MATRIX

eBLOCKS®

USB training solution

General information

This solution provides a motivating solution for learning about USB technology, system construction, and project development.

1. Features
- Fully working USB peripherals constructed from E-blocks
- Includes Flowcode Professional software
- Full curriculum support
- A great introduction to USB device imple-mentations

2. Benefits
- Provides understanding of USB technology, practice, and implementation

Solution description

This solution allows students to carry out a number of practical exercises in USB technology. Students learn about USB by developing 8 different system developments: Mouse Joystick, Temperature logger, USB terminal, USB to RS232 converter, Basic slave, Storage scope, and Oscilloscope with variable trigger. Some of these experiments are accompanied by programs written in Visual Basic. Working through the exercises students build a good understanding of the various types of USB system including Human Interface Devices, Communications Devices and Slave devices. The solution can also be used as a motivating platform for learning general microcontroller programming and project work.

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.

A Professional Academic PIC single user licence of Flowcode V6 graphical programming software is provided. 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).

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

Learning objectives

- This USB solution can be used for teaching microcontroller programming in a highly motivating context. It is also useful for teaching the specifics of USB communication system development and has many outcomes which include:

1. Programming outcomes:
- General programming of systems including LCD, Keypad etc
- RS232 protocol and programming
- String construction and deconstruction in communications
- The use of state machines in controlling electronic systems

2. Communications outcomes:
- RS232 communications and handshaking protocols
- ASCII representation of characters in messages
- USB structure and command protocols as used in computer peripherals
- Project management and development outcomes
- The use of flowcharts and state diagrams in planning systems
- How electronic systems are developed from scratch
- The modular approach to building electronic systems

Further information

1. Learning time

Dependant on course structure and options chosen from the teacher's manual. Approxi-mate figures:
Electronics: up 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.

4. Futher information

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

5. Order code

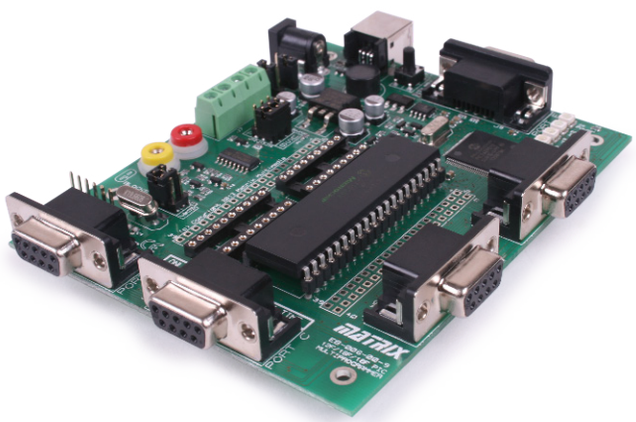
The order code for this product is EB479.

6. Also consider

CAN bus training solution
Zigbee training solution
Mobile Phone training solution
Embedded internet training solution
RFID training solution
Bluetooth training solution
FPGA Solution

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



Qty	Description
1	USB training solution CD
1	USB training teachers notes
1	Flowcode V6 Professional Academic PIC single user licence
1	Adjustable power supply
1	USB lead
1	E- blocks sensors interface motherboard
1	Digital temperature sensor module
1	E-blocks LCD board
1	E- blocks USB Multiprogrammer board
1	E -blocks Keypad
1	E -blocks LED board
1	E- blocks RS232 interface board
1	E- blocks USB interface board

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