



Introduction

The Three Phase Squirrel Cage Induction Motor Training System with Star-Delta Starter is an advanced and adaptable educational setup designed for electrical laboratories. It enables students to understand the construction, working principles, and starting techniques of a three-phase squirrel cage induction motor.

The system incorporates a built-in star-delta starter, allowing practical study of reduced current starting methods and motor behavior during transition from star to delta connection. The panel is designed with a simple layout and clear markings, enabling students to perform connections independently and safely.

Note: Shown image is for illustration purposes only. Actual product may vary.

Training Objectives

- To understand the construction and working of three-phase induction motors
- To study the star-delta starting method
- To observe transition from star to delta operation
- To analyze reduction in starting current
- To study running and reversing of the motor
- To evaluate motor performance under different conditions

Key Features

- Integrated control with built-in Star-Delta Starter
- Digital microcontroller-based measuring instruments with high accuracy and resolution
- Screen-printed symbols, circuit diagrams, and graphics for easy understanding
- Standard BS-10 terminals with patch cords for electrical safety
- Copper-wound motor for long operational life
- Class "F" insulation for enhanced thermal durability

Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.



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- Standard mechanical loading arrangement
- Heavy-duty MS channel base with provision for concrete mounting
- Brake drum/pulley with internal heat suppression facility
- Non-contact digital speed measurement system
- Equipped with supply indication lamps

System Components

Three Phase Induction Motor

- Type : Squirrel Cage
- Power Rating : 3 HP
- Voltage Rating : 415 V AC $\pm 10\%$, 50 Hz
- Current Rating : As per standard
- Speed : 1440 RPM $\pm 10\%$
- Insulation : Class 'F'

Star-Delta Starter Unit

- Type : Automatic / Manual Star-Delta Starter
- Make : Siemens or equivalent
- Components : Contactors, timer, overload relay, push buttons
- Function : Reduced voltage starting with automatic transition from star to delta

Loading Arrangement

- Type : Mechanical loading
- Brake Drum / Pulley : MS / Aluminum cast with heat suppression facility
- Spring Balance : 2 Nos. (Salter make)

Machine Base

- Material : MS "C" Channel
- Construction : Heavy-duty with suitable interconnections

Measuring Instruments

- **AC Voltmeter** : 0 – 500 V
- **AC Ammeter** : 0 – 10 A

Digital Tachometer

- Range : Up to 19,999 RPM

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- Type : Contact / Non-contact

Technical Specifications

Mains Supply

- Voltage : 415 V AC $\pm 10\%$
- Frequency : 50 Hz

Protection Devices

- MCB (TPN) : 10 A
- Glass Fuse : 10 A

Scope of Learning / Experiments

- Study of three-phase squirrel cage induction motor
- Understanding fundamentals and working principles of star-delta starter
- Study of star-delta starting method
- Observation of star to delta transition
- Measurement of reduction in starting current
- Running and reversing operation of motor
- Performance analysis under different operating conditions

Supporting Accessories Supplied

- Patch cords with different color schemes
- Single-phase and three-phase mains cords
- Extra glass fuses
- Digital tachometer
- Learning material manual (soft copy)

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