ET-RASPBERRY HAT EXP BOX (P-ET-A-00557)

ET-RASPBERRY MINI EXP BOX (P-ET-A-00558)

This training kit is used together with Textbook "เรียนรู้ เข้าใจ ใช้งาน Raspberry PI3 (Learning, Understand & Use Raspberry PI3)" (Thai only). It is divided into 2 sets; firstly, ET-RASPBERRY HAT EXP BOX is used with Board RASPBERRY to connect and test in Chapter 1-11 (it is recommended user to buy this box set first and then buy Board ET-RASPBERRY MINI EXP BOX later). Secondly, ET-RASPBERRY MINI EXP BOX is used to connect & test in Chapter 12-16.

Both sets do not include Board CPU RASPBERRY PI3; so, customer needs to buy it (OPTION). Or, if customer has already had Board RASPBERRY PI3 and wire cables, POWER SUPPLY, it only buys ET-RASPBERRY HAT or MINI.

Training Kit **ET-RASPBERRY HAT EXP BOX** includes in the high quality box, it is more convenient to use and protect all devices well. The training kit consists of…
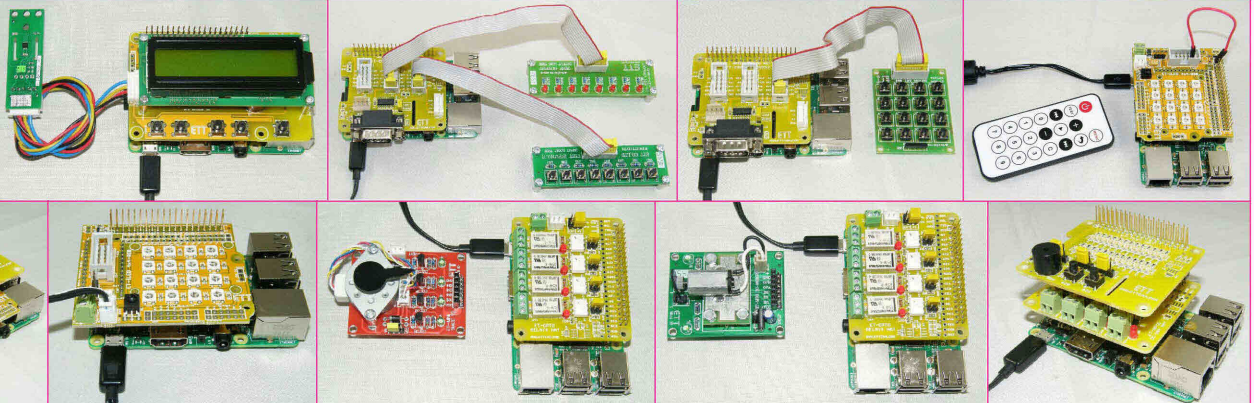
- SD CARD 16GB-EXP3 provided OS and LAB for testing
- ET-LCD SW HAT
- ET-iLED 4x4 RGB (HEADER 40PIN)
- ET-SWITCHING 5V 2A TYPE B
- ET-OPTO DC IN4 HAT
- ET-CONV 10/RS232 HAT
- ET-MINI SMCC V2
- ET-TEST 10P/OUT
- Wire Cables
- ET-SENSOR SHT31
- ET-IR REMOTE KEY
- ET-OPTO RELAY4 HAT
- ET-TEST HAT
- ET-MINI DC MOTOR
- ET-MINI KEY 4X4
- ET-TEST 10P/INP
- Pair Cable 10PIN
- DVD provided Example Programs and Programs of RASPBERRY PI3
- Textbook "เรียนรู้ เข้าใจ ใช้งาน Raspberry PI3 (Learning, Understand & Use Raspberry PI3)" (Thai only)
- High quality plastic box to keep and protect Training Kit " ET-BOX1 "

- Board **RASPBERRY PI3**, **POWER SUPPLY**, **wire cables**, **LAN Cable** are not included in the Box Set.

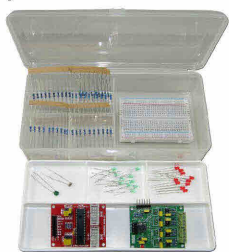Example illustrates how to connect **ET-RASPBERRY HAT EXP BOX** with Board **Raspberry PI3.**

ET-RASPBERRY HAT EXP BOX can be used with Textbook "เรียนรู้ เข้าใจ ใช้งาน Raspberry PI3 (Learning, Understand & Use Raspberry PI3)" (Thai only) for testing in Chapter 1-11. For Chapter 12-16, it must be used with RASPBERRY MINI EXP BOX.

This Training kit can be used to test, use, and learn

- how to develop RASPBERRY
- how to test LED, SW
- how to test OUTPUT RELAY
- how to test KEY 4X4
- how to test RTC
- how to create SD CARD
- how to test LED RGB
- how to test OPTO DC IN
- how to test LCD
- how to test SENSOR HUMIDITY
- how to write Program by Python
- how to test receiving IR REMOTE
- how to test RS232 PORT
- how to test BUZZER

*It is recommended user to have the Training Kit RASPBERRY HAT EXP BOX first and then use or buy ET-RASPBERRY MINI EXP BOX later.

Training Kit **RASPBERRY MINI EXP BOX** is contained in high quality plastic box, it is divided in small section that is more convenient to keep and protect all devices.
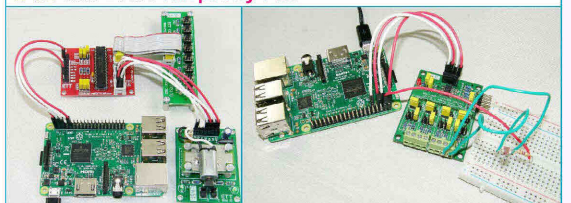

The box set consists of…
The box set consists of…
- ET-MINI MCP3424 ADC
- LDR, THERMISTER, R, LED
- ET-MINI MCP23017
- PROJECT BOARD 400 HOLES

It can be used with Textbook "เรียนรู้ เข้าใจ ใช้งาน Raspberry PI3 (Learning, Understand & Use Raspberry PI3)" (Thai only) for testing in Chapter 12-16; it can
- test A TO D, measure pressure, LDR, THERMISTER
- test INPUT, OUTPUT, I/O via PORT I²C

Example illustrates how to connect **ET-RASPBERRY MINI EXP BOX** with Board **Raspberry PI3.**

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Parts of RASPBERRY PI3 are available, customer can choose according to target

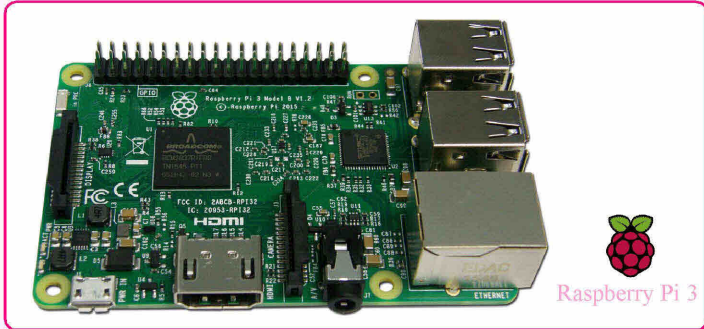### RASPBERRY PI3-MOD B
(C-YA-A-00213) ***

This **RASPBERRY PI3-MOD B** is the newest product that adds WIFI and BLUETOOTH and speed of CPU is higher than PI2.

?This RASPBERRY PI3 is 32BIT minicomputer with 1GB Memory, it can connect with computer monitor or TV monitor (HDMI) with key board and mouse. It acts like a computer that can access WEB, play multimedia files. Run the operating System through SD CARD such as LINUX, WINDOWS 10.

- Size and Connectors of RASPBERRY PI3 are the same as RASPBERRY PI2; it can be used with all devices and box of the previous version (except POWER SUPPLY, it requires 5V at least 2.4A).

- CPU uses BROADCOM BCM2837 64 BIT QUAD CORE 1.2GHz, speed is higher than PI model about 50-60%, RAM 1GB
- use BCM43143 WIFI and BLUETOOTH LOW ENERGY (BLE) ON BOARD
- 400 MHz VIDEO CORD IV GPU
- OPERATING SYSTEM BOOTS FROM MICRO SD CARD
- DIMENSION: 85 X 56 X 17mm
- POWER SUPPLY FROM CONNECTOR MICRO USB SOCKET 5V/2.4A

CONNECTORS

GPIO CONNECTOR : 40 PIN HEADER 2.54mm. MALE (GPIO, UART, I2C, etc)
USB   : 4 PORT USB 2.0 for KEY BOARD, MOUSE
ETHERNET   : 10/100 BASE RJ45
VIDEO OUTPUT   : HDMI and COMPOSITE VIDEO (PAL/NTSC) 3.5mm. 4-POLE JACK
AUDIO OUTPUT   : HDMI and 3.5mm. 4-POLE JACK
CAMERA CONNECTION : 15 PIN MIPI CAMERA SERIAL INTERFACE (CSI-2)
MEMORY CARD SLOT : MICRO SD

***This board is imported from abroad; Circuit is SMD type that is irreparable. ETT checks all circuit and guarantee all boards is available before sale.
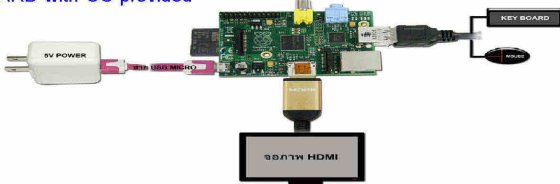
This product, especially this model, has not any warranty. If customer does not accept the condition of product, please do not unseal the package and return the product to ETT to refund.

*** How to connect Board RASPBERRY PI3 ***

1. If connecting through screen HDMI, it requires following devices…
- Board RASPBERRY PI3
- CABLE HDMI/HDMI
- ET-SWITCHING ADAPTER 5V 3A TYPE U and CABLE POWER 3 P
- SCREEN with HDMI
- KEY BOARD PC and MOUSE
- SD CARD with OS provided

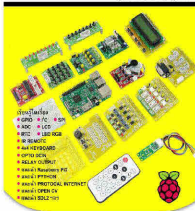2. If connecting through LAN Cable, it required following devices…
- Board RASPBERRY PI3
- CABLE LAN DIRECT 2M
- ET-SWITCHING ADAPTER 5V 3A TYPE U and CABLE POWER 3 P
- ROUTER (DHCP SERVER) and COMPUTER PC
- SD CARD with OS provided

TEXTBOOK "เรียนรู้ เข้าใจ ใช้งาน Raspberry PI3 (LEARNING UNDERSTAND & USE Raspberry Pi3)" (THAI ONLY)
(A-BK-P-00151)

It describes how to write program and use Board RASPBERRY PI3, including GPIO, I2C, SPI, ADC, LCD, LED RGB, IR REMOTE, 4X4 KEY BOARD, DC INPUT, RELAY, WEB CAM.

It suggests Board RASPBERRY PI3, PYTHON Language for writing program on Board RASPBERRY, PROTOCAL, INTERNET, OPEN CV, SDL2. Moreover, it suggests how to connect this board with Board HAT and Board ET-MINI I/O from ETT. This textbook is published by fine printing paper, 352 Pages.

SD CARD 16GB-EXP3   (A-CM-A-00049)

This is MICRO SD CARD 16GB CLASS10 that is provided with OS, it is ready to be used with BOARD RASPBERRY PI3. Example Programs, Library for testing program are provided.

** This SD CARD is already included in the box set of ET-RASPBERRY HAT EXP BOX. **

ET-SWITCHING ADAPTER 5V 3A TYPE U
(A-AP-A-00107)

It is SWITCHING DC POWER SUPPLY under TISI and UL Standards.

INPUT: AC INPUT 100-240VAC 3PIN MALE

(If customer has not any Cable AC 3PIN, it requires buying Cable POWER 3P AC 1.8M, its costs *35.-)
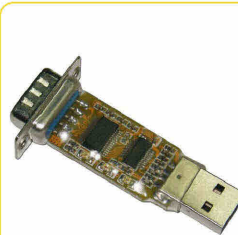
OUTPUT: 5V 3A HEADER USB MICRO TYPE B MALE

- **CABLE LAN DIRECT 2 M** (P-CB-A-00028)

- **CABLE HDMI/HDMI 1.8M** (A-CB-A-00046)

ET-USB/RS232 MINI R1   (P-ET-A-00502)

Board converts signal from RS232 PORT to mini USB Port, it is inexpensive and it can be connected to Connector USB 2.0 of computer PC directly.

- Use IC No.FT231XS from FTDI , don't worry about newer Driver version of OS in the future
- Connector RS232 DB9 Pin MALE and Connector USB TYPE A
- Run on OS WINDOWS 98/ SE/ ME/ 2000/ XP/ 7/ 8/ LINUX/ MAC OS

WEB CAM USB   (C-YA-A-00230)

This WEB CAM USB connects with Connector USB of Board RASPBERRY. It is used to test in the Chapter 15. It is more convenient to connect and use.

- IMAGE SENSOR CMOS
- MAXIMUM DYNAMIC PIXEL: 5.0M pixels
- FRAME RATE: 30 fps
- COMPATIBLE WITH USB2.0/1.1

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