italtec

technical training systems

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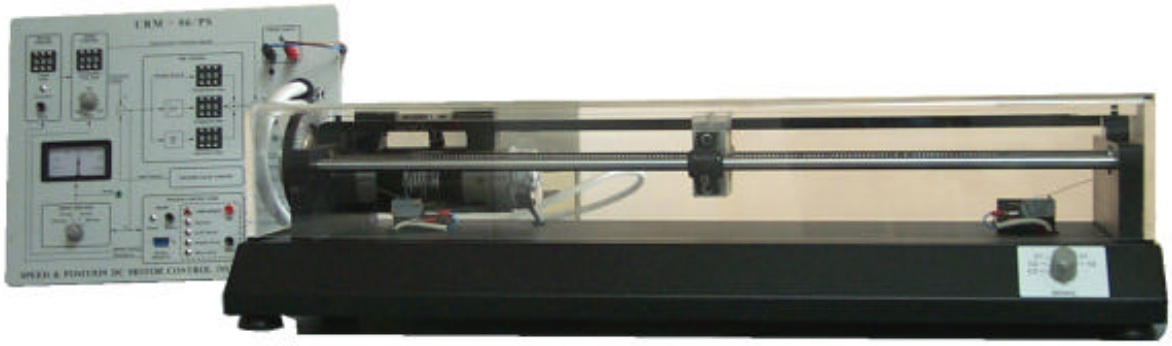
URM-06/PS

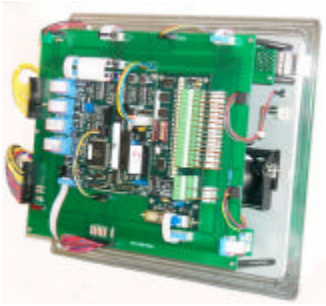
SPEED AND POSITION DC MOTOR CONTROL SYSTEM (CNC AXE)



Especially designed to facilitate the study of the most advanced topics in industrial automation, the **URM-06/PS** system represents an outstanding technical, functional and training unit thanks to the most advanced technologies implemented that place it on a unique position on the educational market.

The system's main blocks are:

- Microprocessor control panel
- Linear mechanical axis
- DC motor, encoder and electromagnetic brake
- DC motor four-quadrant drive
- PC programming software (Windows 95/98/2000)



The high industrial standard components employed enable the user to cope, in the most effective way, with all the topics concerning the control and automation fields.

The training problems related to the mechanical, electrical, electron ic and data processing aspects of the industrial world can be easily dealt with thanks to the technologies implemented in the **URM-06/PS** system. CNC machine tools, robots, pallets, automatic soldering and painting workstations are just the commonest industr ial applications among those requiring an axes positioning system in order to be operated. The **URM-06/PS** system is the basic automation cell making up any type of automatic positioning system regardless of its complexity.
It introduces the learner to all the hardware, software and mechanical topics, both in static and dynamic conditions, that are typically met in the use of any industrial mono or multi axes machines (CNC lathes and milling machines, polar and Cartesian robots, etc.). Its extreme flexibility of use allows the teacher to choose between a wide range of teaching methods and learning levels. The system is completely self-sufficient and doesn't require any external devices or special equipment other than a dual DC power supply (24Vdc/1 -10A) and the standard laboratory measuring instruments.

The system's complete bibliography gives the user a detailed description of its functioning together with exercises of increasing difficulty.

URM-06/PS system's technical and functional features are not easy to be described in few words. Here you have a selection of the outstanding ones:

Mechanical Features:

- Totally controlled linear axis
- 580 mm working stroke
- 14 mm x 4 diameter trapezoidal section female thread
- 1:6 ratio aluminium cogged pulleys
- Displacement for each motor revolution: 0.67mm
- Mechanical resolution and repeativity: 0.5mm
- Linear ball-bearing re-circling displacements on 12 mm diameter hardened and refaced
- Steel shafts
- Aluminium mobile measuring element with reading pointer
- Strong stove enamelled iron sheet structure
- Anodised aluminium sides
- 0.5 mm resolution millimetric rule
- Lexan total protection

Electrical Features:

- Dual DC power supply: 24Vdc/10A max and 24Vdc/500mA
- 100 W permanent magnets DC motor (6,000 r.p.m.)
- Electromagnetic brake
- 2 limit micro-switches on the motor axis
- Motor-encoder-brake in single bloc execution
- Electrical connections through industrial connectors

Electronical Features:

- Up to 3 axes microprocessor positioner
- RS 232 interface for PC control
- Encoder maximum frequency: 37 KHz
- Axis positioning sampling interval: less than or equal to 1 ms
- Analogue output: +/- 10 Volts
- Data and programs memory capacity
- PID control algorithm
- Programmable Feed Forward operation (optional)
- Programmable speed profiles
- 16 inputs and 8 outputs managed through CAN-Bus industrial bus
- 24 Volt DC motor four-quadrant switching drive
- DC motor electronic load selectable as 6-position constant or variable torque
- 200 pulses per revolution position encoder
- CNC resolution better than 1 micron
- Analog dynamic monitoring of the tracking error

Functional Features:

- 5 thumbwheel switch groups for the setting of the main machine parameters
- Ramp time control
- Maximum speed control
- Manual setting of the displacement (1 mm maximum resolution)
- Software setting of the displacement (1 micron maximum resolution)
- Tracking error analog visualization with central zero meter
- Three separate PID loops with programmable gain setting
- Automatic search of the reference point (zero machine reference)
- 9 signal test points
- Light indicators for 4 different types of alarm
- Windows 95/98/2000/XP programming and performances evaluating software
- 6 values electromagnetic brake for the simulation of different DC motor load conditions