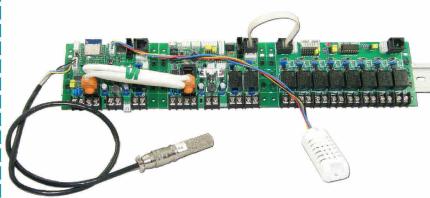
ET-ESP8266-RS485

(P-ET-A-00579)

ET-ESP8266-RS485 is Board Controller in the family of ESP8266 of ESPRESSiF SYSTEM; it uses ESP-WROOM-02 WIFI MODULE that has WIFI inside, it can connect to NET with TCP/IP. It can send command to control application or is used as IoT. The Program can be developed and written by C++ Language of Arduino IDE for ESP8266; it is easier and more convenient to develop and use board.





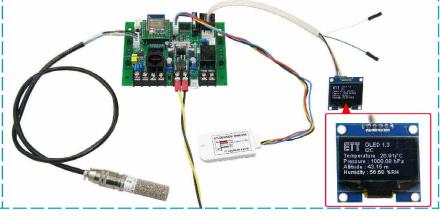
 It illustrates how to connect ET-ESP8266-RS485 with ET-MEGA32U4-RS485 and ET-SENSOR BME280, ET-SHT10 WATER PROOF, ET-I2C REL8.

 It illustrates how to connect ET-ESP8266-RS485 with SENSOR ET-SHT10 WATER PROOF and ET-SENSOR BME280; it sends the reading data to show on OLED 1.3 I2C.





 It illustrates how to connect ET-ESP8266-RS485 with Program Blynk and IOT Platform like NETPIE, IOTTWEET.



It illustrates how to connect

ET-USB USART/TTL (OPTION).

ET-ESP8266-RS485 with

- Use MODULE ESP8266-WROOM-02, 2 MB FLASH, 32 BIT LOWPOWER MCU, 10 BIT ADC
 - IEEE 802.11 b/g/n AT 2.4 GHz
 - TCP/IP PROTOCOL STACK
 - PERIPHERAL UART/ HSPI/ I2C/ I2C/ IR
- PORT RS485 2-WIRE HALF DUPLEX, CONNECTOR 4 PIN BARRIER TERMINAL 7.62mm. and
 1 of CONNECTOR FEMALE RJ45; it can connect Signal from board together
- Have RTC (REAL TIME CLOCK) No.DS3231 with BATTERY 3V BACK UP
- Have 1 of OUTPUT RELAY 10A with CONNECTOR 2 PIN BARRIER TERMINAL 7.62mm., NO/COMMON CONTACT
- BUS I2C can be connected with I2C devices that are either 3V or 5V to expand INPUT/OUTPUT devices like LCD 16x2 I2C, OLED 1.3 I2C, ET-I2C REL8, ET-I2C DCIN8, ET-I2C TO 40 IO-DIN or various I2C SENSOR like ET-SENSOR SHT31(measuring humidity and temperature), ET-SENSOR BME280(measuring humidity, temperature and pressure), and etc.
- Connector I2C has either FEMALE RJ 6 PIN, WAFER 4 PIN (2.50 mm.), or WAFER 5 PIN (2.50mm.)
- Connector ANALOG ADC 0-3.3V 1-CH WAFER 3 PIN (2.50mm.)
- Connector RS232 TTL 6 PIN IDC is used to develop and write program to board; UPLOAD Program via Board ET-USB USART/TTL (OPTION)
- POWER SUPPLY 7-30VDC for board uses IC SWITCHING 5V/1A No.LM2575-5, CONNECTOR 2 PIN BARRIER TERMINAL 7.62mm. and WAFER 2 PIN (2.50mm.)
- RAIL DIN 35 mm.
- PCB size: 10.4 x 7.6 cm.
- Package of ET-ESP8266-RS485 includes...
- 1. Board ET-ESP8266-RS485
- 2. CD-ROM Manual and Example Program





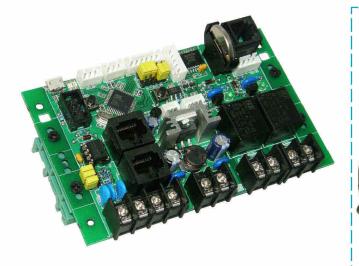


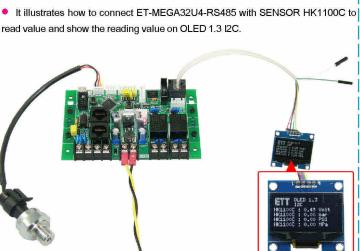
9



ET-MEGA32U4-RS485 (P-ET-A-00575)

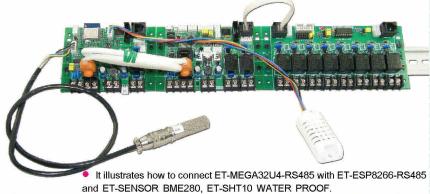
ET-MEGA32U4-RS485 is Board Controller in the family of AVR that can develop program by C or C++ Language of Arduino; it is OPEN SOURCE. This Board version uses MCU No.ATMEGA32U4 that has USB PORT inside; so, it can be connected to Board USB PORT of computer directly. Moreover, it provides necessary devices on board that user can apply and modify to various PROJECTS as required.







 It illustrates how to connect ET-MEGA32U4-RS485 with ET-ESP8266-RS485.



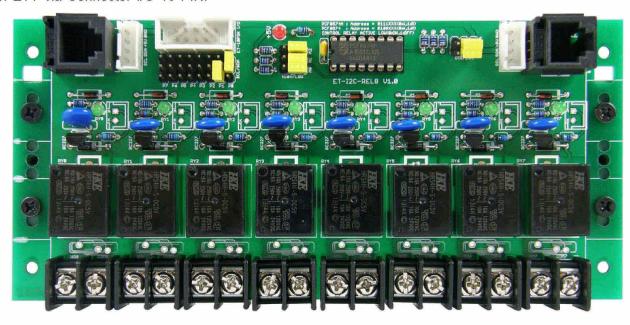
- Use ATMEGA32U4 44 PIN TQFP as MCU on board, Run with Frequency 16 MHz
- 32 KBYTE FLASH, 2.5 KBYTE RAM, 1 KBYTE EEPROM
- Internal USB CONTROLLER as USB 2.0 can be connected to computer directly to write and develop program; Connector from Board is MICRO USB TYPE
- PORT RS485 2-WIRE HALF DUPLEX; CONNECTOR 4 PIN BARRIER TERMINAL 7.62 mm.; 2 of CONNECTOR FEMAL RJ11; it can connect Signal from board together
- JUMPER chooses 32-ADDRESS; it has to write data to read value of JUMPER
- RTC (REAL TIME CLOCK) No.DS3231 with BATTERY 3V BACK UP
- 2 of OUTPUT RELAY 10A with CONNECTOR 2 PIN BARRIER TERMINAL 7.62mm. with NO/COMMON CONTACT
- BUS I2C can be connected with I2C devices that are either 3V or 5V to expand INPUT/OUTPUT devices like LCD 16x2 I2C, OLED 1.3 I2C, ET-I2C REL8, ET-I2C DCIN8, ET-I2C TO 40 IO-DIN or various I2C SENSOR like ET-SENSOR SHT31(measuring humidity and temperature), ET-SENSOR BME280(measuring humidity, temperature and pressure), and etc.
- CONNECTOR I2C has either FEMALE RJ11 6 PIN, WAFER 4 PIN (2.50 mm.), or WAFER 5 PIN (2.50mm.)
- CONNECTOR 1-WIRE I/O is connected to 1-WIRE or IBUTTON devices like Temperature Sensor No.DS18B20, Connector WAFER 3 PIN (2.50 mm.)
- Have CONNECTOR ANALOG 0-5V or change to DIGITAL I/O as WAFER 6 PIN (2.50 mm.) like connecting to ET-SHT10 WATER PROOF (measuring temperature, humidity with waterproof)
- Have CONNECTOR ANALOG 0-5V or change to DIGITAL I/O as WAFER 3 PIN (2.50 mm.) 2-CH like connecting to SENSOR HK1100C (measuring pressure inside water pipe).
- CONNECTOR ISP 6 PIN (2.54 mm.) under ATMEL Standards for programming via ISP Programmer
- POWER SUPPLY 7-30VDC for board uses IC SWITCHING 5V/1A No.LM2575-5, CONNECTOR POWER 2 PIN BARRIER TERMINAL 7.62mm.
- RAIL DIN 35mm.
- PCB size: 12.2 x 7.6 cm.
- Package of ET-MEGA32U4-RS485 includes...
- 1. Board ET-MEGA32U4-RS485
- 2. CD-ROM Manual and Example Program

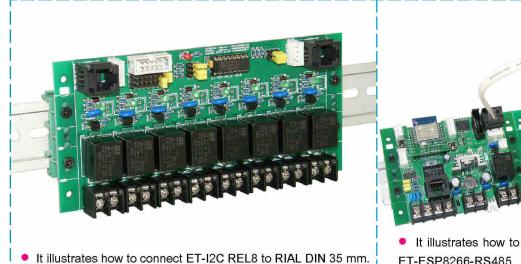


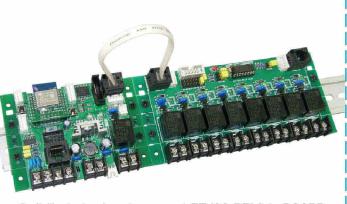


ET-I2C REL8 (P-ET-A-00576)

ET-I2C REL8 is Board OUTPUT RELAY 8-CH that is connected via BUS I2C. It uses IC PCF8574 to be IC PORT to receive signal from MCU or Board Controllers like ET-ESP8266-RS485, ET-MEGA32U4-RS485, or BOARD MCU of ETT via Connector I/O 10 PIN.







• It illustrates how to connect ET-I2C REL8 to BOARD ET-ESP8266-RS485.

- Separately 8 OUTPUT RELAY 10A/250VAC COIL RELAY 5VDC
- IC PORT No.PCF8574 is used as PORT to receive Commands from I2C
- LOGIC "0" activates operation of RELAY to remove the problem of auto-running when started providing POWER to board
- 8 of OUTPUT RELAY as 2 PIN BARRIER TERMINAL 7.62mm. CONNECTOR from RELAY is divided into NO and COMMON
- JUMPER chooses 8-ADDRESS; so it can connect 8 of Board ET-I2C REL8 in BUS I2C
- Connector I2C for Board is WAFER 4 PIN (2.50 mm.) and 2 of FEMALE RJ11 6 PIN; it can be connected to board or it is connected together from board. Moreover, it provides Connector ETT 10 PIN IDC that is connected from ETT Boards for connecting and receiving Signal I2C to board, including JUMPER for choosing BIT for SCL, SDA
- RAIL DIN 35mm.
- PCB size: 7.5 x 16.5 cm.
- Package of ET-I2C REL8 includes...
- 1. Board 2. Manual 3. CABLE RJ-I2C-RJ



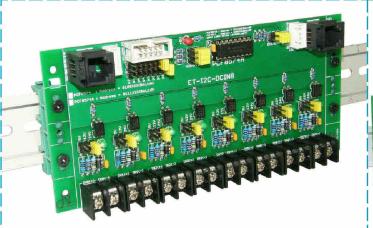




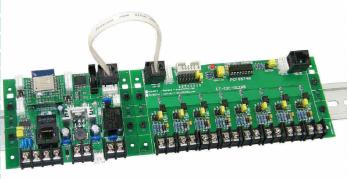
ET-I2C DCIN8 (P-ET-A-00577)

ET-I2C DCIN8 is Board INPUT DC 8-CH that is connected via BUS I2C. It uses IC PCF8574A as IC PORT to receive signal from MCU or Board Controllers like ET-ESP8266-RS485, ET-MEGA32U4-RS485, or BOARD MCU from ETT via Connector I/O 10 PIN.



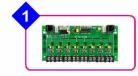


 It illustrates how to connect ET-I2C DCIN8 to RIAL DIN 35 mm.



• It illustrates how to connect ET-I2C DCIN8 to BOARD ET-ESP8266-RS485.

- 8 INPUT DC IN OPTO ISOLATION separates electrical signal between boards by IC OPTO PC817
- Choose 3-LEVEL of SIGNAL INPUT by JUMPER to connect to board; 5V, 12V and 24V
- IC PORT No.PCF8574A is used as PORT to receive Commands from I2C
- 8-CH INPUT uses Connector 2 PIN BARRIER TERMINAL 7.62 mm. 8-Pair separate
- JUMPER chooses 8-ADDRESS; so, it can connect 8 of Board ET-I2C DCIN8 in BUS I2C
- Connector I2C for Board is WAFER 4 PIN (2.50 mm.) and 2 of FEMALE RJ11 6 PIN; it can be connected to board or it is connected together from board. Moreover, it provides Connector ETT 10 PIN IDC that is connected from ETT Boards for connecting and receiving Signal I2C to board, including
- JUMPER for choosing BIT for SCL, SDA
- RAIL DIN 35 mm.
- PCB size: 7.5 x 16.5 cm.
- Package of ET-I2C DCIN8 includes...
- Board
- Manual
- 3. CABLE RJ-I2C-RJ



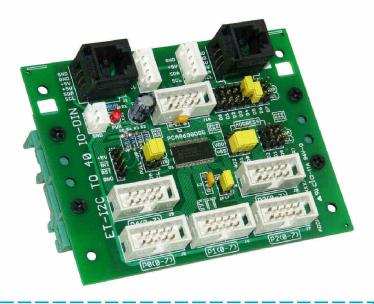




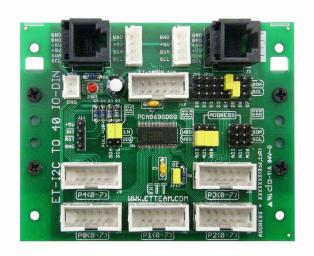
ET-12C TO 40 IO-DIN

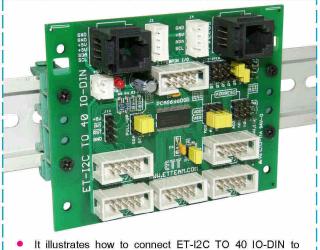
(P-ET-A-00578)

ET-I2C TO 40 IO-DIN is INPUT, OUTPUT Expansion Board for MCU via BUS I2C; it expands amount of I/O to 40 BIT like ET-ESP8266-RS485, ET-MEGA32U4-RS485 or BOARD MCU of ETT via Connector I/O 10 PIN.



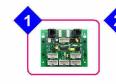






SPECIFICATIONS

- Use IC No.PCA9698DGG 56 PIN TSSOP TYPE from NXP
- POWER SUPPLY 2.3V-5.5V
- PIN I/O is used either to be INPUT or OUTPUT 40 BIT (5 PORT)
- I/O PORT OUTPUT CURRENT SOURCE/SINK 10 mA and 25 mA
- I2C Interface at the maximum Frequency 1 MHZ
- Choose 64-ADDRESS by setting JUMPER
- CONNECTOR I/O is used as 5 of ETT 10 PIN IDC
- Connector I2C for Board is WAFER 4 PIN (2.50 mm.) and 2 of FEMALE RJ11 6 PIN; it can be connected to board or it is connected together from board. Moreover, it provides Connector ETT 10 PIN IDC that is connected from ETT Boards for connecting and receiving Signal I2C to board, including JUMPER for choosing BIT for SCL, SDA
- Rail DIN 35 mm.
- PCB size: 9.6 x 7.6 cm.
- Package of ET-I2C TO 40 IO-DIN includes...
- 1. Board
- 2. CD-ROM Manual and Example Program
- 3. CABLE RJ-I2C-RJ



RIAL DIN 35 mm.





Accessories for Board I2C

ET-USB USART/TTL (P-ET-A-00580)

This Board converts signal from USB PORT of computer PC or MAC APPLE to RS232 PORT; this RS232 PORT has Sign Level of TTL that is more convenient to directly connect to boards via PIN MCU.



- Use IC No.FT231XS from FTDI; don't worry about finding DRIVER for working with OS Operating System or OS in the future
- Connector on the side of USB PORT is MICRO USB FEMALE B TYPE and Connector on the side of RS232 TTL is 6 PIN IDC MALE; and PIN HEADER of FT231XS is provided, it is more convenient for user to connect additionally
- Directly connect Development Program to ET-ESP8266-RS485
- Run on OS WINDOWS 98/SE/ME/2000/XP/7/8/10/LINUX/MAC OS
- Package of ET-USB USART/TTL includes...
- 1. ET-USB USART/TTL
- 2. CABLE PAIR 6 PIN CON2 20 cm.
- 3. CD-ROM DRIVER







(CABLE is connected via USB PORT is OPTION; it can be used with CABLE USB MICRO of general cellphone)

CABLE USB/MICRO 1M (A-CB-A-00045)



This CABLE USB is 1 meter long. One side is Connector TYPE A to connect to computer and another side is MICRO USB TYPE B MALE to connect to board.

WAFER CON 2.50 mm. STRAIGHT MALE

WAFER CON 6 PIN 2.50MM STRAIGHT (A-CO-A-00020)

WAFER CON 5 PIN 2.50MM STRAIGHT (A-CO-A-00293)

WAFER CON 4 PIN 2.50MM STRAIGHT (A-CO-A-00088)

WAFER CON 3 PIN 2.50MM STRAIGHT (A-CO-A-00168)

WAFER CON 2 PIN 2.50MM STRAIGHT (A-CO-A-00161)



RJ-I2C-M (P-CB-A-00039)



One side is Connector RJ11 and another one is 6 of PIN HEADER MALE. This cable is 20 cm. long.

RJ-I2C-F (P-CB-A-00040)



One side is Connector RJ11 and another one is 6 of PIN HEADER FEMALE. This cable is 20 cm. long.

RJ-I2C-RJ (P-CB-A-00041)



Both sides are Connector RJ11; PIN 1 accords with PIN 1 of another side. This cable is 20 cm. long.

4P-I2C-4P (P-CB-A-00042)



Both sides are Connector FEMALE HOUSIN 4 PIN 2.50 mm. This cable is 20 cm. long.

สายแพร์ 6P CON2 20 cm. (P-CB-A-00043)



DIN35 RAIL 49 CM (A-BX-I-00061)



This is aluminum rail to be attached with board by DIN35; it is 49.7 cm long.

HOUSING CON 2.50 mm. ตัวเมีย

HOUSING CON 2.50MM 2 PIN (A-CO-A-00162)

HOUSING CON 2.50MM 3 PIN (A-CO-A-00169)

HOUSING CON 2.50MM 4 PIN (A-CO-A-00089)

HOUSING CON 2.50MM 5 PIN (A-CO-A-00268)

HOUSING CON 2.50MM 6 PIN (A-CO-A-00022)

ไส้ CON CRIMP 2.50MM (A-CO-T-00002)





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Flectronics Technology Team



ET-CONV IDCXX-DIN is Board Converter that converts various sizes of HEADER CONNECTER MALE 2.54mm. to the size as user required. It changes Connector from IDC of various sizes of CABLE PAIR to TERMINAL HEADER that is easier to connect CABLES by screwing. Moreover, it provides fastener on board to attach with RAIL DIN 35mm; it is more convenient to be used with PLC Systems that attached LED Box with RAIL DIN 35 mm.

ET-CONV IDC10-DIN (P-ET-A-00559)



 HEADER CONNECTOR 2.54mm 10 PIN is converted to CONNECTOR TERMINAL SCREW PITCH 3.50mm 10 PIN with 2 of RAIL DIN 35 mm.

and PCB SIZE is 6.35 x 7.40 cm.

ET-CONV IDC30-DIN (P-ET-A-00566)

ET-CONV IDC34-DIN (P-ET-A-00567)



 HEADER CONNECTOR 2.54mm 30 PIN is converted to CONNECTOR TER-MINAL SCREW PITCH 3.50mm 30 PIN with 2 of RAIL DIN 35 mm. and PCB SIZE is 7.89×7.40 cm.



ET-CONV IDC14-DIN (P-ET-A-00560)



 HEADER CONNECTOR 2.54mm 14 PIN is converted to CONNECTOR TERMINAL SCREW PITCH 3.50mm 14 PIN with 2 of RAIL DIN 35 mm.

and PCB SIZE is 6.35 x 7.40 cm.



ET-CONV IDC16-DIN (P-ET-A-00561)



 HEADER CONNECTOR 2.54mm 16 PIN is converted to CONNECTOR TERMINAL SCREW PITCH 3.50mm 16 PIN with 2 of RAIL DIN 35 mm.

and PCB SIZE is 6.35 x 7.40 cm.



ET-CONV IDC20-DIN (P-ET-A-00562)



 HEADER CONNECTOR 2.54mm 20 PIN is converted to CONNECTOR TER-MINAL SCREW PITCH 3.50mm 20 PIN with 2 of RAIL DIN 35 mm. and PCB SIZE is 7.89×7.40 cm.

ET-CONV IDC40-DIN (P-ET-A-00568)



 HEADER CONNECTOR 2.54mm 40 PIN is converted to CONNECTOR TERMINAL SCREW PITCH 3.50mm 40 PIN with 2 of RAIL DIN 35

HEADER CONNECTOR

2.54mm 34 PIN is converted

to CONNECTOR TERMINAL

SCREW PITCH 3.50mm 34

PIN with 2 of RAIL DIN 35

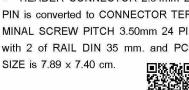
and PCB SIZE is 13.40 x 7.40

and PCB SIZE is 13.40 x 7.40

ET-CONV IDC24-DIN (P-ET-A-00563)



 HEADER CONNECTOR 2.54mm 24 PIN is converted to CONNECTOR TER-MINAL SCREW PITCH 3.50mm 24 PIN with 2 of RAIL DIN 35 mm. and PCB



ET-CONV IDC50-DIN (P-ET-A-00569)



 HEADER CONNECTOR 2.54mm 50 PIN is converted to CONNECTOR TERMINAL SCREW PITCH 3.50mm 50 PIN with 2 of RAIL DIN 35

and PCB SIZE is 13.40 x 7.40

ET-CONV IDC26-DIN (P-ET-A-00565)



 HEADER CONNECTOR 2.54mm 26 PIN is converted to CONNECTOR TER-MINAL SCREW PITCH 3.50mm 26 PIN with 2 of RAIL DIN 35 mm. and PCB SIZE is 7.89×7.40 cm.

ET-CONV IDC64-DIN (P-ET-A-00570)



 HEADER CONNECTOR 2.54mm 64 PIN is converted to CONNECTOR TERMINAL SCREW PITCH 3.50mm 64 PIN with 2 of RAIL DIN 35

and PCB SIZE is 13.40 x 7.40



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ET-PWR 24 TO 5-DIN (P-ET-A-00573) ET-PWR 24 TO 12-DIN (P-ET-A-00574)



This POWER SUPPLY is provided with fastener to attach with RAIL DIN 35mm. It is STEP-DOWN VOLTAGE REGULATOR OUTPUT 3A that uses IC No.LM2576-XX. There are 2 sizes of OUTPUT as follows;

- ET-PWR 24 TO 5-DIN: OUTPUT 5VDC/3AMP: INPUT 9-35VDC
- ET-PWR 24 TO 12-DIN: OUTPUT 12VDC/3AMP: NPUT 15-35VDC
- CONNECTOR INPUT for POWER-IN and OUTPUT for POWER-OUT is TERMINAL BLOCK 2 PIN 7.62 mm. BARRIER TYPE
- PCB size with RAIL DIN and HEAT SINK (W x L x D): 5.8 x 6.6 x 4.7 cm.

(A-LC-G-00029) **OLED 1.3 I2C WHITE**

OLED 1.3 I2C BLUE (A-LC-G-00030)







This is GRAPHIC OLED Display with 128 x 64 DOT and 1.3 inch high. It is easily seen and it is more obvious than general LCD. Moreover, it is more convenient to connect to various Board MCUs through I2C Interface. It is compatible with 3.3V or 5V Power Supply. It provides Example Use, Example Program of ARDUINO in CD-

- OLED 1.3 I2C WHITE is model 128 x 64 DOT with white letter and black screen.
- OLED 1.0 I2C BLUE is model 128 x 64 DOT with blue letter and black screen. **SPECIFICATIONS**
- Use CHIP No.SH1106 for processing data of DISPLAY
- GRAPHIC OLED Display is 1.3 inch wide and 128 x 64 DOT RESOLUTION
- I2C Interface for connecting to Board MCUs

Directly connect to Microcontroller that is 3.3V and 5V Power Supply without using any Regulator

- POWER SUPPLY is 3.3VDC-5VDC, Current is 8mA when running
- PCB size: 33.7 x 35.5 mm.; Display size: 14.7 x 29.42 mm.
- Package of OLED 1.3 I2C contains ...
- 1. Board OLED 1.3 I2C
- 2. CD-ROM Manual and Example Program

ET-SHT10 WATER PROOF SENSOR (P-ET-A-00572)



ET-SHT10 WATER PROOF SENSOR is waterproof and durable Sensor to measure temperature and humidity; it can accurately measure humidity in the air and soil (not covered with water) well. It uses IC SENSOR No.SHT10 that is contained in the water-resistant box. The SENSOR is 79mm: Diameter is 14.50mm; and Cable is 50 CM long.

> GND = BLACK +VDD = BROWN SDA = YELLOW SCL = SKY BLUE



DIGITAL INTERFACE: 2 Wire Serial (the connection is the same as I2C Interface but it can connect only one device in this BUS)

RELATIVE HUMIDITY ACCURACY : +/- 4.5% RH (0 ... 100% RH) **TEMPERATURE ACCURACY** : +/- 0.5C (-40C ... +123.8C) RESPONSE TIME : 8 SECOND/HUMIDITY, 5-30 SECOND/TEMPERATURE **OPERATE SUPPLY VOLTAGE** : 2.4V - 5.5V

Package of ET-SHT10 WATER PROOF SENSOR contains...

1. SENSOR ET-SHT10

2. CD-ROM Example Program for connecting to ARDUINO

ET-SENSOR BME280 (P-ET-A-00571)



ET-SENSOR BME280 that is all in one device to measure HUMIDITY, TEMPERATURE and PRESSURE completely; it uses IC SENSOR No.BME280 from BOSH.

: INTERFACE แบบ I2C (3.4 MHz MAX SPEED) DIGITAL

HUMIDITY : +/- 3% RH (0-100%) PRESSURE : 1.5 Pa (300-1100 hPa) TEMP. ACCURACY (°C) : +/- 1% (-40 TO +85 °C)

RESPONSE TIME : 1 SECOND POWER SUPPLY : 1.8 - 3.6 VDC



It is provided with plastic frame to contain board that can be actually used and connected. Its dimensions are $59 \times 26 \times 12$ mm. The Connector is 5 PIN with Cable 30 cm. long.

BH1750 LUX SENSOR (A-LE-N-00121)



This MODULE measure intensity of light by IC No.BH1750; it is I2C Interface.

- BH1750 SENSOR measures intensity of light with 16 BIT Resolution
- Range of measurement is 1 65535 LUX, WAVE LENGTH 560 mm.
- POWER SUPPLY 3-5 VDC, connect to MCU 3.3V or 5V through I2C Interface
- PCB Size: 33 x 15.2 mm.; PIN HEADER 2.54 mm. 5 PIN
- BH1750 LUX SENSOR includes Board and Manual

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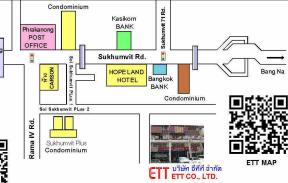


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