

MTS-101

Tutor for Arduino



Arduino is an open-source physical computing platform based on a simple I/O board and a development environment that implements the Processing/Wiring language. Besides easy-to-use hardware and software interface, Arduino is designed to be as flexible as possible to fit your project's needs.

MTS-101 Tutor for Arduino provides an environment for Arduino to interact with different forms of electronics (26 module blocks) with simple codes and connections. With universal breadboard, it's convenient for students to construct the circuits that are not provided by the MTS-101.

● Features

1. The trainer includes various I/O peripherals suitable for learning Arduino project.
2. Independent I/O Modules allows users adopting Dupont wire to build their own applications.
3. Step-by-step procedure in experiment manual.
4. With dual power design, users can select either Arduino or External power for I/O devices.
5. Solderless Breadboard allows users to create more circuits and integrate them into the system.
6. With acrylic protection panel.

● Specifications

1. Power
 - (1) Input : 110V/220V AC, 50Hz/60Hz
 - (2) Output : +5V/1.5A, +3.3V/0.5A
 - (3) Power switch with light
2. Control board
 - (1) Arduino UNO R3 compatible
 - (2) Core : ATMEGA328P
 - (3) Digital IO : 14 (D0~D13)
 - (4) Analog IO : 6 (A0~A5)
 - (5) PWM output : 6 (D3, D5, D6, D9, D10, D11)
 - (6) Support AREF pin
 - (7) Support Tx/Rx pin
 - (8) Support I²C interface
 - (9) Support ISP download
 - (10) Programming interface : USB Type-B
3. Prototyping area : 8x6 brick unit
4. Input module
 - (1) Digital input
 - a. 4x4 KeyPad : touch button
 - b. DIP switch : 8 bits
 - (2) Analog input
 - a. Slide potentiometer : 50KΩ x 2
 - b. Joystick x 1
 - c. Microphone x 1
 - (3) Sensor input
 - a. CDS sensor x 1
 - b. Temperature & humidity sensor x 1
 - c. Accelerometer : 3-axis
 - d. Ultrasonic x 1
 - e. IR line tracer x 1
 - f. Gas sensor x 1
5. Output module
 - (1) LED matrix display : 8x8
 - (2) 4-digit 7-segment display
 - (3) LED Bar : 10 bits
 - (4) RGB LED x 4
 - (5) High power LED : 1W
 - (6) Serial RGB LED x 20
 - (7) LCD display : 16x2 (serial & parallel)
 - (8) Relay : 5V, 2 sets
 - (9) DC motor : 5V with acrylic protector, 2 sets
 - (10) Step motor : 5V, 7.5 deg / tick
 - (11) Servo motor x 2
 - (12) Buzzer A : Electromagnetic, self-drive
 - (13) Buzzer B : Electromagnetic, external-drive

6. Communication module
 - (1) WiFi : ESP8266 x 1
 - (2) Bluetooth: HC05 x 1

● List of Experiments

1. Buzzer and Keypad Control
 - (1) Button Controlled Buzzer
 - (2) Simple Electronic Organ
 - (3) Music Player
2. LED Matrix Control
 - (1) Static Display
 - (2) Dynamic Display
3. 7-Segment Display Control
 - (1) Alternative Display
 - (2) Simple Digital Clock
 - (3) Human-Machine Interface (HMI)
4. Relay Control
 - (1) ON-OFF Control with Two Buttons
 - (2) ON-OFF Control with One Button
5. Voice and Light Control
6. Analog Input and Output
 - (1) Potentiometer Controlled LED Dimmer
 - (2) Joystick Controlled LED Dimmer
7. Serial Monitor
 - (1) LED Brightness Controller 1
 - (2) LED Brightness Controller 2
 - (3) Light Detector
 - (4) Noise Detector
 - (5) Digital Voltmeter
 - (6) Gas Detector
8. Conventional RGB LED Control
 - (1) Static Display
 - (2) Dynamic Display
9. Serial RGB LED Control
 - (1) Button Controlled Serial RGB LED
 - (2) Dual Running LED
 - (3) Pressure-Activated Serial RGB LED
 - (4) Voice-Activated Serial RGB LED
10. LCD Display Control
 - (1) 8-Bit Interface LCD Control - Down Counter
 - (2) 4-Bit Interface LCD Control - Automatic Scrolling LCD
 - (3) I²C Interface LCD Control - Digital Voltmeter
11. Humidity/Temperature Measurement
12. Ultrasonic Range Finder
 - (1) Serial Monitor Display
 - (2) LCD Display
13. Infrared Line Tracer
14. Servo Motor Control
 - (1) Potentiometer Controlled Servos
 - (2) 2-Axis Robot Control
15. 3-Axis MEMS Accelerometer Control
16. DC Motor Control
 - (1) Start/Stop Control
 - (2) Speed and Direction Control
17. Step Motor Control
 - (1) Unipolar Step Motor Controller
 - (2) Bipolar Step Motor Controller
18. Bluetooth Wireless Communications
 - (1) Windows Cross Platform Control
 - (2) Android Cross Platform Control
19. Wi-Fi Wireless Networking
 - Data Logger in Cloud
20. Color Sensor
 - Color Detection
21. CAN-BUS Module
 - (1) Receive data with check mode
 - (2) Receive data with interrupt mode
 - (3) Receive data with interrupt mode by specify the data frame of the ID

● Accessories

1. Experiment manual x 1
2. Software / Source code CD x 1
3. Power cord x 1
4. USB cable (Type-A to Type-B) x 1
5. IDC cable (5x2 pin) x 1
6. Dupont wire x 40
7. LA-60 breadboard for brick

● Optional

Carry case

