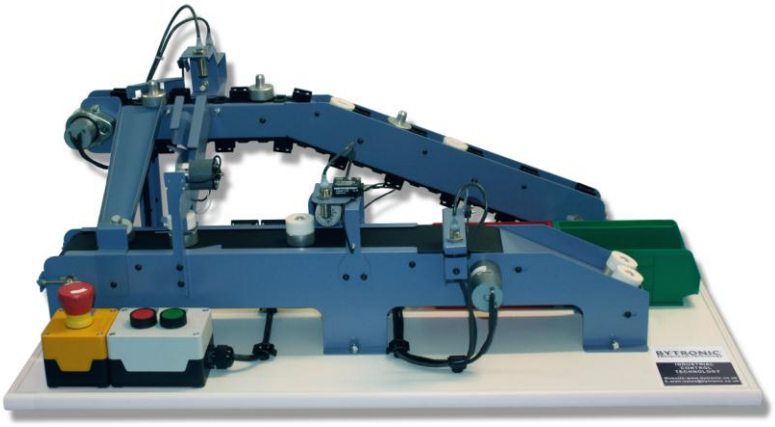
BYTRONIC
Educational Technology

Industrial Control Technology ICT3



Key Features:

- Completely self contained
- Representation of an automated assembly system
- Performs: Sorting, Assembly, Checking and Rejection or Acceptance
- Two types of conveyor systems
- Industrial grade sensors with visible indicators
- Various types of sensors including Infra-Red, Inductive, Capacitive and Fibre Optic
- Inputs and Outputs 24v dc
- Fault insertion switches

The Industrial Control Technology unit (ICT3) is a representation of an industrial assembly system that allows the study of control methods used in product assembly and inspection in a manufacturing process. Various industrial sensors and the methods, in which they can be used, are studied. The Sensors and actuators are used to sort components, assemble them and test for correct assembly followed by acceptance or rejection. The unit can be controlled from a PLC using the 24v dc I/O interface.

The unit assembles two components a plastic ring and an aluminium peg. A chain conveyor processes the components through the sort area; the plastic rings and aluminium pegs proceed down a ring and peg chute and are then assembled on the belt conveyor. At the assembly check area components are inspected for correct assembly and when the components reach the final area, if correctly assembled they proceed to the acceptance area, faulty assemblies are rejected into a reject bin. Correct programing of the controller (PLC or PC) must be achieved to ensure scrap components are not sent to the final assembly area.

Once the program has been written and the system is working correctly, various faults can be applied using the fault insertions switches, providing diagnostic solving issues. LED's on the sensors provide a visual indication of the operational status of the sensors. The sort and reject solenoids are fitted with sensors to monitor the operation of the solenoids and to ensure the operation has been correctly performed.

Curriculum Coverage

- Introduction
- Principles of operation
  - The sort area
  - The assembly chute
  - The sensing area
  - The reject area
- Getting started
- Interactive software
  - Using an interface card
  - Using a PLC
  - Running the ICT3 using the software
- The ICT3 electronics
- Sensors
  - Photoelectric sensor terminology
  - Photoelectric sensors
  - Optical fibre sensors
  - Capacitive sensors
  - Inductive proximity sensors
  - The ICT3 sensors
- Switched faults

Labworks

- Sorting routine
- Closed loop solenoid control
- Queue counting
- Operation timing
- Plastic ring detection/rejection
- Metal peg detection/rejection
- Component acceptance and rejection
- Component queue handling
- Complete system control
- Start / Stop switches

Specification	
Inputs	5 x 24V d.c.
Outputs	11 x 24V d.c.
Chain conveyor	24V d.c. Motor with gearbox and slipping clutch
Belt conveyor	24V d.c. Motor
Sensors	3 x Infrared sensors 4 x Inductive Sensors 1 x Capacitive Sensor 1 x Fibre Optic Sensor
Solenoids	1 x 24V d.c. rotary solenoid 2 x 24V d.c. linear solenoid
Switched Faults	Six switchable faults
Control	1 x Start and Stop switch in enclosure 1 x Emergency Stop Switch
Connection	1 x 15 way D type connector 24v dc Outputs 1 x 15 way D type connector 24v dc Inputs 2 x 4mm power terminals 2.1mm power jack socket
Power supply requirements	24V d.c. @ 2.5A

Required

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

Ordering Information	
Model Number:	**ICT3**
Consists of:	1 x Industrial control technology unit 1 x 24V d.c power supply unit 8 x Standard plastic rings 8 x Standard pegs 1 x Manual 1 x Software CD

Weights and Dimensions

Un-Packed		**Packed**	
Approximate Dimensions (mm)	800L x 460W x 350H	Approximate Dimensions (mm)	870L x 540W x 470H
Approximate Weights	16Kg	Approximate Weights	18Kg

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