**Key Features:**

- Introductory level to PLC or PC control programming

- Representation of a single automated conveyor system

- Fundamental study of sensors, actuators and motors

- Component detection rejection and acceptance

- Connection through D type, IDC and 4mm connectors

The Single Conveyor Unit (SCU) has been designed as a representation of a conveyor system used in the manufacturing process to allow the study of control methods used at an introductory level. The unit is based around a common application found in industry of sorting items as they travel along a conveyor system.

The unit consists of a belt conveyor driven by a 24V d.c motor with sensors and an actuator situated along its length. Two different sized metal boxes are placed in turn at the start of the conveyor and as the box travels along the conveyor it enters an area consisting of two sensors that determines the length of the box. At the end of the conveyor is a sorting area with a sensor and linear solenoid. In the sorting area, the sensor detects the box and through the program controlling the single conveyor, the box is either accepted and allowed to continue or rejected, and ejected by the solenoid.

Connection to a PLC is through two 24V d.c D type connectors and 24V d.c 4mm colour coded shrouded sockets. The PC can be connected using a suitable interface card connected to a 26-way IDC connector with TTL.

**Curriculum Coverage**

- Introduction
- How it works
- Getting started
- Connecting the SCU to a PC
  - Procedure for connecting the SCU to a PC

- Connecting the SCU to a Programmable Logic Controller
  - SCU to PLC connecting procedure
  - PLC Input / Output wiring details

**Labworks**

- Belt conveyor control
  - Objective
  - Procedure
  - Solution
  - Testing the program
  - Exercise
- Rejecting A Box
  - Objective
  - Procedure
  - Solution
  - Testing the program

- Sorting boxes
  - Objective
  - Procedure
  - Solution
  - Testing the program
  - Exercise
- Time-out error detection
  - Objective
  - Procedure
  - Solution
  - Testing the program
  - Exercise

## Specification

| | |
|---|---|
| Inputs | 2 x digital inputs |
| Outputs | 3 x digital outputs |
| Sensors | 1 x Infrared through beam sensor |
| | 2 x Infrared reflective sensor |
| Belt conveyor | 24V d.c. motor |
| Solenoid | 24V d.c. linear solenoid |
| Switched faults | Four dual in-line switches |
| Connection | 2 x 15-way D type connector 24V d.c. |
| | 1 x IDC 26 pins TTL |
| | 6 x 4mm colour coded shrouded sockets 24V d.c. |
| | 2 x 4mm power terminals |
| | 2.1mm power jack socket |
| Power supply requirements | 24V d.c. @ 1.5A |

## Required

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

## Ordering Information

**Model Number:**   **SCU**

*Consists of:*
- 1 x Single conveyor unit
- 1 x 48mm aluminium box
- 1 x 60mm aluminium box
- 1 x 24V d.c power supply unit
- 1 x User manual
- 1 x Software CD

## Weights and Dimensions

| Un-Packed | | Packed | |
|---|---|---|---|
| Approximate Dimensions (mm) | 390W x 160D x 135H | Approximate Dimensions (mm) | 400W x 400D x 300H |
| Approximate Weights | 2.1Kg | Approximate Weights | 5Kg |

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