

The image displays a variety of electronic components and modules arranged on a black perforated board. The components include:

- A breadboard with a microcontroller, various passive components, and a USB-to-UART module (labeled 'GHOST').
- A small LCD display module with a green PCB and a black screen.
- A keypad module with a green PCB and a black keypad.
- Several integrated circuits (ICs) and modules, including a USB-to-UART module (labeled 'GHOST'), a small LCD display module, and a keypad module.
- A small module with a green PCB and a black screen, labeled '10-30 MHz Spectrum'.



EB699

# General information

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This training solution provides a motivating solution for learning about wireless area network RFID (Radio Frequency IDentification) technology, system construction, and project development.

## 1. Features

- Fully working RFID system constructed from E-blocks
- Full curriculum support
- A great introduction to practical RFID implementation

## 2. Benefits

- Provides understanding of RFID systems

# Solution description

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This solution can be used to provide a complete 20 hour course in developing RFID systems. This will give students who are familiar with microcontrollers an understanding of the programming techniques involved in developing RFID systems, as well as an understanding of how these systems are developed from scratch. An E-blocks RDIF board and four RFID tags embedded into credit cards are included.

The solution includes a fully working RFID system based on E-blocks™. All E-blocks boards are fitted with clear acrylic covers which prevent links and chips from being removed. The solution is assembled and tested in the Factory, and is shipped in rugged plastic trays for storage and transport.

Flowcode allows students to understand communications programs and strategies without getting bogged down in the complexity of C or Assembly code. The system can also be used with C and Assembly code (software not provided). This solution is compatible with Flowcode7 which can be purchased separately.

A 50+ page printed and bound manual with student exercises is included. This is also available in electronic form (Word and PDF) along with fully worked examples on CD ROM.

This solution is made available at a discount to the sum of the individual parts.

# Learning objectives

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1. This equipment is used to give students a complete understanding of the how RFID systems are constructed. The theory of RFID system development is understood through a series of 9 exercises carried out with Flowcode and the E-blocks hardware. These include:
  - Icode mode:
  - Transponder unique ID
  - Reading transponder data
  - Writing transponder data
  - Mirfare mode:
  - Transponder unique ID
  - Reading transponder data
  - Writing transponder data
  - Value format

## Further information

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### 1. Learning time

Dependant on course structure and options chosen from the teacher's manual. Approximately 15 to 20 hours.

### 2. Prerequisites

- Some understanding of electronics
- Windows skills
- Some microcontroller programming in C, Assembly or Flowcharts

### 3. System requirements

PC with CD ROM drive and Windows XP or greater.

### 5. Order code

The order code for this product is EB699.

### 6. Also consider

Mobile phone training solution  
CAN bus training solution  
Zigbee training solution  
USB training solution  
Embedded internet training solution  
Bluetooth training solution  
FPGA Solution

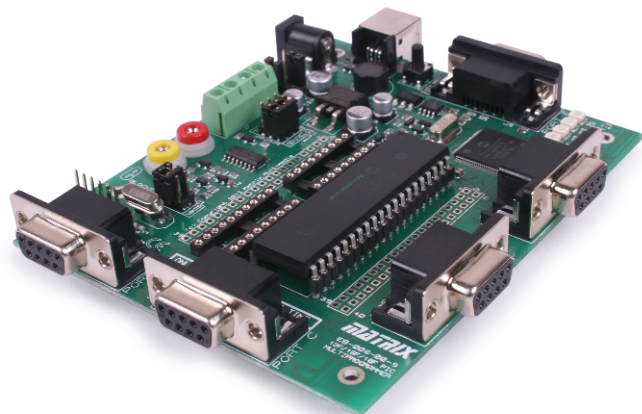
### 4. Further information

A separate datasheet is available for each of the E-blocks boards included in the pack. Please see our web site for details.

# Solution Contents

The table gives a list of the major items of the pack contents.

Datasheets on any individual item are available from the resource section of the Matrix TSL website [www.matrixtsl.com](http://www.matrixtsl.com)



Qty	Description
1	RFID solution CD ROM
1	RFID solution teachers notes
2	Mifare RFID card
2	I-Code SLI card
1	International power supply with adaptors
1	USB lead
1	E- blocks Keypad board
1	E- blocks LED board
1	E-blocks LCD board
1	E- blocks USB Multiprogrammer board
1	E-blocks RFID board



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