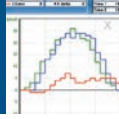




Top Technology made in Germany

SIEB & MEYER was founded in 1962 and has been an internationally successful company in the field of industrial electronics since then. With 200 employees we develop and manufacture control and drive technology. Our product range includes controllers for the machine construction and automation technology, servo amplifiers for various drives, frequency converters for high-speed applications and feed-in technology for renewable energy. Concentration on our core competence results in a worldwide leading position for controllers in the field of PCB drilling and routing machines. Close cooperation with our customers from the development up to the troublefree operation of our products is the basis of our quality philosophy. Highly qualified engineering teams and a modern manufacturing process lead to a maximum amount of innovations and flexibility in serving our customers. Worldwide service and customeroriented trainings are guaranteed with our headquarters in Lueneburg and our subsidiaries.



CNC 82.00 – Top Technology for Your Routing Machines

The CNC 82.00 perfectly meets all requirements demanded to a modern CNC for routing machines in the PCB industry. The powerful software and hardware of this top CNC allows the highest accuracy, productivity and availability of your routing machine in the production. The WINDOWS®-based control of the CNC 82.00 is intuitive and easily learnable.

Optimum Operation via Digital Drive Technology

The drive technology of the CNC 82.00 optimized for routing machines consists of the central Power Supply PS84, the Frequency Converter FC84 for the routing spindles and the digital servo amplifier MD84 Nano with position control for very fast and accurate positioning of the machine axes.

The frequency converters FC84 for synchronous and asynchronous spindle motors ensure optimum torque, very short ramp times and keep the heating of the motor as low as possible. All drive modules are easily connected to the Motion Controller MC82 via the fail-safe digital bus SERVOLINK.

High Reliability via Separate Real-time Motion Controller

Real-time problems as known from exclusively PC-based systems are reliably excluded by the MC82 in the practice. The PC which is exclusively used as data interface and for visualization communicates with the Motion Controller MC82 via an Ethernet

Motion Controller. Furthermore, CNC 82.00 offers a PLC-similar sequential control for the most important machine functions. The new decentral SIEB & MEYER I/O system 84.06 allows easy and time-saving connection via optical fiber cables.

Fast and Precise Execution of Complex Routing Programs

The software and hardware of the CNC 82.00 profited of more than 35 years of experience in routing PCBs. Algorithms and functions, proven thousandfold in the industrial practice, ensure optimal productivity with highest precision.

Surface detection, depth-controlled routing, graphic display, mapping, Gaentry, complex tool management and the operation of synchronous spindles – the CNC 82.00 provides all these features and many more.

CNC 82.00 – Much More than Single Components

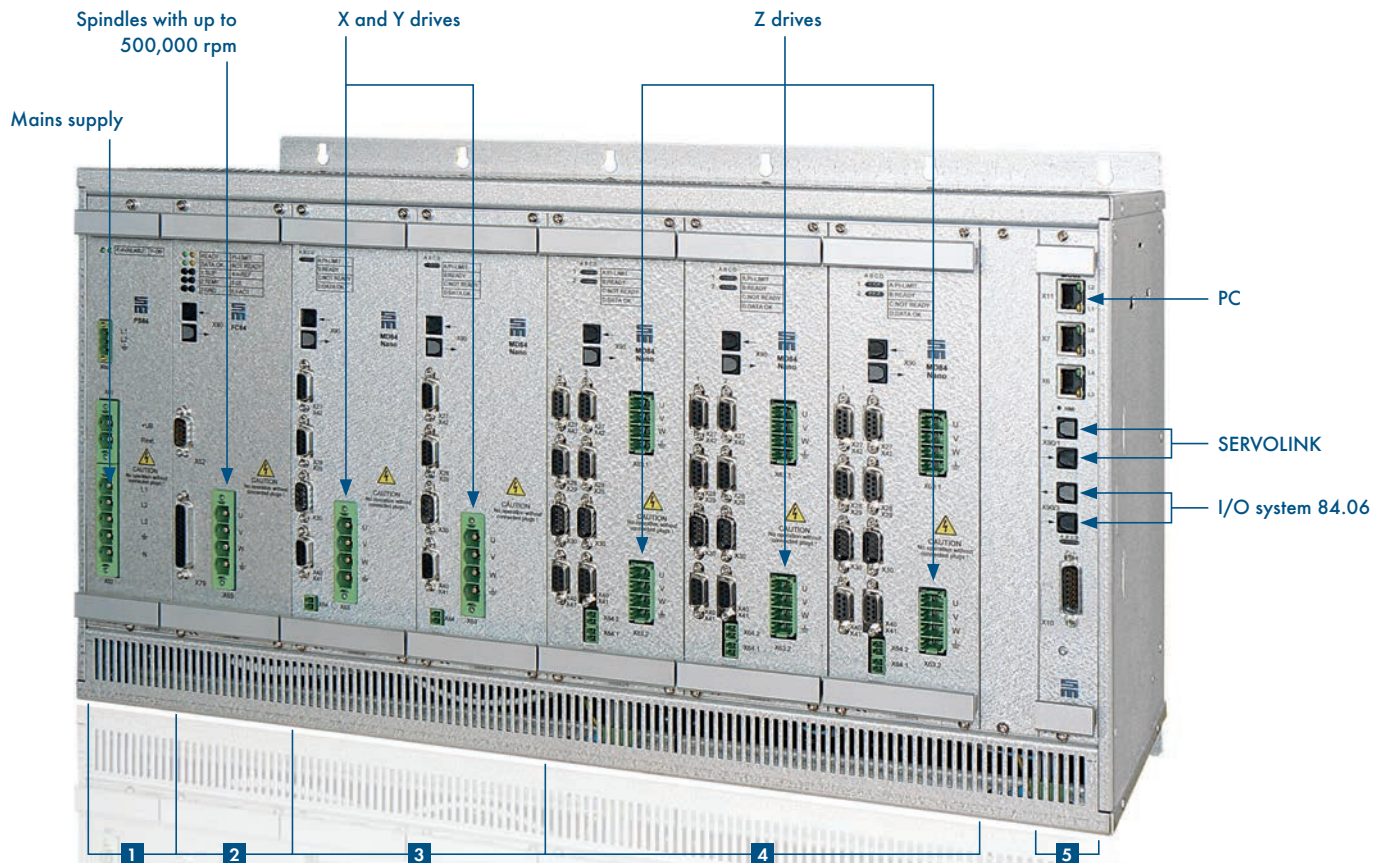
The software and hardware of the CNC 82.00 are perfectly adapted to each other. This ensures fail-safe operation of all interfaces.

SIEB & MEYER tests all components of the CNC 82.00 by 100% with high effort under conditions close to production. Our experienced system engineers offer you support already

during the development of the control and drive technique of your routing machine. Qualified teams of service and application engineers all over the world support you during the initial operation of the machine and afterwards.

The Interfaces of CNC 82.00

Example of CNC 82.00 for routing machine with X, Y and 6 Z axes / 6 asynchronous spindles

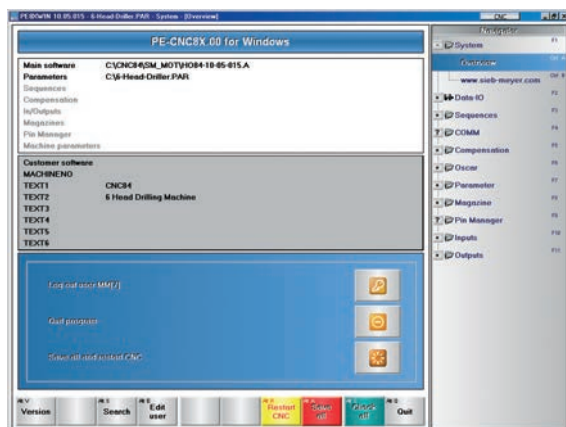


- 1 = Central Power Supply of series PS84
- 2 = Frequency Converter of series FC84 for synchronous and asynchronous spindles
- 3 = Servo amplifiers of series MD84 Nano for the X and Y axes

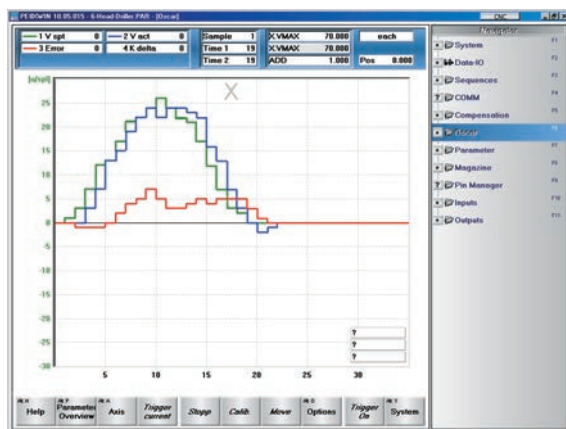
- 4 = 2-channel servo amplifiers of series MD84 Nano for the Z axes
- 5 = Motion Controller MC82 for positioning and interpolating contour planning

Software for Initial Operation and Parameterization: parameter editor

The parameter editor is a powerful tool for easy and goal-oriented parameterization and optimization of machines.



Parameters set the mechanical characteristics of the machine. Functionalities and sequential behavior of the machine are defined in special sequential programs (sequences). This way any machine type can be adapted to the CNC 82.00 by means of the parameters.



OSCAR is an auxiliary program for optimizing machine movements. By means of the graphic visualization speeds, accelerations, and moving characteristics can be set individually for each axis. This online optimization allows the machine manufacturer to determine the best possible values for a machine and thus achieve considerable improvements in the machine's productivity.

Motion Controller MC82

- Ethernet interface to the PC
- Digital bus via optical fiber cable to the drives MD84, FC84 and to the I/O system 84.06

Servo Amplifier MD84 Nano with Central Voltage Supply via PS84

- Mains voltage $3 \times 230 \text{ V}_{AC}$ to 250 V_{AC}
- Single and double-axis design for rotary and linear AC motors
- Evaluation of incremental encoder, absolute encoder or linear measuring system
- Digital bus via optical fiber cable for connection to the MC82
- Rated current I_r : 8.5 A_{rms} to 32 A_{rms}
- Peak current I_p : 23 A_{rms} to 113 A_{rms}

Frequency Converter FC84 with Central Voltage Supply via PS84

Asynchronous spindles:

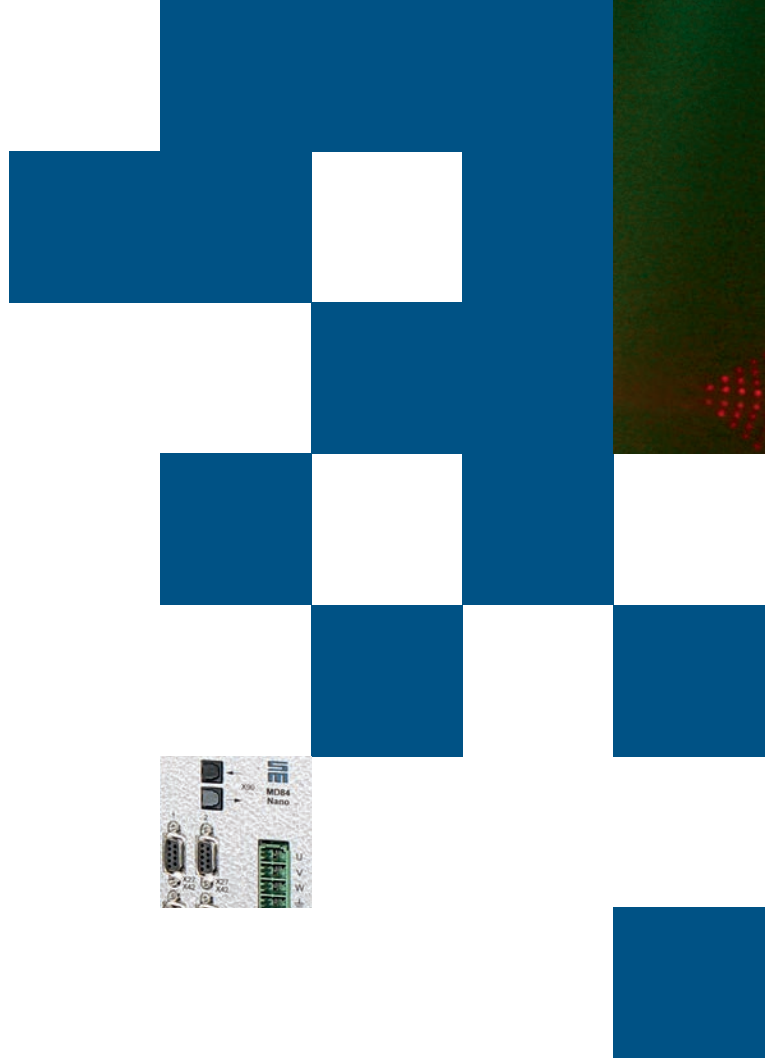
- Evaluation of speed sensors or operation without sensors
- Rated power: 6 kVA to 15 kVA
- Mains input voltage: $3 \times 230/250 \text{ V}_{AC}$, $50/60 \text{ Hz}$
- Rated current I_r : 15 A_{rms} to 29 A_{rms}
- Peak current I_p : 22 A_{rms} to 44 A_{rms}

Synchronous spindles:

- Evaluation of Hall sensors
- Rated power: $2 \times 1.2 \text{ kVA}$
- Mains input voltage: $3 \times 230/250 \text{ V}_{AC}$, $50/60 \text{ Hz}$
- Rated current I_r : 8 A_{rms}
- Peak current I_p : 14 A_{rms}

Decentral I/O-System 84.06

- $+24 \text{ V}$ DC supply
- Up to 500 inputs and 500 outputs
- Inputs: $+24 \text{ V}$ (high active)
- Outputs: $+24 \text{ V}$, 350 mA
- CRC-controlled data transmission
- Serial interface for external PLC
- PD-Box with integrated interface for tool measurement and tool test



- **CNC Controllers**
- **Drive Electronics**
- **Feed-in Technology**

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