LIN bus training solution

What does it do?

Provides a solution for teaching and learning about LIN bus technology for all levels of student - Automotive and beyond.

Benefits

- Allows students to investigate LIN at a high level without getting bogged down in programming detail
- Flowchart software allows students to concentrate on LIN strategy and protocol

Features

- Allows rapid development of LIN systems
- Suitable for investigation of the LIN protocol
- Complete suite of hardware modules
- Includes Flowcode with LIN macros

Description

This training solution is designed to facilitate the development and investigation of systems that use the LIN bus protocol for communications. The solution is comprised of four fully programmable LIN nodes which mimic Electronic Control Units (ECUs) in an automotive application. These are mounted on rugged backplanes and are fitted with ancillary circuit boards which mimic the functions of indicator lamps, switches and sensors. The software supplied allows students to program each of the four nodes in flow charts to form a fully functioning LIN bus system. The solution is suitable for automotive students who simply need to understand how LIN works, and for electronic students who want to understand more details of the LIN protocol, and how it interfaces with the CAN bus. The software supplied operates at several levels so that different types of student are exposed to the only relevant details of the LIN system.

Learning time

Dependant on course structure and options chosen from the teacher's manual. Approximate figures:

Automotive: 3 hours
Electronics: up to10 hours

Prerequisites

- Some understanding of electronics
- Windows skills

Manual

A 40+ page manual is supplied with this product with a range of suggested student activities and sample files on CD ROM.

System requirements

PC with CD ROM drive and Windows 98 or greater.

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.

Order code

The order code for this product is EB413.

Also consider

CAN bus training solution.

LIN bus training solution

Learning objectives

This equipment and associated curriculum is designed for two levels of student:

Firstly the equipment can be used for automotive technicians to gain an appreciation of LIN technology. These technicians are expected to download and review programs made in flow charts, but are not expected to carry out any programming tasks. Level 1 learning outcomes are:

- To understand what a microcontroller is and that it can be programmed with software to perform different tasks
- To understand the nature of an ECU and the main component parts of an ECU
- To understand that software can change the way an ECU operates
- To understand the nature of LIN and the basic LIN protocol, and the basic structure of a LIN network

Secondly the equipment can be used by more advanced students to gain an understanding of LIN technology and to allow them to construct networks which communicate in LIN and higher level protocols. These students are expected to develop their own LIN networks using flowcharts with LIN macros provided. The use of flow charts here will allow the students to understand LIN protocols and communication without the need for the students to get bogged down in the processes of lower level LIN bus software construction.

Level 2 learning outcomes are all those in Level1 and:

- To understand LIN transmit and receive messages and the top level LIN protocols
- To understand LIN message structure
- To understand and construct a fully operational LIN system with four nodes working at once
- To understand how LIN and CAN are able to communicate with each other in an automotive system

Pack contents

The table below gives a list of the pack contents. Datasheets on any individual item are available on request.

Tray	Qty	Code	Description
1	1	EB355	E Blocks User Guide
1	1	EB499	LIN solution CD ROM
1	1	EB929	LIN bus solution teacher's notes
1	1	EBPUB	E-blocks publicity sheet
1	1	ELSAM	ELSAM mini CD ROM
1	1	HP16F1937	PIC16F1937
1	1	HP2045	Shallow plastic tray
1	1	HP3844	Foam insert for trays
1	1	HP4039	Lid for plastic trays
1	1	HP9734	Cardboard box for trays
1	2	HP5328	Adjustable power supply
1	1	HPUSB	USB lead
2	1	BP232	E-blocks backplane - tray compatible
2	1	EB00600	E-blocks USB Multiprogrammer
2	1	EB00700	E-Blocks Switch board
2	1	EB02700	E Blocks LIN board
2	1	EB634	E-blocks IDC cable
2	1	EB706	E-blocks PICmicro multiprogrammer cover
2	1	EB707	E-blocks switch board cover
2	1	EB727	Cover for LIN board
2	3	HP16F1937	PIC16F1937
2	1	HP2045	Shallow plastic tray
2	1	HP3844	Foam insert for trays
3	1	BP232	E-blocks backplane - tray compatible
3	1	EB00400	E-Blocks LED board
3	1	EB00500	E-Blocks LCD board
3	3	EB00600	E-blocks USB Multiprogrammer
3	1	EB00700	E-Blocks Switch board
3	3	EB02700	E Blocks LIN board
3	1	EB704	E-blocks LED board cover
3	1	EB705	E-blocks LCD board cover
3	3	EB706	E-blocks PICmicro multiprogrammer cover
3	1	EB707	E-blocks switch board cover
3	3	EB727	Cover for LIN board
3	1	ELFCS2SI	An introduction to Microcontroller programming
3	1	TEFLCSI5	Flowcode V5 professional