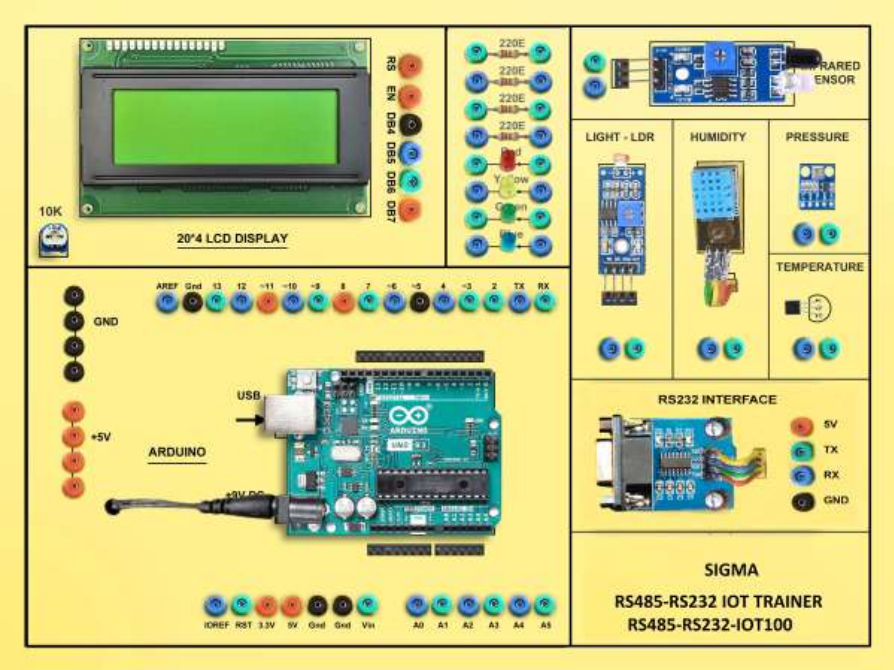
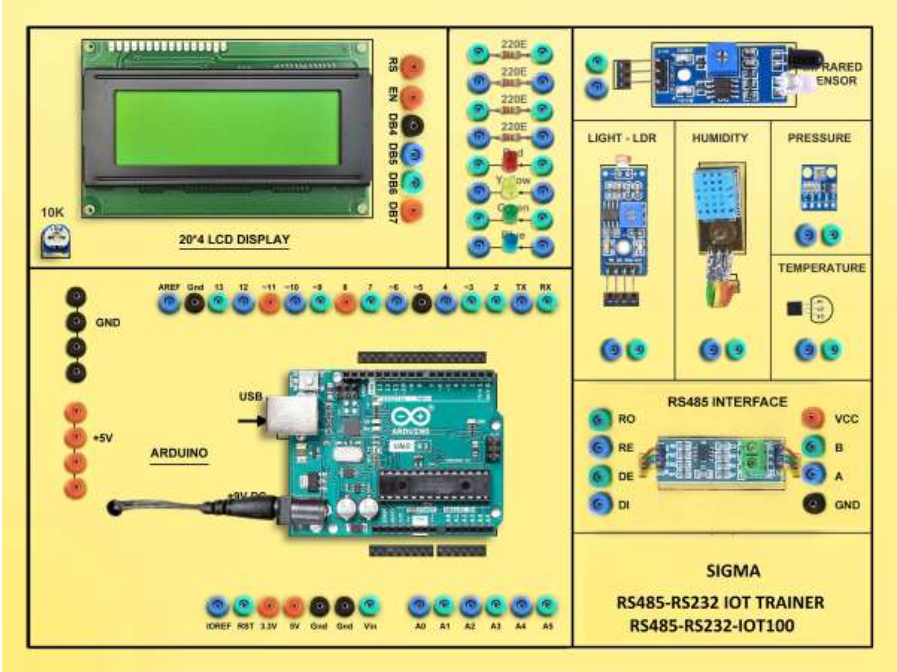
RS485-RS232 IOT TRAINER

MODEL- RS485-RS232-IOT100



Transmitter



Receiver

This trainer has been designed with a view to provide practical and experimental knowledge of Wireless Internet of Things (IOT) with RS485 AND RS232 protocols conversion Modules with Arduino IOT Board.

SPECIFICATIONS

A. Main Specs

1. Following Parts and Modules are assembled on Single PCB of size - 18 Inch x 15 Inch.
2. The complete circuit diagram is screen printed on component side of the PCB with circuit and Parts at the same place.
3. The PCB with components on front side is fitted in elegant wooden box having lock and key arrangement.
4. Modules and Parts should be removable without desodlering for easy repair / replacement
5. The acrylic cover is fitted on PCB to safeguard main parts.

B. Arduino Microcontroller Board

1. ATMega328P Processor - AVR CPU at up to 16 MHz
2. 8 Bit AVR® RISC Based microcontroller
3. Memory : 32KB Flash, 2KB SRAM, 1KB EEPROM
4. Power On Reset (POR)
5. 2 x 8 Bit Timer/Counter
6. 1 x 16-bit Timer/Counter
7. USART, SPI, I2C
8. PWM Channels : 6 Nos.
9. Digital Input / Output pins : 14 Nos (of which 6 provide PWM output)
10. 16 MHz Ceramic Resonator
11. USB Port
12. Power Jack – 9V DC, 1A

C. Sensors:

1. Air Humidity and Temperature DHT11
2. Air Quality - MQ135
3. Soil / Water Temperature Sensor - DS18B20
4. Leaf Wetness Sensor - Rain Detector Sensor
5. Soil Moisture Sensor
6. Ambient Light Sensor - LDR Light Sensor

D. Modules

RS232 Protocol Module

1. IC Chip: SP3232E (RS232)
2. Operating Voltage : 3.0V – 5.5V
3. ESD enhanced
4. Hardware Flow Control supported
5. DB9 connector
6. UART port

RS485 MODBUS Protocol Module

1. On-board MAX485 chip
2. A low power consumption for the RS-485 communication
3. Slew-rate Limited Transceiver.
4. Convenient RS-485 communication wiring
5. Multiple Units can be connected to the same RS-485 bus wiring.
6. All Chip pins are brought out for proper controls
7. All pins of the chip have been lead to can be controlled through the microcontroller.

E. Hardware:

1. 20 X 4 - LCD Display
2. LEDs and Different Resistors
3. 2 mm interconnection Sockets

F. Accessories

1. USB to Square USB Cable : 1 No
2. 2 mm Banana Jack Jumper – Connectors : 30 Nos
3. 9V, 1A Power Adaptor – Barrel 2.1mm : 1 No
4. Pen Drive - 16 GB with All Codes : 1 No
5. Printed Manual : 1 No.
6. Softcopy of Manual – On Pen Drive : 1 No
7. E-Books for IOT Subject – On Pen Drive : 10 Nos. in PDF Format
8. Mp4 Video for IOT Subject – On Pen Drive : 40 Nos

EXPERIMENTS

1. To understand theory and working of Arduino Board
2. To understand Operating System for Arduino Board
3. To understand Communication Protocols
4. To understand USB Interface for Arduino Board
5. To understand that how to connect 20 x 4 LCD Display to Arduino Board

6. To make LED blink
7. To connect LCD Display
8. To measure Humidity using Humidity - DHT11 Sensor
9. To measure Air Humidity and Temperature using DHT11 Sensor
10. To measure Air Quality using Air Quality Sensor
11. To measure Temperature of Soil using Soil Temperature Sensor - DS18B20
12. To measure wetness of Leaf using Leaf Wetness Sensor - Rain Detector Sensor
13. To measure Moisture of soil using Soil Moisture Sensor
14. To measure Ambient Light using LDR Light Sensor

15. To send Sensors data from Transmitter Node to Base Receiver using RS232 Protocol as Transmitter and RS485 as receiver
16. To send Sensors data from Transmitter Node to Base Receiver using RS485 Modbus Protocol as Transmitter and RS232 as receiver

Contact us

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