Stepper Motor Training System SMTS

Key Features:

- Introduction to Stepper Motor control
- Manual and automated control
- Self-contained unit
- Tutorial software
- Question and answers for each section of the tutorial software
- Clockwise and anti-clockwise direction
- Can be used as a target application for programming software
- Easily interfaced to PC through USB

The Stepper Motor Training System (SMTS) is a self-contained unit that connects to a PC through USB. The SMTS is designed to teach the principles and operations of stepper motors and can be used as an application for programming, providing experience into the many applications of stepping motors.

Stepping motors, are motors which rotate one step when supplied with a pulse. Typical applications include CNC machine tool drives, X-Y plotters and Printers. The control signals required are almost always the same, regardless of motor size.

The system comprises of four Stepper Motors and includes an interactive software program. The software introduces the principles of stepper motors, their use and control. The software includes questions and answers to allow the teacher to evaluate the knowledge of the students.

Curriculum Coverage

- Types of stepper motor
- Permanent magnet stepper motors
  - Principles of operation
  - Two phase stepping
  - Half stepping
  - Calculations of turning angle
- Variable reluctance stepper motors
  - Principles of operation
  - Calculation of turning angle
- Hybrid stepper motors
  - Principles of operation
  - Calculation of turning angle
- Stepping sequence
- Use of microchips
- Programming

Control and Tutorial Software

Specification	
Stepper motors	4
Number of phases per motor	4
Drive electronics	Unipolar
Voltage	12V
Number of steps per revolution	48
Step angle	7.5^{o}
Step angle tolerance	$\pm$ 0.7
Max working torque	6 (mNm)
Holding torque	10 (mNm)
Absorbed power	2 W
Resistance per phase	120 Ohms
Inductance per phase	160 mH
Current per phase	100 mA
Thermal resistance winding-ambient	25 K/W
Rotor moment of inertia	0.26×10^{-6}
Indicators	1 x Power LED
Connections	1 x USB connector 1 x 2.1mm power jack socket
Power supply requirements	12V d.c. @ 5A fused

Required

A suitable PC with minimum; Pentium processor, 1GB RAM, 20GB HDD, CDROM Drive, USB interface and Windows XP or above

Ordering Information

Model Number:	**SMTS**
Consists of:	4 x Stepper motors mounted in case with USB connection 1 x 12V d.c. power supply 1 x USB connecting cable 1 x Software CD

Weights and Dimensions

Un-Packed		**Packed**	
Approximate Dimensions (mm)	287W x 185 x 78H	Approximate Dimensions (mm)	400W x 300D x 300H
Approximate Weights	1.0Kg	Approximate Weights	2.5Kg

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