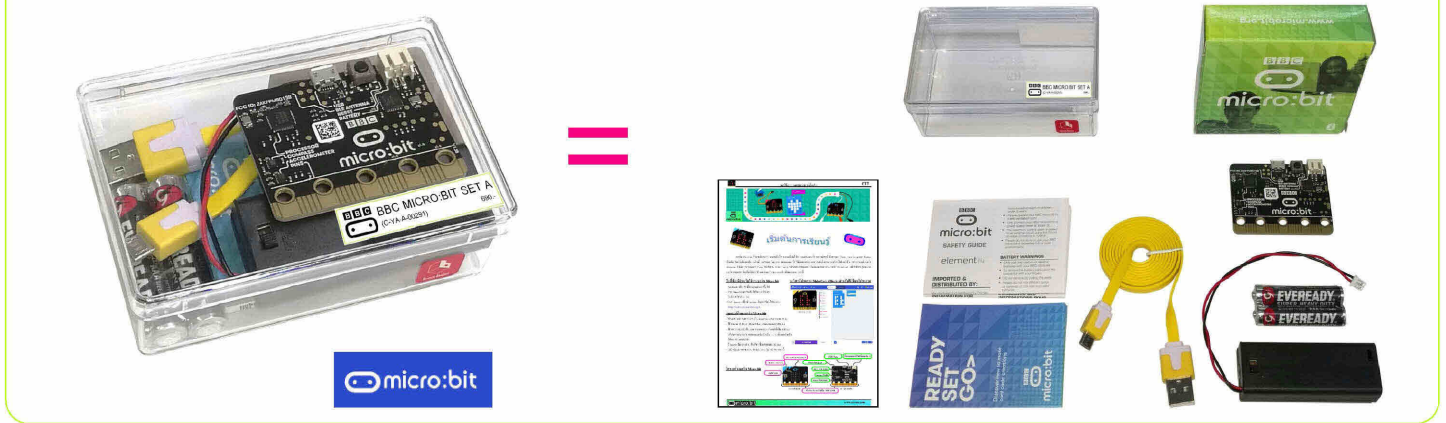# BBC MICRO:BIT SET A   (C-YA-A-00291)

BBC MICRO:BIT SET A ... is a set of mini Board Microcontroller that is ready to use; it includes necessary accessories; **1.** Board BBC MICRO:BIT, **2.** A plastic box for containing board, **3.** CABLE USB MICRO, **4.** Battery Holder for AAAx2, **5.** 2 of Battery AAA, **6.** Document.

Board **BBC MICRO:BIT** is a mini Board Microcontroller that is designed and made by British Broadcasting Corporation or BBC to support learning and teaching mini computers for kids. It also provides languages for writing program that is easy for kids such as BLOCK, or more advanced languages such as JAVA SCRIPT, or PYTHON; all of these language programs can be DOWNLOAD free. Moreover, it can write program on Board BBC MICRO:BIT and DOWNLOAD the program into computer through USB PORT instantly, without purchasing any more additional device.
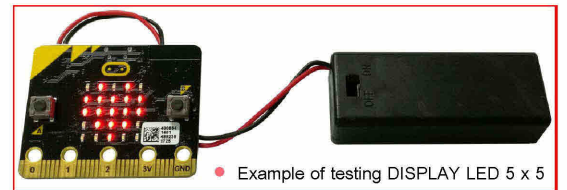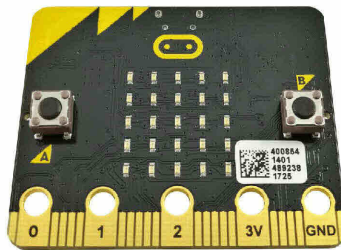
For more information about BBC MICRO:BIT, please visit website: http://makecode.microbit.org/#

There are many reviews on YOUTUBE regarding to how to use board such as

http://youtube.com/watch?v=fSLu7DrYQyw   http://youtube.com/watch?v=GY8fcaogKth   http://youtube.com/watch?v=AOudvEN26Bs

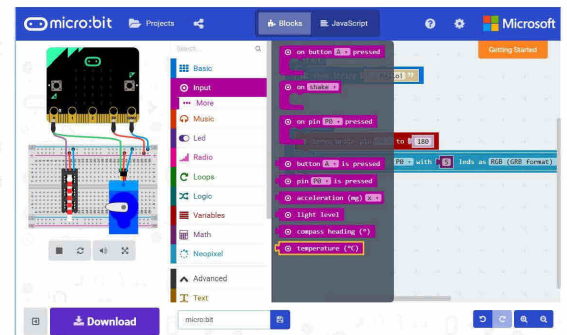● Example of testing DISPLAY LED 5 x 5

SPECIFICATIONS OF BBC MICRO:BIT

● Main MCU is No.NRF51822 from NORDIC that is 32 BIT ARM CORTEX-M0 Microcontroller, 256 KB FLASH MEMORY, 16 KB RAM, RUN FREQUENCY 16 MHz; it provides Circuit BLUETOOTH LOW ENERGY (BLE) internal board to communicate to other devices with BLUETOOTH

● The secondary MCU is No.KL26Z from NXP/FREESCALE that is 32 BIT ARM CORTEX-M0 Microcontroller; RUN Frequency 48 MHz, FULL-SPEED USB 2.0 (OTG) to be connected to Connector USB PORT

● 3-Axis SENSOR ACCELERMETER No.MMA8652 to measure speed

● 3-Axis SENSOR MAGNETOMETER No.MAG3110 to measure magnetic field

● MICRO USB CONNECTOR is used as Power Supply for Board and DOWNLOAD program from computer into board

● Connector POWER 2 PIN as JST type from BATTERY 3V

● 25 Red DISPLAY LEDs as 5x5 DOT on board

● Connector I/O 23 PIN as a gilded SLOT PCB Pin is externally connected to I/O from board

● 3 SW.; 1-RESET SW., 2-INPUT SW.; A and B

● Use +5VDC Power Supply from Connector USB MICRO; or, +3VDC Power Supply from Connector 2 PIN JST

● Board Size: 52 x 42 mm.

● **A set of BBC MICRO:BIT includes …**

1. Board BBC MICRO:BIT

2. Plastic Box for containing Board BBC MICRO

3. Document in Thai

(* This product is imported from abroad, there is no any warranty. ***)**

MICRO BIT:ROBOT MAQUEEN (C-YA-A-00287)

MICRO BIT:ROBOT MAQUEEN ... is a mini car robot with Board BBC MICRO:BIT. There are various methods to write program by Board BBC MICRO:BIT for controlling operation of ROBOT such as tracking a line, or obstacle avoidance.
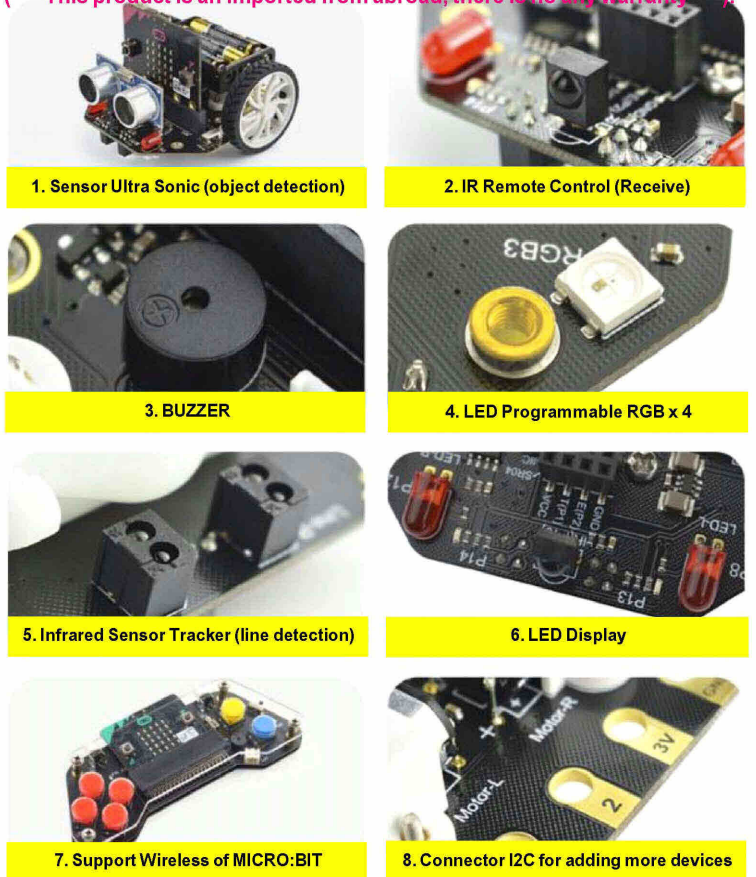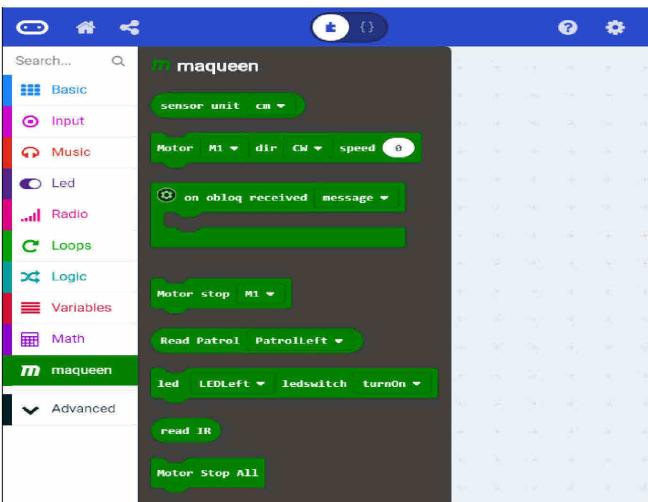
It is easy to learn and develop robotics quickly; it is a perfect robot for kids to start learning robotics and writing program in digital era.

SPECIFICATIONS OF ROBOT MAQUEEN

- Board BBC MICRO:BIT is used as Board CONTROL for writing program to control operation of ROBOT
- ROBOT supports MAKE CODE GRAPHIC EDITOR that is a Program ONLINE for developing and writing program in a format of a connective BLOCK; it is easy to learn. Moreover, it provides example programs for using devices on ROBOT.
- SENSOR ULTRASONIC RS04 to detect and check a line
- BUZZER, IR REMOTE CONTROL (Receive) (NEC Standards)
- SENSOR for checking and detecting a line to track a line
- 2-Red LEDs, 4 of RGB LED(16-million colors)
- 2 DC MOTORs are a metal miniature gear motor with wheels
- I2C Interface (BUS 3.3V)
- Connector 40-PIN EDGE CONNECTOR BBC plugs in Board BBC MICRO:BIT for controlling ROBOT
- Support PROGRAM GRAPHICCAL to write program and program (be commanded by Board BBC MICRO:BIT in a format of a connective BLOCK)
- Dimensions of ROBOT MAQUEEN (Width)x(Length)x(Height): 81mm. x 85mm. x 44mm.; Weight: 75.55g.
- Use 3.5V – 5V Power Supply for Board ROBOT MAQUEEN and Board BBC MICRO:BIT (suggest: Please use 3 of Battery ALKALINE AAA)
- A set includes ROBOT MAQUEEN, BBC MICRO:BIT, CABLE USB MICRO

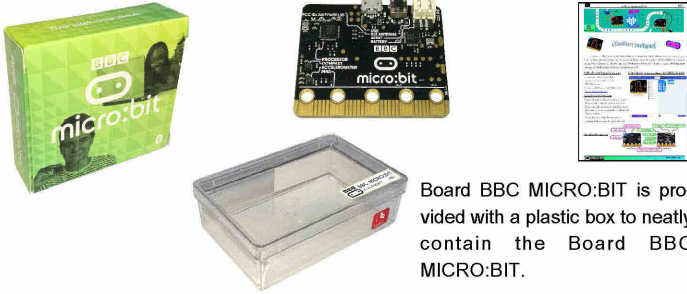**(*** This product is an imported from abroad, there is no any warranty ***)**

- **set of MICRO BIT:ROBOT MAQUEEN includes …**
  1. Board BBC MICRO:BIT
  2. ROBOT MAQUEEN
  3. CABLE USB MICRO
  4. DOCUMENT in Thai

micro:bit

1. Sensor Ultra Sonic (object detection)

2. IR Remote Control (Receive)

3. BUZZER

4. LED Programmable RGB x 4

5. Infrared Sensor Tracker (line detection)

6. LED Display

7. Support Wireless of MICRO:BIT

8. Connector I2C for adding more devices

*** **Document in Thai and Programs for ROBOT MAQUEEN, please DOWNLOAD from website:**
http://www.ett.co.th/prodUBit/ROBOT_MAQUEEN/ROBOT_MAQUEEN.html

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e-mail : sale@etteam.com
www.etteam.com

Fax : 02-3917216

Line ID : etteam1

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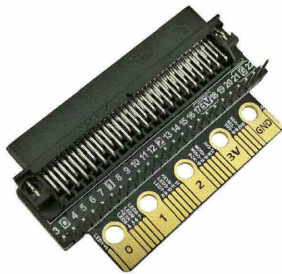
BBC MICRO:BIT (C-YA-A-00241)

Board BBC MICRO:BIT is provided with a plastic box to neatly contain the Board BBC MICRO:BIT.

ROBOT MAQUEEN (C-YA-A-00286)

BBC MICRO:BIT GPIO (C-YA-A-00240)

This is an Expansion Board in a part of I/O SLOT of Board MICRO:BIT; it is easy to additionally connect to external by Cables.
- Connector 80PIN SLOT is compatible with PCB PIN SLOT of Board MICRO:BIT
- 24PIN HEADER 2.54mm. is connected with I/O, VCC, GND from Board MICRO:BIT; it can be additionally connected and expanded by Cables.
- PCB in a part of SLOT that is connected on MICRO:BIT GPIO has the same Connector I/O SLOT as Board MICRO:BIT; it can be additionally connected to another.
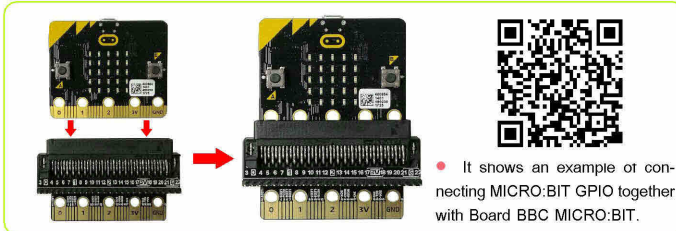
It shows an example of connecting MICRO:BIT GPIO together with Board BBC MICRO:BIT.

BATTERY 2 X AAA HOLDER (A-BA-C-00024)

This Battery Holder is available for 2 AAA Batteries that are equal to 3.0VDC; there is Connector 2 PIN that can be directly connected to Connector Power of Board MICRO:BIT; moreover, there is SW.ON/OFF on the Battery Holder.

BATTERY 2 x AA HOLDER (A-BA-C-00027)

This Battery Holder is available for 2 AAA Batteries that are equal to 3VDC; there is Connector 2 PIN that can be directly connected to Connector Power of Board BBC MICRO:BIT; moreover, there is SW.ON/OFF on the Battery Holder. The current capacity of AA Battery is higher than AAA Battery when comparing the price.
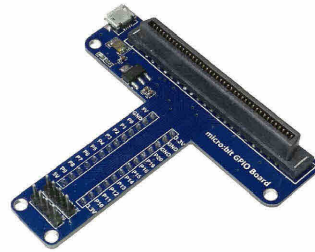
CABLE USB/MICRO 1M
(A-CB-A-00045)

This Cable USB is 1 meter long, one side is HEADER TYPE A to connect to computer and another one is MICRO USB TYPE B MALE.

ET-IR REMOTE KEY
(P-ET-A-00546)

This is a mini 20-KEY IR REMOTE, Frequency 38KHz, and 3V BATTERY is provided in a set. Its dimensions are 8.65 x 4.10 x 0.75 cm.

MICRO:BIT GPIO BOARD (C-YA-A-00259)

This MICRO:BIT GPIO BOARD expands I/O of Board BBC MICRO:BIT through Connectors I/O SLOT to connect to PROJECT BOARD; so, it can add more circuits on PROJECT BOARD conveniently.
- Connector 80PIN SLOT as vertical type for connecting to BBC MICRO:BIT

- Connector MICRO USB with IC REGULATOR 3.3V for supplying power to GPIO BOARD and BBC MICRO:BIT (NOTE: Only supply power to the device, it can't write any program to BBC MICRO:BIT through this Connector USB)
- Connector 13x2 PIN HEADER 2.54mm. under PCB connects to I/O of MICRO:BIT; it is more convenient to plug in PROJECT BOARD

Connector 4x2 PIN HEADER 2.54mm. on PCB separates I/O of Pin SCL, SDA, TXD, RXD, 3.3V, 5V, GND
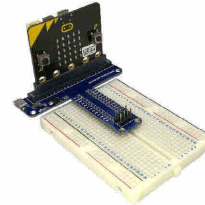
- An example shows how to connect BBC MICRO:BIT GPIO V2 to Board BBC MICRO:BIT to test and run on PROJECT BOARD.

MICRO:BIT CASE ABS (A-CV-D-00033)
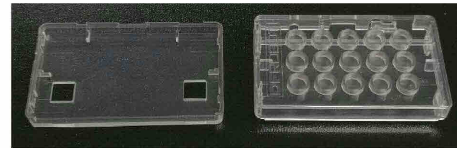
This transparent plastic ABS CASE contains Board BBC MICRO:BIT.

A holder at a back of CASE is LEGO (COMPATIBLE) 5X3 that can be assembled together with LEGO BLOCKS easily.
- Dimensions: 57.5 x 34.5 x 14.4 mm.
- There is a socket for SW.A-B, SW.RST, and USB PORT

- An example shows how to connect MICRO:BIT CASE ABS with Board BBC MICRO:BIT and a LEGO Set.

R-PLATE 2X6 LEGO SET (P-ET-A-00212)
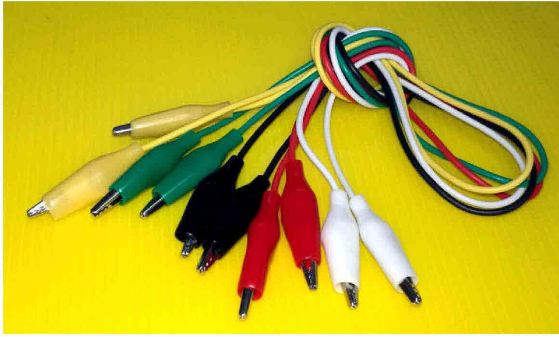
This is a set of LEGO that includes 6 of BLACK PLATE 2X6 and 2 of WHITE WING 4X9; this sett is ready to MODIFY. It also nuts to hold pieces in a side of the car's body, especially ET-ROBOT 877, RD2 and STAMP P40; so, it can additionally connect pieces of general LEGO Set with ET-ROBOT or it can be attached with MICRO:BIT CASE ABS conveniently.

ET-SWITCHING ADAPTER 5V 2A TYPE U

This is DC SWITCHING POWER SUPPLY under the Standards of TIS and UL.
INPUT : AC INPUT 220VAC 50/60 Hz 0.5A
OUTPUT : DC 5V/2.0A (10W)
: Connector USB MICRO TYPE B MALE
  ADAPTER is 2-PIN WALL MOUNT type

(A-AP-A-00106)

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ALLIGATOR CLIPS-5 (P-CB-A-00055)

ALLIGATOR CLIPS or a clip for holding Cables and Connectors
- A set included 5 Cables, with a header-clip for both sides
- 5 Colors: Red, Black, Green, Yellow, and White
- Be good to be applied for using with Board BBC MICRO:BIT
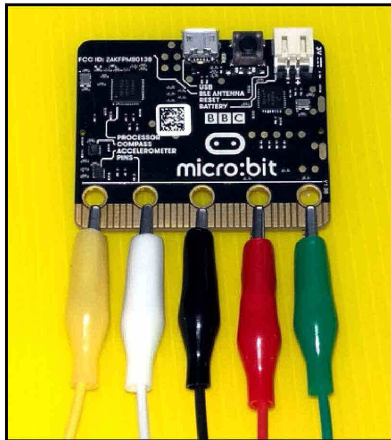
ALLIGATOR CLIPS-FEMALE-10 (P-CB-A-00059)
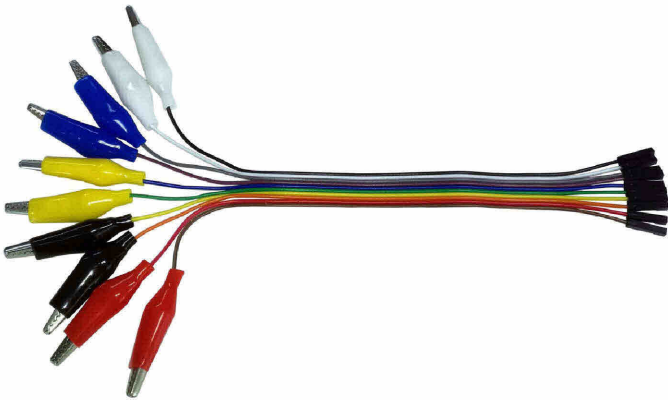
ALLIGATOR CLIPS-FEMALE-10 is a cable set; one side is a header-clip for holding Cables and another one is a 20cm Female Header.
- A sett include 10 Cables, with 5 colors: White, Blue, Yellow, Black, and Red
- Be good to be applied for using with Board BBC MICRO:BIT

CABLE FF-20CM RED-20 (P-CB-A-00056)
CABLE FF-20CM BLACK-20 (P-CB-A-00057)
## CABLE FF-20CM YELLOW-20 (P-CB-A-00058)

This is a 20cm Stranded Wire; both sides are Female Header. A set includes 20 Cables with 3 Colors: Red, Black, and Yellow.
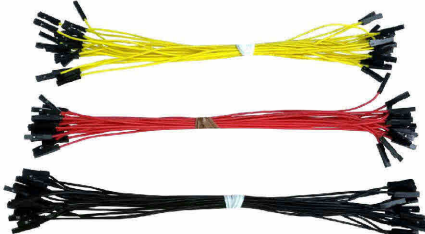
JP-MM-65 SET (P-CB-A-00053)
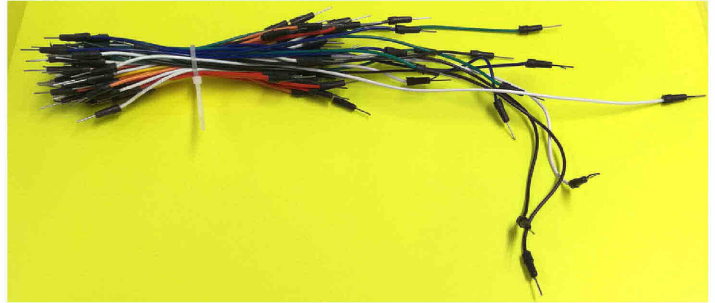
This is a set of JUMPER Wire that has 4 different lengths; it is suitably designed for connecting with various circuits on PROJECT BOARD (or PROTO BOARD); and both sides are MALE Header. There are 65 Cables in a set with different length as follows;
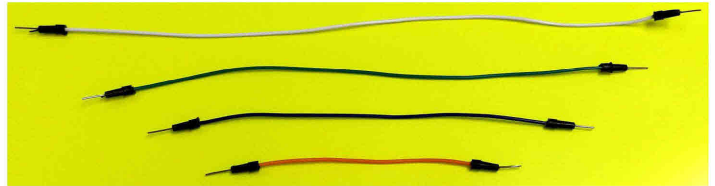
- **4 of a 24cm long Cable**
- **4 of a 20cm long Cable**
- **8 of a 16cm long Cable**
- **49 of a 12cm long Cable**

PROJECT BOARD 170W (C-YA-A-00290)
PROJECT BOARD 170Y (C-YA-A-00289)
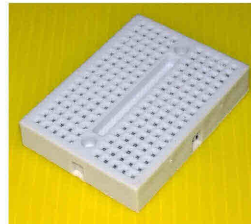
PROJECT BOARD 170W   **PROJECT BOARD 170Y**

PROJECT BOARD or BREADBOARD can be used to connect more circuits to experiment easily because it only wires up Jumper Wire to the holes on the PROJECT BOARD.
- 170 Holes (5 x 34 Rows)   • Dimensions: 46 x 34 x 9 mm.
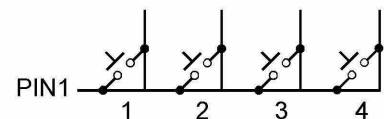- 2 Colors: White (W) and Yellow (Y)

SG90 SERVO MOTOR (A-MO-M-00146)

This is a mini and inexpensive SERVO MOTOR with 180 degrees rotation.
- Dimensions: 22.6 x 21.8 x 11.4 mm.
- Be compatible with 4.8V-6V Power Supply
- Weight: 19g
- SPEED 4.8V NOLOAD 0.12 SEC / 60DEGREES
- TORQUE 4.8V:1.98 kg/cm

1X4 KEY PAD (C-YA-A-00281)

5 PIN PITCH 2.54 mm. FEMALE

PIN3 PIN2 PIN5 PIN4

PIN1
1 2 3 4

- 1 X 4 KEY MEMBRANE SW.
- INTERFACE 5 PIN, 2.5 mm. PITCH FEMALE
- CABLE LENGTH 74 mm.
- ON CONTACT SWITCH : 30-400 OHM

ET-CONV USB TYPE A (P-ET-A-00620)

This PCB CONVER converts Connector USB TYPE A 4 PIN to Connector PIN HEADER with 2.5 mm. Pitch. There are 4 holes.
- Size: 17 x 17 mm.

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ET-MINI I2C 3-5 IO (P-ET-A-00619)
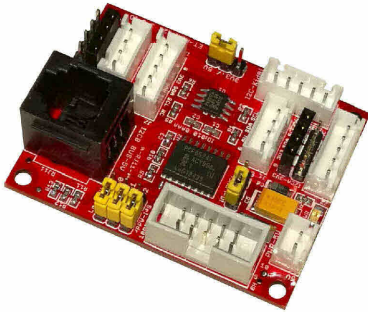
ET-MINI I2C 3-5 IO is an expansion board to expand PORT I/O from I2C to PORT 8 BIT I/O by No.PCF8574. Moreover, it is used as Board CONVER to convert Signal I2C-BUS from BUS 3.3V to BUS 5V; or, from BUS 5V to 3.3V; or, from BUS 5V to BUS 5V; or, from BUS 3.3V to BUS 3.3V. It is used to be a REPEATER to repeat Signal BUS I2C (RE-PEATER); so, it can connect to Cable of BUS–I2C and the distance is longer (10 meter long and the destination is IC I2C).

SPECIFICATIONS OF ET-MINI I2C 3-5 IO

- Use IC No.PCA951 to be I2C BUS REPEATER, LEVEL-TRANSLATING to convert Signal from I2C-BUS 3.3V to I2C-BUS 5V; or, from I2C-BUS 5V to I2C-BUS 3.3V
- Be used as REPEATER to repeat Signal BUS-I2C; the distance of communication is longer (the distance is 10 meter long, depending on I2C device at the destination)
- Various types of Connector I2C
- Connector 5 PIN WAFER (2.5 mm.)I2C-BUS from Board KID BRIGHT BUS 3.3V
- Connector 5 PIN WAFER (2.5 mm.) and Connector Signal Row HEADER 2.54 mm. MALE, FEMALE 4 PIN for connecting to I2C Device BUS 3.3V
- Connector 4 PIN WAFER (2.5 mm.) and Connector Signal Row HEADER 2.54 mm. MALE, FEMALE 4 PIN for connecting to I2C Device BUS 5V
- Connector RJ11 for connecting to I2C BUS 5V
- IC No.PCF8574 expands PORT I/O 8 BIT, with JUMPER to choose position of I2C either to be 3.3V or 5V; and there is a set of Connector I/O for using as 10PIN ET-BUS
- POWER SUPPLY +5V, and REGULATOR LM1117-3.3V on board
- PCB Size: 4.4 x 5.6 cm.

MODBUS RTU RELAY8/IN8
(C-YA-A-00279)

MODBUS RTU RELAY8/IN8 ... is a in a set of MODBUS RTU; this model has 8-OUTPUT RELAY and 8-INPUT as OPTO ISOLATION 12V. It receives Commands through PORT RS485 as HALF DUPLEX; the operation is commanded in a format of IN/OUT through PORT RS485 as MODBUS RTU.
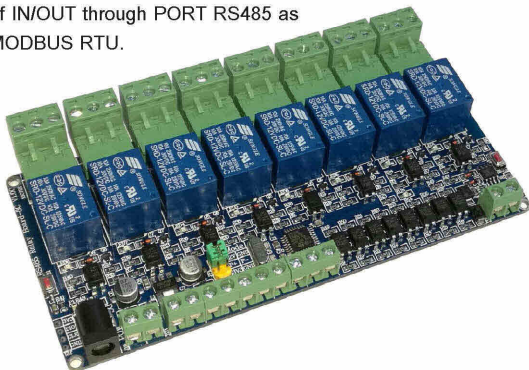
- 8-OUTPUTT RELAY as 2 CONTACT(NO, NC, COM) 3 PIN SCREW TERMINAL
- DC CONTACT RATING 10A/30VDC — AC CONTACT RATING 10A/220VAC
- 8-INPUT OPTO ISOLATION 12V as SINK INPUT
- Communication Type is RS485 HALF DUPLEX by Command MODBUS RTU
- Setup 32-ADDRESS Positions on Board by Commands through RS485
- BAUDRATE 9600 bps, DATA 8, NON PARITY, 1 STOP BIT
- Connector RS485 as SCREW TERMINAL 2 PIN
- Command Type is WRITE ON/OFF, READ INPUT Status
- Be compatible with 12VDC POWER SUPLY, with Connector SCREW TERMINAL 2 PIN and Connector DC JACK
- Board Size: 6.7 x 14.5 cm.

*** DOWNLOAD Manual and Example Programs from http://www.etteam.com/productI2C_RS485/MODBUS_RTU_RELAY8-IN8/MODBUS_RTU_RELAY8-IN8.html
(*** This product is an imported from abroad, there is no any warranty ***).

ET-MINI MICRO STEP (P-ET-A-00618)
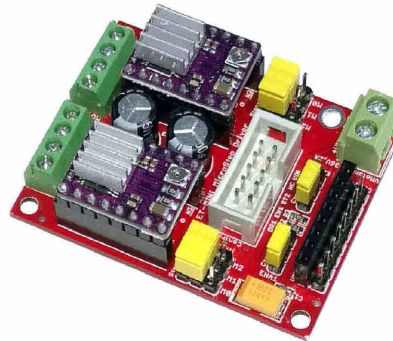
ET-MINI MICRO STEP Board controls STEPPING MOTOR as BIPOLAR (2-COIL), 2-CH MICRO STEP Resolution (using 2-STEPPING MOTOR simultaneously); it is independently and separately used. It is suitably used with STEPPING MOTOR that consumes a maximum 2A per a coil (1 STEPPING has 2-Coil, 4-Wire) and the Voltage of MOTOR should be 5V-36V.

SPECIFICATIONS OF ET-MINI MICRO STEP

- 2-STEPPING MOTOR are used simultaneously and is independently separated by Signal Control
- 2-MODULE DRIVE STEPPING MOTOR No.DRV8825 are installed on board
- Use 8PIN as PIN HEADER 1X8 MALE and PIN HEADER 1X8 FEMALE in a part of Controller and Power Supply; and use Cable 2-Wire or 3-Wire for Command
- Signal Control can be connected either to be 3.3V or 5V
- 6-Level Resolution of STEP (1, 1/2, 1/4, 1/8, 1/46, 1/32 STEP)
- STEP PLUS supports a maximum Frequency at 250KHz or 4us Period
- Adjust VR to restrict a maximum Current that flows through coil of STEPPING MOTOR
- 2 of 4PIN TERMINAL 3.5 mm. are connected to STEPPING MOTOR
- Power Supply for Circuit VIN 3.3V-5V
- Board Size: 55 x 43 x 22 mm.
- Board ET-MINI MICRO STEP includes … ET-MINI MICRO STEP, Document, Manual, and Example Programs, please DOWNLOAD from website: http://www.etteam.com/prod2019/ET-MINI_MICRO_STEP/ET-MINI_MICRO_STEP.html

*** ET-MINI MICRO STEP is compatible with STEPPING MOTOR of ETT as follows;
1. STEPPING MOTOR #17HS4401
2. STEPPING MOTOR #14PM-M252-MIST

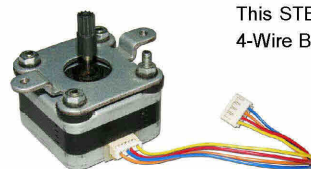## STEPPING MOTOR # 17HS4401 (A-MO-M-00153)
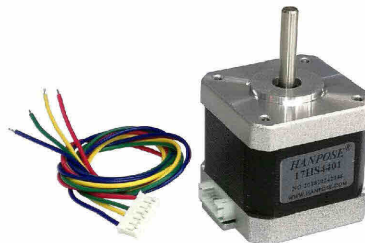
This STEPPING MOTOR, 2-PHASE 4-Wire BIPOLAR is suitable for 3D PRINTER.

- ขนาด : 40 x 42.3 x 42.3 mm.
- STEP ANGLE (DEG) : 1.8 / PER STEP
- RATED CURRENT : 1.7 A
- PHASE RESISTANCE : 1.5 OHM
- HOLDING TORQUE : 40 (N.cm) / 4.079 (kg.cm)
- MOTOR WEIGHT : 280 g.
- PIN NO PHASE : A1+ = RED, A2- = YE, B1+ = YE, B2- = BL

STEPPING MOTOR # 14PM-M252-PIST
(A-MO-M-00118)

This STEPPING MOTOR is a mini 2-PHASE 4-Wire BIPOLAR.

- DIMENSIONS : 54 x 36 x 41 mm.
- STEP ANGLE (DEG) : 1.8 / PER STEP
- RATED CURRENT : 0.5 A
- PHASE RESISTANCE : 7.5 OHM
- HOLDING TORQUE : 3.4 (N.cm) / 0.347 (kg.cm)
- MOTOR WEIGHT : 80 g.
- PIN NO PHASE : A1+ = RED, A2- = YE, B1+ = YE, B2- = BL

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Line ID : etteam1

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ET-I2C BUF IN2/OUT2   (P-ET-A-00616)

ET-I2C BUF IN2/OUT2 ... is an Expansion Board to expand I2C BUS I/O that has BUS DRIVER; so, the distance of connecting Cable I2C is 20-30 meter long. It uses 2 of IC No.P82B715 BUS DRIVER to receive incoming Signal I2C and expand Signal I2C to send out; so, it can connect more devices together in every distance of 20-30 meter long. Moreover, there are 2 sets of 2-OUTPUT RELAY and 2-INPUT OPTO on Board to receive 12V Voltage, with Connector I2C on board to connect to the device I2C 3.3V BUS and 5V BUS such as SENSOR Devices.

I2C LONG LENGHT
20-30 meter long

I2C LONG LENGHT
20-30 meter long

ET-ESP32-RS485   **ET-I2C BUF IN2/OUT2**   **ET-I2C BUF IN2/OUT2/SHT31**
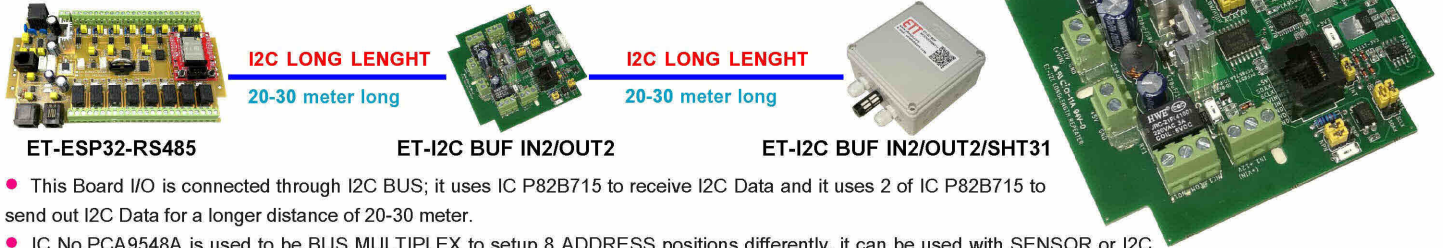
- This Board I/O is connected through I2C BUS; it uses IC P82B715 to receive I2C Data and it uses 2 of IC P82B715 to send out I2C Data for a longer distance of 20-30 meter.
- IC No.PCA9548A is used to be BUS MULTIPLEX to setup 8 ADDRESS positions differently, it can be used with SENSOR or I2C Device that has no any ADDRESS, or has only one ADDRESS; so, it can use 8 devices in the same I2C BUS System.
- IC No.PCF8574A is used to be INPUT/OUTPUT I/O PORT, there are 8 alternatives of ADDRESS.
- 2 OUTPUT RELAY 3A (125VAC/30VDC) is independently separated, Connector SCREW TERMINAL BLOCK 3 PIN per 1 INPUT to be NC, COM, NO
- 2 INPUT DC in a format of OPTO-ISOLATE receives Voltage 12V; choose Contact INPUT either to be NPN, or PNP when using with SENSOR devices;
- Connector SCREW TERMINAL BLOCK 3 PIN per 1 INPUT to be VIN, IN, GND
- Board has 1 of Connector SENSOR or I2C BUS 5V device through Connector WAFER 2.5mm. 4 PIN; 1 of 3.3V through WAFER 2.5mm. 5 PIN
- 2 of Connector RJ45 to receive and send out Signal I2C LONG LENGTH; the distance of connecting signal is 20-30 meter long (depending on POWER SUPPLY 12VDC and CABLE); so, it can connect 8 Boards together in every distance of 20-30 meter long. It can connect RJ45 I2C to Board ET-ESP32-RS485, ET-I2C IN8/OUT8.
- Use POWER SUPPLY DC 12V by using LM2575-5V to REGULATE Connector POWER 2PIN SCREW TERMINAL; or, be connected through +12VDC from Connector RJ45 I2C LONG LENGTH as preferred.
- PCB Size: 10 x 10 cm. (4 x 4 inch); PCB is specially designed and can be contained in a waterproof box model "WB404W" directly.
- ET-I2C BUF IN2/OUT2 includes …
1. Board ET-I2C BUF IN2/OUT2
2. Document and Example Programs, please DOWNLOAD from website:
http://www.etteam.com.productI2C_RS485/ET-I2C_BUF_IN2-OUT2/ET-I2C_BUF_IN2-OUT2.html

ET-I2C BUF IN2/OUT2/SHT31   (P-ET-A-00617)

It is **ET-I2C BUF IN2/OUT2** Board that is contained in a waterproof box model "WB404W", including 2 of PG7 CABLE GLAND, and SENSOR SHT31 for measuring temperature and humidity is contained in the waterproof CASE SENSOR.

ADDITIONAL SPECIFICATIONS TO THE SET OF ET-I2C BUF IN2/OUT2

- Be contained in the waterproof box model "WB404W"; Box Dimensions: 110x110x60 mm.
- Include 2 of PG7 CABLE GLAND internal box
- Include SENSOR SHT31 with waterproof CASE SENSOR

SPECIFICATIONS OF SENSOR SHT31

- HUMIDITY ACCURACY (% RH) = +/- 2.0 % RH
- TEMP. ACCURACY ($^\circ$C) = +/- 0.3 $^\circ$C

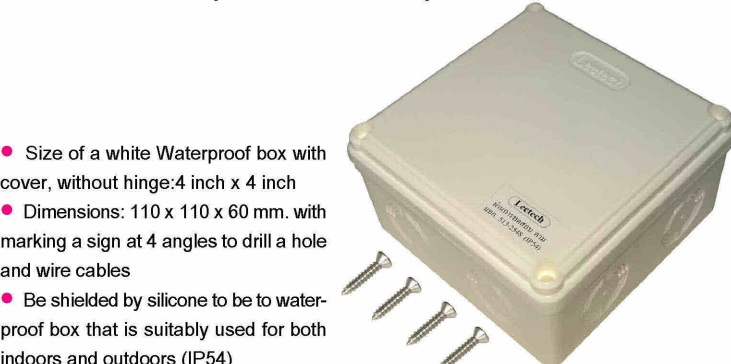http://www.etteam.com/productI2C_RS485/ET-I2C_BUF_IN2-OUT2-SHT31/ET-I2C_BUF_IN2-OUT2-SHT31.html
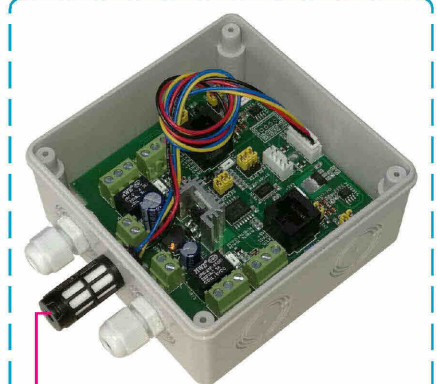
There is a SENSOR SHT31 with a waterproof CASE that is assembled together with the box, and it connects Cables for board completely.

OPTION

WB404W   (A-BX-E-00054)

- Size of a white Waterproof box with cover, without hinge:4 inch x 4 inch
- Dimensions: 110 x 110 x 60 mm. with marking a sign at 4 angles to drill a hole and wire cables
- Be shielded by silicone to be to waterproof box that is suitably used for both indoors and outdoors (IP54)

PG7 CABLE GLAND   (A-BA-C-00023)

- Cable Grand is a waterproof connector that can be held on the box model "WB404W" or another boxes
- Size of hole for wiring a Cable: 3.5 – 6.0 mm. (be compatible with Cable UTP LAN CABLE)
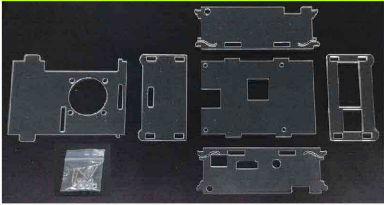- Diameter of hole: 12.5 mm (IP68)

RJ45 8-8 MODULAR PLUG   (A-CO-P-00004)

- This is Connector is used for wiring Cable 8 PIN RJ45

UTP LAN CABLE   (P-CB-A-00047)

CASE RASPBERRY FAN (A-CV-D-00028)

This CASE is especially designed for Board RASP-BERRY PI2, PI3 that is I/O BUS 40 PIN; it is an transparent acrylic plate, with 3mm depth, that can be assembled to be a box easily.

● Provide the round hole size: 30 x 30 x8 mm. for installing fan to ventilate heat, and including bolts for fastening the FAN. (it is compatible with FAN 5V 30 x 30 x 7 mm (OPTION: Additional Purchase)

(*** This product is an imported from abroad, there is no any warranty ***).

● An example of CASE RASP-BERRY FAN is assembled together with Board Raspberry Pi and FAN 5V 30 x 30 x 30 x 8 mm.

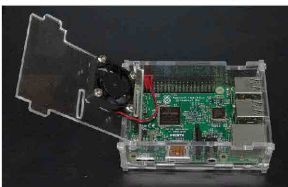## FAN 5V 30 x 30 x 8 mm. (A-MO-M-00151)

This fan ventilates heat internal electrical board devices.

● Be compatible with DC 5V / 0.2A
● DC MOTOR as BRUSHLESS FAN
● DIMENSIONS: 30 x 30 x 8 mm.
● Be used together with CASE RASPBERRY FAN

(*** This product is an imported from abroad, there is no any warranty ***).

● An example of assembling FAN 5V 30 X 30 X 30 X 8 mm. together with CASE RASP-BERRY FAN

## CASE RASPBERRY RED (A-CV-D-00030)

This CASE is designed for Board RASPBERRY PI2, PI3 model I/O BUS-40 PIN; it is a ready-made box that is made of a white and red ABS plastic.

(*** This product is an imported from abroad, there is no any warranty ***).

GPIO EXP HAT (C-YA-A-00277)

This BOARD HAT expands Connector 40PIN of Board RASPBERRY PI model 40PIN CONNECTOR to be Connector SPRING TERMINAL 3.5mm 8x3 PIN (24PIN); so, it is more convenient to connect/disconnect, without soldering or screwing.
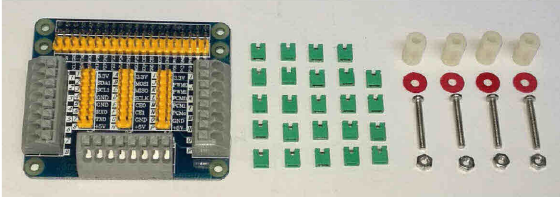
● 40PIN FEMALE under PCB is connected to Board RASPBERRY and Connector 40PIN MALE is on board
● 3 Sets of HEADER 8PIN with JUMPER to choose if it is connectede or disconnected to SPRING TERMINAL
● 3 Sets of 8PIN SPRING TERMINAL is connected from 40PIN of Board RASP-BERRY PI as follows;
— 3.3V, SDA1, SCL1, GND, GND, RX0, TX0, +5V
— 3.3V, MOSI, MISO, SCLK, CE0, CE1, GND, +5V
— 3.3V, PWMO, PCM1, PCfs, PCmi, PCmo, GND, +5V
● Poles are provided to fix Board GPIO EXP HAT and Board RASPBERRY together; and JUMPER to choose if it connects or disconnects to signals
● PCB Board Size: 65 x 56 mm.

An example shows how to connect Board GPIO EXP HAT to Board RASPBERRY PI.

MEAN WELL POWER SUPPLY SWITCHING is a SWITCHING POWER SUPPLY from MEANWELL that changes AC to DC. There are several ranges of Volt and Current that can be selected and used with different PROJECT suitably, emphasizing quality, electrical noise interrupting protection; moreover, it provides Circuit SHORT CIRCUIT/ OVER VOLT-AGE/ OVER LOAD.

RS-15-12 (A-AP-A-00127)
● INPUT VOLTAGE : 85VAC TO 264VAC : 47-63Hz
● OUTPUT VOLTAGE : 12VDC / 1.3A / 15.6W
● COOLING BY FREE AIR CONVECTION
● 100% FULL LOAD BURN-IN TEST
● SIZE L x W x H : 62.5 x 51 x 28 mm.

RS-15-5 (A-AP-A-00129)
● INPUT VOLTAGE : 85VAC TO 264VAC : 47-63Hz
● OUTPUT VOLTAGE : 5VDC / 3A / 15W
● COOLING BY FREE AIR CONVECTION
● 100% FULL LOAD BURN-IN TEST
● SIZE L x W x H : 62.5 x 51 x 28 mm.

LRS-35-5 (A-AP-A-00130)
● INPUT VOLTAGE : 85VAC TO 264VAC : 47-63Hz
● OUTPUT VOLTAGE : 5VDC / 5A / 35W
● COOLING BY FREE AIR CONVECTION
● 100% FULL LOAD BURN-IN TEST
● SIZE L x W x H : 99 x 82 x 30 mm.

LRS-50-12 (A-AP-A-00128)
● INPUT VOLTAGE : 85VAC TO 264VAC : 47-63Hz
● OUTPUT VOLTAGE : 12VDC / 4.2A / 50.4W
● COOLING BY FREE AIR CONVECTION
● 100% FULL LOAD BURN-IN TEST
● SIZE L x W x H : 99 x 82 x 30 mm.

APV-12-12 (A-AP-A-00131)
● INPUT VOLTAGE : 90VAC TO 264VAC : 47-63Hz
● OUTPUT VOLTAGE 12VDC / 1A / 12W
● FULLY ISOLATED PLASTIC CASE ENCLOSED
● IP42 DESIGN
● Under Standards of TIS1955-2551 (Lighting Equipment)
● SIZE L x W x H : 77 x 40 x 29 mm.

HI-LINK ULTRA-COMPACT POWER MODULE is a mini MODULE POWER SUPPLY AC TO DC with Pin for connecting to PCB; it is suitable for any project that requires directly connecting device to PCB, especially a small work. Directly connect to AC 100-240VAC; OUTPUT is DC as 12VDC 0.45A, 5VDC/1A; and it provides Circuit OUTPUT OVER-LOAD and Circuit SHORT CIRCUIT PROTECTION.

HLK-5M12 (A-AP-A-00132)
● INPUT VOLTAGE : 100-240VAC : 2PIN
● OUTPUT VOLTAGE : 12VDC / 0.45A / 5W : 2PIN
● SAFETY STANDARDS : UL, CE
● SIZE L x W x H : 38 x 23 x 18 mm.

HLK-5M05 (A-AP-A-00133)
● INPUT VOLTAGE : 100-240VAC : 2PIN
● OUTPUT VOLTAGE : 5VDC / 1A / 5W : 2PIN
● SAFETY STANDARDS : UL, CE
● SIZE L x W x H : 38 x 23 x 18 mm.

HLK-PM03 (A-AP-A-00134)
● INPUT VOLTAGE : 100-240VAC : 2PIN
● OUTPUT VOLTAGE : 3.3VDC / 0.9A / 3W : 2PIN
● SAFETY STANDARDS : UL, CE
● SIZE L x W x H : 34 x 20 x 15 mm.

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Line ID : etteam1

Company reserves the right to change the detail and price of any product without any prior notice.

PMS5003 PM SENSOR   (A-LE-N-00130)

PMS5003 ... is a SENSOR to detect small dust particles in the air and it directly shows the result of measuring through PORT RS232 (TTL 3.3V), without any computation. Light of LASER is beamed to small dust particles floating in the air and it is sucked into the PMS5003 by a small fan; this device can measure small dust particles from PM1.0, PM2.5 and PM10 properly.

SPECIFICATIONS OF PMS5003

- RANGE OF MEASUREMENT   : 0.3~1.0 ; 1.0~2.5 ; 2.5~10 PM
- RESOLUTION   : 1 PM
- PIN CONNECTOR   : 8 PIN : VCC, GND, SET, RX, TX, RESET, NC, NC)
- BAUD RATE   : 9600, N, 8, 1, N (TTL LEVEL 3.3V)
- POWER SUPPLY   : 5VDC (ACTIVE CURRENT 100mA., STAND BY CURRENT 200uA.
- SIZE   : 50 x 38 x 21 mm.
- For Document and Example Programs, please DOWNLOAD from ETT WEB:
  http://www.etteam.com/productSensor/PMS5003_PM_SENSOR/PMS5003_PM_SENSOR.html
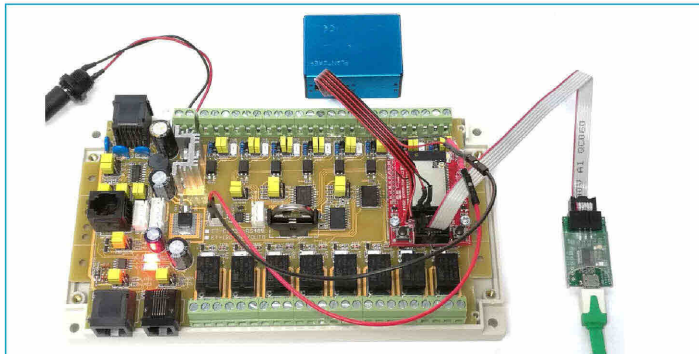
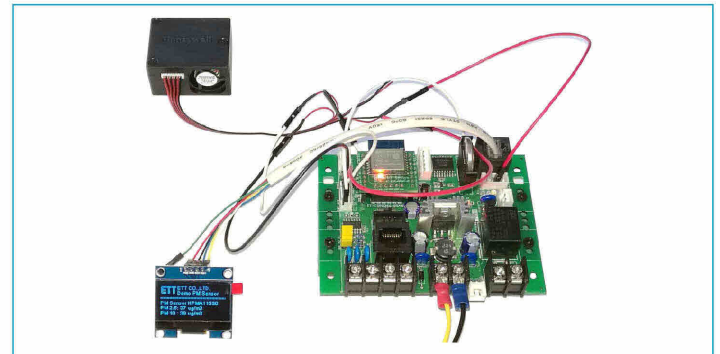- Example of connecting PMS5003 together with Board ET-ESP32-RS485

HPMA115S0-XXX   (A-LE-N-00131)

HPMA115S0-XXX ... is MODULE SENSOR from HONEYWELL for measuring small dust particles in the air; small dust particles indoor and outdoor can be measured and the result of measuring will be shown through PORT RS232 (TTL 3.3V). Light of LASER is beamed to small dust particles floating in the air and it is sucked into the SENSOR by a small fan; this device can measure small dust particles PM2.5, PM10. Lifetime of this Sensor is longer than 20,000 hours.

Connector OUTPUT is WAFER 8 PIN PITCH 1.25mm
>   Pin1 3.3V is power output (+3.3V/100mA)
>   Pin2 5V INPUT POWER
>   Pin3, pin4, pin5 N/A
>   Pin6 UART TX output (0-3.3V)
>   Pin7 UART RX input (0-3.3V)
>   Pin8 GND

A set of HPMA115S0-XXX consists of SENSOR and Cable 8 PIN both terminals. For Document and Example Programs, please DOWNLOAD from
http://www.etteam.com/productSensor/HPMA115S0-XXX/HPMA115S0-XXX.html

- An example of connecting HPMA115S0-XXX together with Board ET-ESP8266-RS485

RAIN METER STATION   (C-YA-A-00269)

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RAIN METER STATION ... is a mini rain gauge for measuring the amount of rain that falls in a measuring cup. When the measuring cup is full of rainfall, it auto drains. There is a mini magnet attached on the axis of measuring cup to disconnect SW.Magnet in order to ON/OFF Switch; this Signal of SW.CONTACT can be connected to the Circuit CONTROLLER INPUT to count the amount of ON/OFF and finally, it will be computed as the amount of rainfalls.

SPECIFICATIONS

- A Signal that is counted is equal to 0.3 millimeters of rainfall
- A set is provided with a gauge that is an horizontal peephole to install RAIN METER
- Connector for Switch is RJ11-6 (Connector 20PIN)
- Cable for switch from RAIN METER is 280cm long
- Dimensions of plastic box: 92 x 60 x 150 cm.

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ETT MAP

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