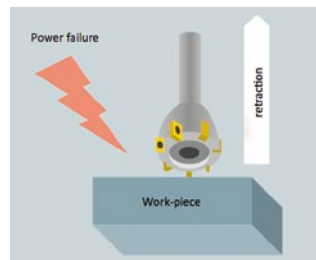
New features

- Easy increase of machine productivity by means of additional axes
- Storage of necessary system parameters for an optional A axis in a script file
- Activation of data prepared by the machine manufacturer at the push of a button

Extended Stop and Retract (ESR) function

Tools and workpieces reliably protected

In countries with unstable network conditions, tools and workpieces must be well protected in case of power failures. Thanks to the Extended Stop and Retract (ESR) function, the Sinumerik 828D and 828D Basic CNCs do this better than before. In the event of a power failure, the control not only stops the motors but also retracts axes quickly and independently as the situation requires. The operator can subsequently continue to work at the interrupted position.



siemens.com/sinumerik

New features

- Fast, situation-based stopping and retraction of axes in the case of power failure
- Safe stopping of safety axes
- Rapid resumption of the parts program thanks to the block search for the interruption position

Gearwheel milling

Comprehensive coupling functions



Sinumerik 828D and 828D Basic are now also suitable for gearwheel milling on simple gear-cutting machines, as the control handles the electronic crankshaft bearing. This enables a coupled movement of axes without mechanical coupling.

A downstream axis can be coupled to up to three master axes. Comprehensive coupling functions enable, among other things, simultaneous use of electronic drives, polygon turning, and synchronous spindles, if necessary.

siemens.com/sinumerik

New features

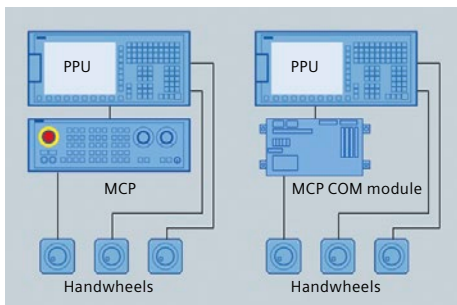
- Gearwheel milling with Sinumerik 828D/828D Basic
- Use on simple gear-cutting machines
- Electronic drive functions for up to three master axes

Third handwheel

Greater flexibility during machining

The newly integrated Manual Machine function makes it possible to use up to three handwheels for standard milling machines on Sinumerik 828D/828D Basic. The third handwheel can be connected directly to the MCP 310/483 operator panel, so an MCP COM Board is no longer necessary.

siemens.com/sinumerik



New features

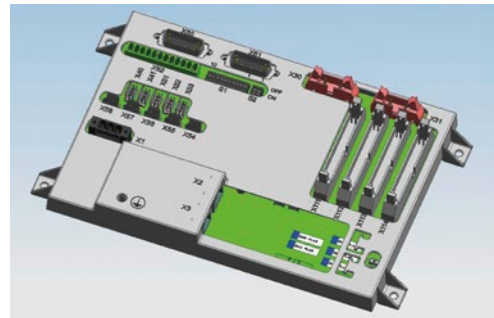
- Connection of up to three handwheels
- Processing of raw parts without a special parts program
- Direct connection to MCP 310/483

Connection circuit board for machine control panels

Simplified installation

The MCP Interface PN for Sinumerik 828D and 840D sl makes the implementation and installation of manufacturer-specific machine control panels easier. The machine manufacturer can concentrate on the design of application-specific operating elements and the MCP Interface PN takes care of communication with the control.

siemens.com/sinumerik



New features

- Connection circuit board with
 - 80/64 digital 5 V customer in-/outputs
 - 9 digital 5 V inputs
 - 6+15 digital 24 V outputs
 - 2 handwheel connectors and 2 Industrial Ethernet interfaces

Sitop lite

Economical high-quality power supply

The economical Sitop lite power supply is recommended for Sinumerik 828D. This robust new 24 V power supply line for industrial applications provides all the important functions for basic requirements.

The wide-range input with manual changeover enables connection to many different single-phase power grids. There are 2.5 A, 5 A, and 10 A modules available, which can also be switched in parallel.

siemens.com/sinumerik

New features

- Robust 24 V power supply
- Space savings thanks to narrow overall width
- Efficiency factor of up to 89%
- Short-circuit and overload protection
- UL approval for export



Sinumerik 808D Advanced

Increased precision and dynamics

The entry-level CNC solution for simple standard turning and milling machines is now available in two performance categories. In terms of the drive, Sinumerik 808D Advanced is equipped with the new Sinamics V70 converter system and Simotics S-1FL6 servomotors. In addition to the Sinumerik 808D, the new Sinumerik 808D Advanced T or M offers an extended torque range and in-

creased precision and dynamics. It is ideal for up to five axes and communicates with the drive system via digital bus. This solution can be connected to networks and direct numerical controls (DNCs) via Industrial Ethernet. The new CNC is available in vertical and horizontal versions.

siemens.com/sinumerik

New features

- Sinumerik 808D Advanced for turning (Advanced T) and milling (Advanced M) in horizontal and vertical versions
- New Sinamics V70 converters and new Simotics S-1FL6 motors
- Industrial Ethernet, high-speed USB, and NVRAM
- Position feedback via bus communication
- Auto Servo Tuning (AST)
- Advanced Surface intelligent path control for mold and die production
- Safe Torque Off (STO) safety function



Sinumerik 808D Advanced – software

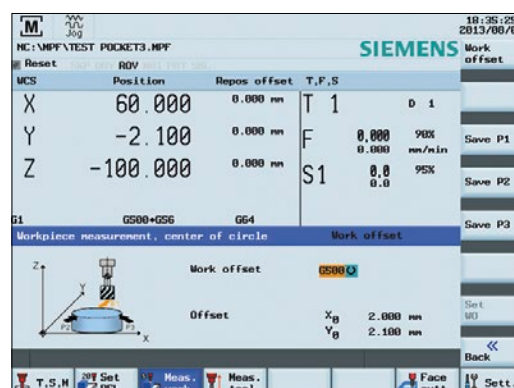
Even greater functionality

With new options such as Transmit/Tracyl, bidirectional spindle error compensation, and Gantry Basic, the software for Sinumerik 808D Advanced offers even more functionality.

Start-up and maintenance of the new Sinamics V70 drive can be performed via Sinumerik Operate Basic, and the number of languages supported has been increased to six.

A corresponding update of the free Sinumerik 808D training and presentation software for the PC, with identical controls, will be available soon.

siemens.com/sinumerik



New features

- Transmit/Tracyl
- Bidirectional spindle error compensation
- Gantry Basic
- Start-up and maintenance of Sinamics V70 drive via Sinumerik Operate Basic
- 6 standard languages
- Update of supplementary Sinumerik 808D software package for the PC

Sinamics V70**Perfect for Sinumerik 808D Advanced**

The new Sinamics V70 servo-converter, available in three sizes, has been especially designed for Sinumerik 808D Advanced. Robust and compact, it is perfectly matched to the new Simotics S-1FL6 servomotor. With 3AC 380 – 480 V input voltage, this converter can also be directly connected to standard electrical grids. Thanks to triple overload capacity and Safe Torque Off (STO) functionality, this converter is optimally suited for global use. The bus connection to Sinumerik 808D Advanced enables easy installation and optimal diagnostics.

siemens.com/sinamics

**New features**

- Torque range 2–40 Nm
- Simple start-up via Sinumerik 808D Advanced HMI
- Triple overload capacity
- Safe Torque Off (STO) functionality
- Simple preinstalled bus connection
- SD card slot for parameter cloning and firmware updates
- Integrated brake resistance for feed applications

Simotics S-1FL6**Optimized for Sinamics V70**

The new Simotics S-1FL6 feed motor has been optimized for the Sinamics V70 drive system and is therefore perfectly suited for Sinumerik 808D Advanced. This motor series consists of three shaft heights and various lengths, an optionally integrated holding brake, an incremental or absolute encoder, and a smooth shaft or fitting key. The new servomotor stands out, among other things, due to its robust design, optimum performance, and easy installation.



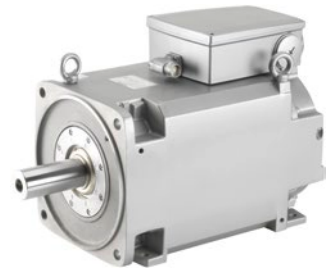
siemens.com/simotics

New features

- Wide torque range (2–40 Nm)
- Robust version with IP65 degree of protection
- Maximum speeds up to 4,000 rpm
- Up to threefold overload for high dynamics
- Good controllability due to high rotor inertia
- High rotation quality

Simotics M-1PH8**Universal main motors**

For Sinumerik 840D sl, the new main motors of the Simotics M-1PH8 series are replacing the previous main motors. A single series featuring the innovative modular system and a particularly wide performance range now covers all applications. The motors are available as asynchronous and synchronous versions. The great flexibility with regard to motor choice allows for mechanical and electrical optimizations.



siemens.com/simotics

New features

- Universal main motor series in a flexible modular design
- Wide performance range
- Excellent performance features
- Compact and robust
- Low noise emissions
- Simple and flexible connection technology

Drive-Cliq**Absolute measuring-systems**

Siemens has certified additional length and angular measuring systems for Drive-Cliq. Drive-Cliq enables users of machine tools to connect high-precision measuring systems for position and speed control to the control directly via the open encoder interface. To fulfill the requirements of the Drive-Cliq protocol, the measuring systems must meet the Functional Safety requirements of the European Machinery Directive.

Various scanning principles such as optoelectronic, magnetic, and inductive technologies are used for the measuring systems. Further certifications are under way in addition to certifications for measuring systems from the following manufacturers: AMO, Fagor, Heidenhain, Leine & Linde, Magnescale, Renishaw, and TR-Electronic.



siemens.com/sinamics

New features

- Certified absolute measuring systems for Drive-Cliq
- Connection of high-precision measuring systems for position and speed control to the control directly via Drive-Cliq
- Certified according to the Functional Safety requirements of the European Machinery Directive

Sinamics S120**Powerful new modules**

Sinamics S120 DC/AC devices consist of control units (CU), line modules, and motor modules. The motor modules previously used have now been replaced by the fully compatible 50-mm-wide modules with a higher, triple overload capacity for applications with the greatest demands on dynamics.

siemens.com/sinamics-s120

**New features**

- Sinamics S120 motor modules with triple overload capacity
- Same load cycles as Booksize Compact motor modules
- Configuration with Sizer 3.10

Sinamics S120 high-frequency drive**Drive for high-performance machining**

The Sinamics S120 modular drive system is now offering high-frequency (HF) drive modules especially for high-performance applications with high capacities,

torques, and speeds. An HF drive system consists of one liquid-cooled HF motor module, one HF throttle module, and one HF evaporation module with energy recovery.

The HF drive has been designed for installation in control cabinets and can be completely integrated into the Sinumerik environment.

siemens.com/sinamics

**New features**

- Servodrive especially for applications with high precision requirements
- High output currents at high PWM frequencies of up to 32 kHz and extremely fast current regulator of 31.25 µs
- Low power loss in converter and motor thanks to silicon carbide (SiC) technology and sinusoidal output voltage
- Extremely high efficiency thanks to energy recovery and regeneration capability
- Easy connection to Sinumerik and commissioning with Drive-Cliq

Sinumerik application examples

The Siemens Industry Online Support portal provides useful examples of Sinumerik applications under "Applications and Tools."

You can use this collection of detailed, tested, and documented application examples free of charge.

The latest application examples:

- Sinumerik 840D/840D sl with wireless handwheel
HUBITRON HBG 800-DP
- Sinumerik 840D sl: Sinumerik Integrate Run MyRobot

You can download these examples at
sie.ag/14yIQz1



Scan this QR code
with your
smartphone and
go directly to the
application
examples

In addition to application examples, the Siemens Industry Online Support portal also provides FAQs and a forum. Stop by and check it out!

siemens.com/industry/onlinesupport