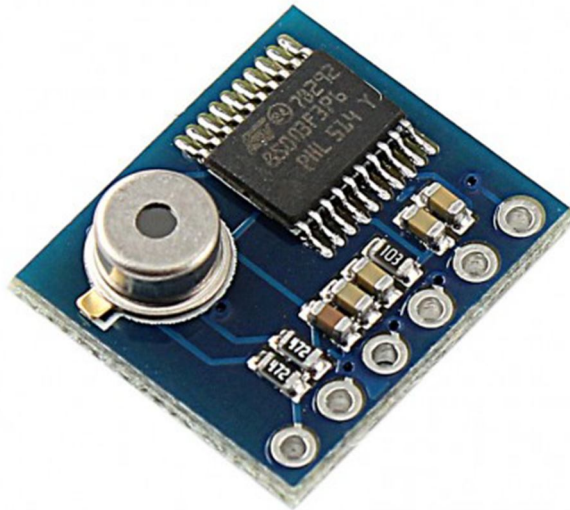# ARDUINO INFRARED THERMOMETER MODULE

Model:MLX90615 Module

Description:

IR non-contact infrared temperature measurement module MLX90615 module serial output data directly, small size. the computer needs usb to ttl serial module:

To provide computer software to view data

Provide arduino program

Provide 51 microcontroller program

Provide stm32 program

Specifications:

- Power Supply: 3-5V
- Current: 5mA
- Baud rate: 9600 or 115200
- Size: 14mm * 16mm * 5mm (L * W * H)

Serial port to send the command byte:

(1), serial communications parameters (baud default value 115200 bps , can be set by software)

Baud Rate: 9600 bps   parity bit: N   Data bits: 8   Stop bits: 1

Baud rate: 115200 bps   parity bit: N   Data bits: 8   Stop bits: 1

(2), the module input commands sent by an external controller to the GY-MCU90615 module (hex)

1 , header: 0xA5

Instruction format: header + command + checksum (8bit) (such as automatic read temperature command = 0xA5 + 0x45 + 0xEA)

2 , the command instruction:

Continuous output instruction:

0xA5 + 0x45 + 0xEA ---------------- temperature data (module returns data type 0x45)

Query output instructions:

0xA5 + 0x15 + 0xBA --------------- temperature data (module returns data type 0x45)

Configuration instructions : (become effective after power reboot)

Baud rate configurations:

0xA5 + 0xAE + 0x53 --------------- 9600

0xAF + 0x54 0xA5 + -------------- 115200 (default)

Is powered automatically send temperature data configuration:

    0xA5 + 0x51 + 0xF6 -------------- output temperature data automatically after power

    0xA5 + 0x52 + 0xF7 -------------- not automatically after power output temperature data (default)

Serial port to receive:

(1), serial communications parameters (baud default value 115200 bps , can be set by software)

    Baud Rate: 9600 bps   parity bit: N Data bits: 8 Stop bits: 1

Baud rate: 115200 bps parity bit: N Data bits: 8 Stop bits: 1

(2), the module output format, each frame contains 9 bytes (hex):

①.Byte0: 0x5A   Preamble Flags

②.Byte1: 0x5A   Preamble Flags

③.Byte2: 0x45   The frame data types (0x45 : temperature data)

④.Byte3: 0x04   amount of data (hereinafter 4 data 2 groups for example)

⑤.Byte4: 0x00 ~ 0xFF   Data 1 high 8 bits

⑥.Byte5: 0x00 ~ 0xFF   Data 1 lower 8 bits

⑦.Byte6: 0x00 ~ 0xFF   Data 2 high 8 bits

⑧.Byte7: 0x00 ~ 0xFF   Data 2 lower 8 bits

⑨.Byte8: 0x00 ~ 0xFF   checksum (data accumulation and front, leaving only the lower 8 bits)

(3), data calculation method

Temperature calculation method :

Temperature = high 8 bits << 8 | lower 8 bits (the result is multiplied by the actual angle 100)

  Example: Send command: A5 45 EA, received a data:

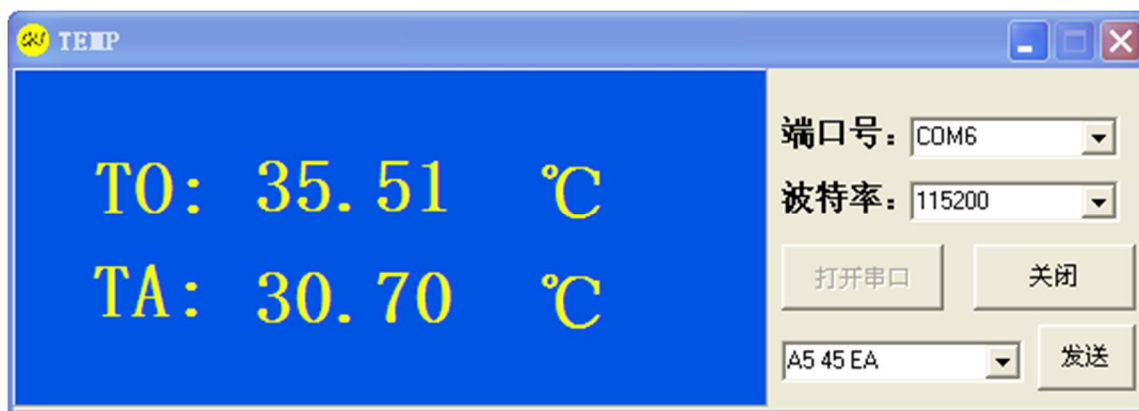<5A- 5A- 45- 04- 0C- 78- 0D- 19- A7>

 Represent TO (signed 16bit , represents the target temperature): TO = 0x0C78 / 100 = 31.92 ° C

 Represents TA (signed 16bit , represents the ambient temperature): TO = 0x0D19 / 100 = 33.53 ° C

Instructions:

The module for the serial output data, the user is connected via the serial port to send output command, for example 0xA5 + 0x45 + 0xEA to the module, the module output temperature data continuously; To query output can be sent 0xA5 + 0x15 + 0xBA to the module, each send once, the module will return once the temperature data, queries should be lower than the frequency of 10hz , For higher than 10hz use continuous output mode, ie send 0xA5 + 0x45 + 0xEA instruction.

Note: Module I / O is TTL level, you can, with direct serial connection with the microcontroller directly PL2303, CH340, FT232 connected to other chips, but not directly connected to the computer nine-pin serial port.

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