ET-LAB3A (J-AA-L-00005)

EXPERIMENT LAB for ... Computer

2 in 1 BOARD
- Experiment LAB for ... MCS−51
- Experiment LAB for Interface with COMPUTER PC *Asm," C51",Delphi*
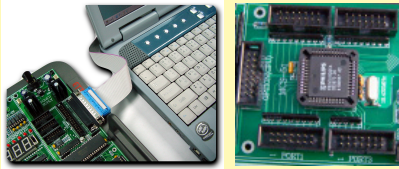
ETT is one of Development and Research Microcomputer, Single Board, Microcontroller Board such as CPU Z80, Z180, MCS51, PIC, BASIC STAMP, 68HC11, AVR, RABBIT 2000. Today, ETT's ET-LAB3A is designed for study about Microcontroller with MCS-51 inside and be able to connect with Computer PC for write program. Users who have ETT's Single Board or want to control from external can connect ET-BOARD with ET-LAB3A. Other accessaries are high technologies as I^2C BUS, 1 WIRE BUS, SPI BUS, ADC, DAC, and etc. Moreover, users can study the connection between Digital and Analog for support Microcontroller that uses with Analog circuit.

Mcs-51 Training   **RD2** INCIRCUIT DOWNLOAD

Users can learn 12C BUS, 1-WIRE, iBUTTON and etc. in one board because of Input/Output in ET-LAB3A Board. Be able to study and understand Microcontroller MCS51 in Assemble Language and C51 Language better. Board is designed to connect with Computer PC directly and be able to interface with other accessaries and be able to write program controller through Computer PC Test Board.

CPU MCS51 OF ET-LAB3A BOARD

It uses PHILIPS' No.P89C51RD2/V51RD2 as CPU with 64 KBYTE INTERNAL FLASH MEMORY and can download program in Computer PC into CPU P89V51RD2 through RS232 Port directly. Be able to write program with Assembly Language or C Language. For example, there's DOS and WINDOWS ASSEMBLY MCS51 LANGUAGE in OS, MICRO C51 DOS in C LANGUAGE, and KEIL 51 WINDOWS.

- CPU **P89V51RD2**

64 KBYTE INTERNAL FLASH
RUN X'TAL 18.432 MHz

INTERFACE WITH COMPUTER PC

The connection between ET-LAB3A BOARD and Cmputer PC through PRINTER PORT DB25 PIN of computer to board, it uses 3-CH.8 BIT PORT INPUT/OUTPUT controls to IC PORT 8255 on board. Users need to select high language "DELPHI" to write program to run on OS of WINDOWS

ET-LAB3A INCLUDES

1. ET-LAB3A   2. CD-ROM
3. DC ADAPTER POWER SUPPLY ET-A05 12VDC 1.5 A
4. ET-BOX 1   5. PAIR CABLE CONNECTOR
6. ET-RS232 DB 9 PIN   7. USER MANUAL (THAI)

SPECIFICATIONS ET-LAB3A

TEST STEEPING MOTOR WITH INDICATOR

2-CH.OPTO INPUT SENSOR FOR TEST DIRECTION AND SPEED OF DC MOTOR

8 POINTS TEST LED DISPLAY

4 DIGIT 7-SEGMENT TEST LED

4 POINTS TEST DIP SWITCH

15 x 7 DOT TEST DORT MATRIX

4 x 3 KEYS TEST KEYBOARD

2-CH.8 BIT No.ADC0832 TEST A/D CONVERTER WITH;
-1-CH.LDR
-1-CH.THERMISTER

8 BIT R-2R TEST D/A CONVERTER

TEST OPTO ISOLATOR DC INPUT, IT IS 4-CH.OPTO ISOLATION INPUT AND CAN SELECT 5 VDC OR 24 VDC INPUT

TEST TEMPERATURE SENSOR, 3 PIN 1-WIRE DS1820

TEST RELAY 4 CHANNELS, IT USES SOLID STATE RELAY AS SEMICONDUCROR TO CONTROL ALTERNATING CURRENT AND ZERO CROSSING OPTO ISOLATION TO RUN WITH TRIAC

MACHANIC RELAY FOR TEST RELAY 1 CHANNEL

TEST LCD DISPLAY 16 CHARACTERS 2 LINES

TEST SOUND SPEAKER

12C BUS SYSTEM TEST WITH
- 2 KBYTE IC 24C16 FOR MEMORY OF EEPROM
- IC DS1307 RTC (REAL TIME CLOCK) WITH BATTERY BACKUP
- I^2C INPUT PORT AND OUTPUT PORT, 8 BIT IC PCF8574
- I^2C 4-CH.A-TO-D AND 1-CH.D-TO-A, IC PCF8591

TEST 1-WIRE CONNECTING OR IBUTTON, IT IS CONNECTING ONLY ONE WIRE WITH OTHER
- DS1990A CONTROLS SERIAL NUMBER

CLOCK, IT IS TESTED SYSTEM OF INTERRUPT, TIMER, COUNTER IN CPU MCS-51 WITH TEST SWITCH

ADAPTER from 34 PIN ET-BUS IC 8255 TO CONNECT WITH PRINTER PORT OF COMPUTER BE ABLE TO USE WITH ET-LAB3A WITH 34 PIN ET-BUS TO CONNECT WITH ET-BOARD V6.0

LOCKED CONNECTOR AS TEST PAIR CABLE

CPU MCS-51 No.P89V51RD2 WITH 64 KBYTE FLASH MEMORY BE ABLE TO DOWNLOAD TO COMPUTER PC FROM RS232 PORT INTO CPU P89V51RD2 DIRECTLY, ALTHOUGH IT IS WRITTEN WITH ASSEMBLY LANGUAGE OR C LANGUAGE INTERFACE WITH COMPUTER PC THROUGH PRINTER PORT OF COMPUTER PC TO ET-LAB3A BOARD. IT IS CONTROLLED TO IC PORT 8255 WHICH IS 3-CH.8 BIT INPUT/OUTPUT PORT IS ON BORAD WITH WRITTEN HIGH LEVEL LANGUAGE "DELPHI LANGUAGE" TO CONTROL TEST. CONNECTING WITH ET-BOARD V6.0, IT TAKES Z-80 CPU AND MCS-51 CPU IN ET-BOARD V6.0 CONTROL ALL ACCESSARIES ON ET-LAB3A BOARD THROUGH 8255 PORT.

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