

MODULE  
TPS-3920

CNC LATHE

TRAINING SYSTEM



Objectives

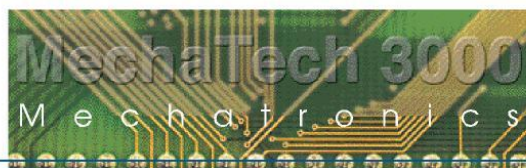
The TPS-3920 CNC Lathe training system, introduces the students to the world of CNC technology .

The study course includes: description of the system and its components, hardware, operation, CAD/CAM software usage, and software simulation as well as programming exercises in G&M-Codes. The system enables the student to develop CNC programming step by step.

Description

The CNC lathe is a compact, desk-top unit designed with the latest CNC technology. Includes an open controller how can be contacted to a PC. The student uses the system to do basic application up to advanced controlling of CNC machines.

The system includes all the necessary components for performing exercises, a metal base with fully protected transparent cover that includes a magnetic sensor ensuring a safe operating process.



# M O D U L E

# TPS-3920

## CNC Lathe Training System

### Technical Characteristics

The CNC Lathe training system is composed of a metal case and transparent cover, which ensures easy handling and good visibility of the CNC lathe.

All two axis control work simultaneous.

The CNC Lathe training system includes the following specification:

- Z axis.....105 mm
- X axis.....30 mm
- Distance between centers .....180 mm
- Spindle speed .....0 - 3000 rpm
- Mechanical resolution .....±0.01 mm
- Spindle bore .....10 mm taper ISO No.1
- Spindle motor.....DC
- Chuck.....3 jaws
- X and Z axis motors .....Servo type; 12 V DC
- Turning diameter.....30 mm
- Emergency stop button
- Transparent door with magnetic limit switch
- Low voltage lighting
- Vacuum cleaner unit
- RS-232 or USB communication to PC
- General dimensions .....650 x 590 x 590 mm

The system is accompanied by control software for Windows that controls the system operation via the computer.

The software enables exercising programming, simulating various CNC machines Keyboards controls such as FANUC and SIEMENS. Complete programming system including 3D graphics simulation, diameter and radius programming on X-axis, FANUC type programming and control system, programmes storage capability, return to reference point, circular interpolation. Programming in mm.

CAD/CAM software.

### Control unit

- An easy to operate card for applications development in CNC machine and machine controllers.
- The card is based on a powerful microcontroller.
- Enables to write CNC control application programs.

### The control system includes:

- 8 digital inputs.
- 8 outputs with 8 indicating LEDs and drivers 0-9V/0.7A with

- overload protection
- 8 analog input channels of Analog to Digital Converter 8 bit 0-9V
- 2 analog output channels of Digital to Analog Converter 8 bit 0-9V
- 8 analog input channels of Analog to Digital Converter 8 bit 0-9V
- 2 analog output channels of Digital to Analog Converter 8 bit 0-9V
- Micro-controller for communicating with the PC
- 8K EPROM for program downloading
- Power supply unit 9V 1A
- Operated via RS-232
- Interface cable
- Can be used as an independent controller after program downloading
- Icon base programming software
- Ladder diagram programming software
- C language programming software
- Assembler programming software
- Can be operated by various programs such as:
  - High-level languages: BASIC, VISUAL BASIC, PASCAL and DELPHI (not included)
  - A51 or C51 compilers
  - G-CODE
  - Can be operated in offline or online mode

### Accessories

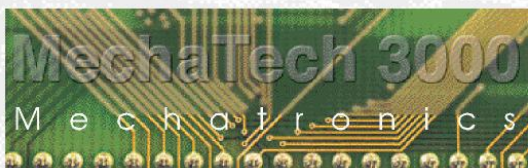
- 5 cylinders of Perspex .....100 x 20 mm
- 2 Cutting knives
- Chuck key
- Allen key set
- Cleaning brush

### Experiments

This system enables the student to perform several experiments and covers the following topics:

- The system's description
- G&M-CODE language
- Installing the SESLATHE software
- Operating the system
- Monitor
- Turning processing
- Arches
- Grooving processing
- Turning the rod
- Project processing

An experiment , operational and programming manual for the student and instructor manual accompany the system.



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