



# **USB Host Module User's Guide**

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## Table of Contents

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<b>Chapter 1. Overview .....</b>	<b>1</b>
1.1 Overview .....	1
1.2 Features .....	1
<b>Chapter 2. Hardware Detail .....</b>	<b>3</b>
2.1 USB Port .....	3
2.2 LED Indicators .....	3
2.3 I/O Interface .....	3
2.4 Programming Interface .....	3
<b>Chapter 3. Function Module.....</b>	<b>4</b>
3.1 Configuration.....	4
3.2 Connection with USB HID Mouse Device .....	4
3.2.1 Firmware.....	4
3.2.2 Display Format of Information.....	4
3.2.3 Description of the Information.....	4
3.2.4 LED Indicators .....	5
3.3 Connection with USB HID Keyboard Device .....	5
3.3.1 Firmware.....	5
3.3.2 Display Format of the Information.....	5
3.3.3 Description of the Information.....	5
3.4 Connection with USB Mass Storage Device.....	5
3.4.1 Firmware.....	5
3.4.2 Commands.....	5
3.4.3 LED Indicators .....	5
<b>Chapter 4. Mechanical Drawing.....</b>	<b>6</b>
<b>Chapter 5. Appendix .....</b>	<b>7</b>
<b>Chapter 6. Contact Us .....</b>	<b>8</b>

# USB Host Module

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## NOTES:

Product Version : Ver 1.0

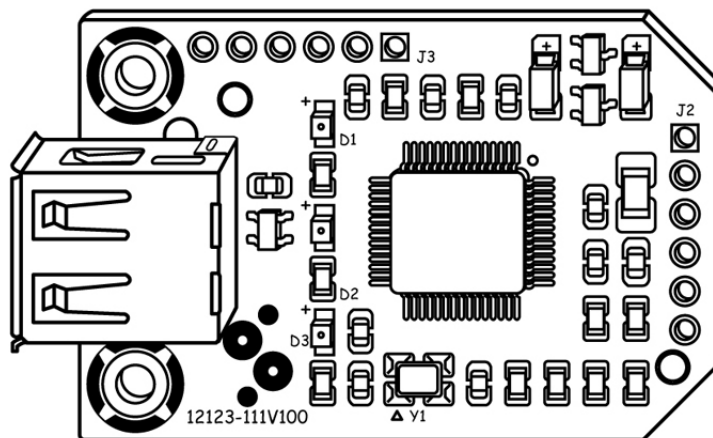
Document Version : Ver 1.0

## Chapter 1. Overview

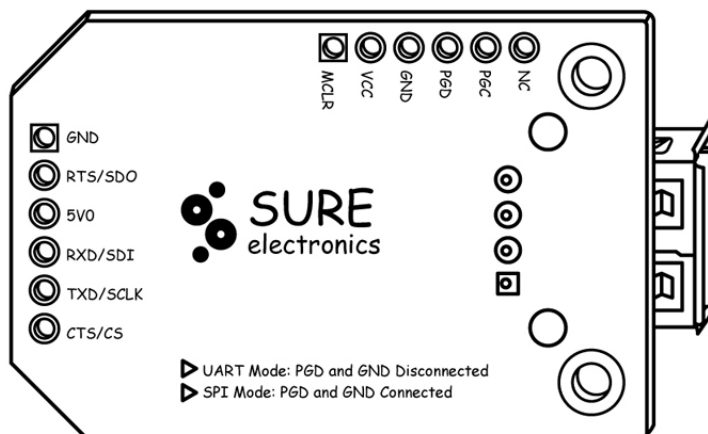
### 1.1 Overview

This is a minimized USB Host module which provides an easy-to-use solution, via UART communication software, to gain the information of USB HID mouse devices and USB HID keyboard devices as well as read and write to USB mass storage devices. This module features a PIC24FJ256GB106 IC, one USB A port, I/O port and programming interface.

**FIGURE 1-1 FRONT VIEW**



**FIGURE 1-2 BACK VIEW**



**Note:** All the diagrams in this manual are for reference only.

### 1.2 Features

- Integrated with PIC24FJ256GB106 IC from Microchip
- USB-A port for connection with:
  - USB HID Mouse Device
  - USB HID Keyboard Device
  - USB Mass Storage Device

# USB Host Module

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- Only four signals to connect, excluding power and ground
- Jumper selectable UART or SPI interfaces
- Single 5V supply input
- Three LED indicators
- The default baud rate is 57600 bps after power-on
- High-performance ESD-safe USB A port

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## Chapter 2. Hardware Detail

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### 2.1 USB Port

USB-A port

### 2.2 LED Indicators

Green LED (D1):

On: the left button of a USB HID Mouse Device has been pressed

Off: the left button of a USB HID Mouse Device hasn't been pressed

Red LED (D2):

On: module is powered

Off: no power

Green LED (D3):

On: the right button of a USB HID Mouse Device has been pressed or USB Mass Storage Device is inserted into USB A port

Off: the right button of a USB HID Mouse Device hasn't been pressed or USB Mass Storage Device isn't inserted into USB A port

### 2.3 I/O Interface

Power supply:

GND pin

5V0 pin

UART interface:

RTS pin

RXD pin

TXD pin

CTS pin

SPI interface:

SDO pin

SDI pin

SCLK pin

CS pin

### 2.4 Programming Interface

NC pin

PGC pin

PGD pin

GND pin

VCC pin

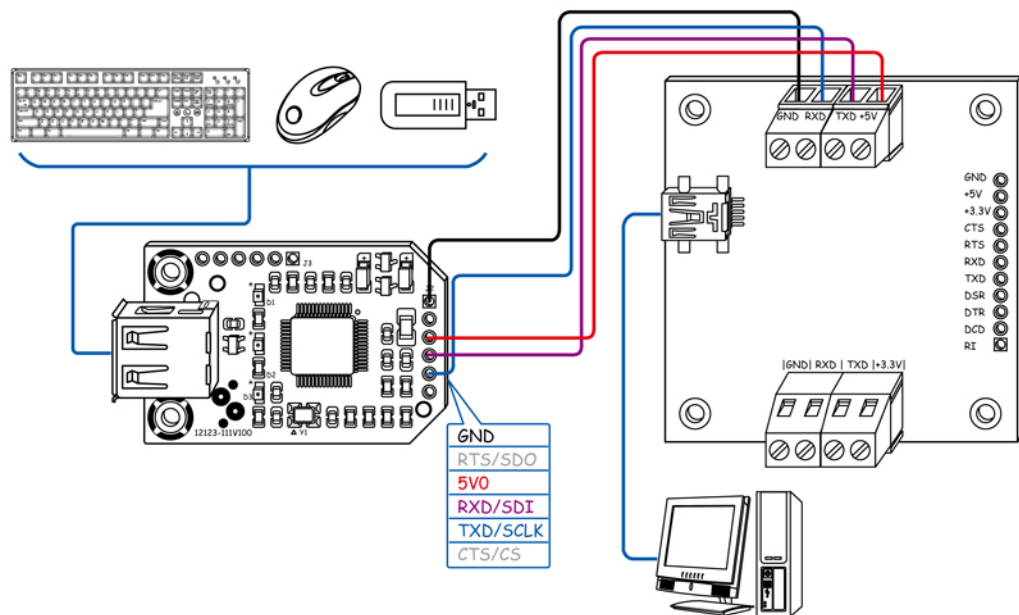
MCLR pin

## Chapter 3. Function Module

### 3.1 Configuration

First, install the UART communication software which can be downloaded in Download Center. Then finish the connection shown as follows. DB-UC001 by Sure Electronics is used here for help as a converter. The module is powered through GND pin and 5V0 pin.

**FIGURE 3-1 CONNECTION SCHEMATIC**



Open the UART communication software, select the corresponding COM number and set baud rate as 57600, parity bit as None, data bit as 8 and stop bit as 1.

### 3.2 Connection with USB HID Mouse Device

#### 3.2.1 Firmware

Program the USB host module with MB-CM13111V100\_1.hex which can be downloaded in Download Center.

#### 3.2.2 Display Format of Information

Press any button and you will see on the UART communication software interface information in a format as follows.

HID: Raw Report B1-B2-B3-B4-

Left Bt : 00

Right Bt : 00

X-Axis : 00

Y-Axis : 00

#### 3.2.3 Description of the Information

B1: as "01" when the left button of USB HID Mouse Device is pressed, "02" when the right button is pressed, "04" when the scroll wheel is pressed but not rolled and "00" when no button is pressed.

# USB Host Module

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B2: relative position of motion along X-Axis

B3: relative position of motion along Y-Axis

B4: as "FF" when the scroll wheel is pressed and rolls downwards; as "01" when the middle button is pressed and rolls upwards

## 3.2.4 LED Indicators

D1 is illuminated in green when the left button is pressed and off when the left button is released. D3 is illuminated in green when the right button is pressed and off when the right button is released.

## 3.3 Connection with USB HID Keyboard Device

### 3.3.1 Firmware

Program the USB host module with MB-CM13111V100\_1.hex which can be downloaded in Download Center.

### 3.3.2 Display Format of the Information

Press any key and you will see on the UART communication software interface information in a format as follows.

HID: Raw Report K1-K2-K3-K4-K5-K6-K7-K8

### 3.3.3 Description of the Information

K1- K7: Corresponding code of each key on the keyboard. Please refer to the standard keyboard protocol for details

K8: ASCII characters to describe the corresponding keys. The keys which can not be described by ASCII characters will be described by blank

## 3.4 Connection with USB Mass Storage Device

### 3.4.1 Firmware

Program the USB host module with MB-CM13111V100\_2.hex which can be downloaded in Download Center.

### 3.4.2 Commands

? or help: ask for help

time [hh:mm:ss]: view or modify the current time of the system

dir: view the directory of files or folders

attrib <+|-><R|S|H|A> <name>: modify the property of a folder

type <file>: view the content in a file

copy <file1> <file2>: copy files

ren <file1> <file2>: rename files

del <file>: delete a file

md <name>: create a new folder

cd [file]: modify user's current path

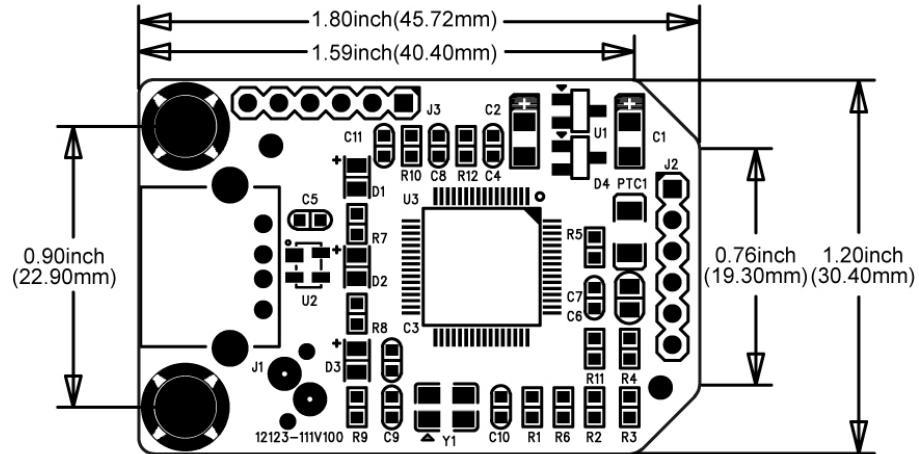
RD: delete a folder

### 3.4.3 LED Indicators

D3 is illuminated in green when a USB mass storage device is inserted into USB A port and off when the device isn't inserted.

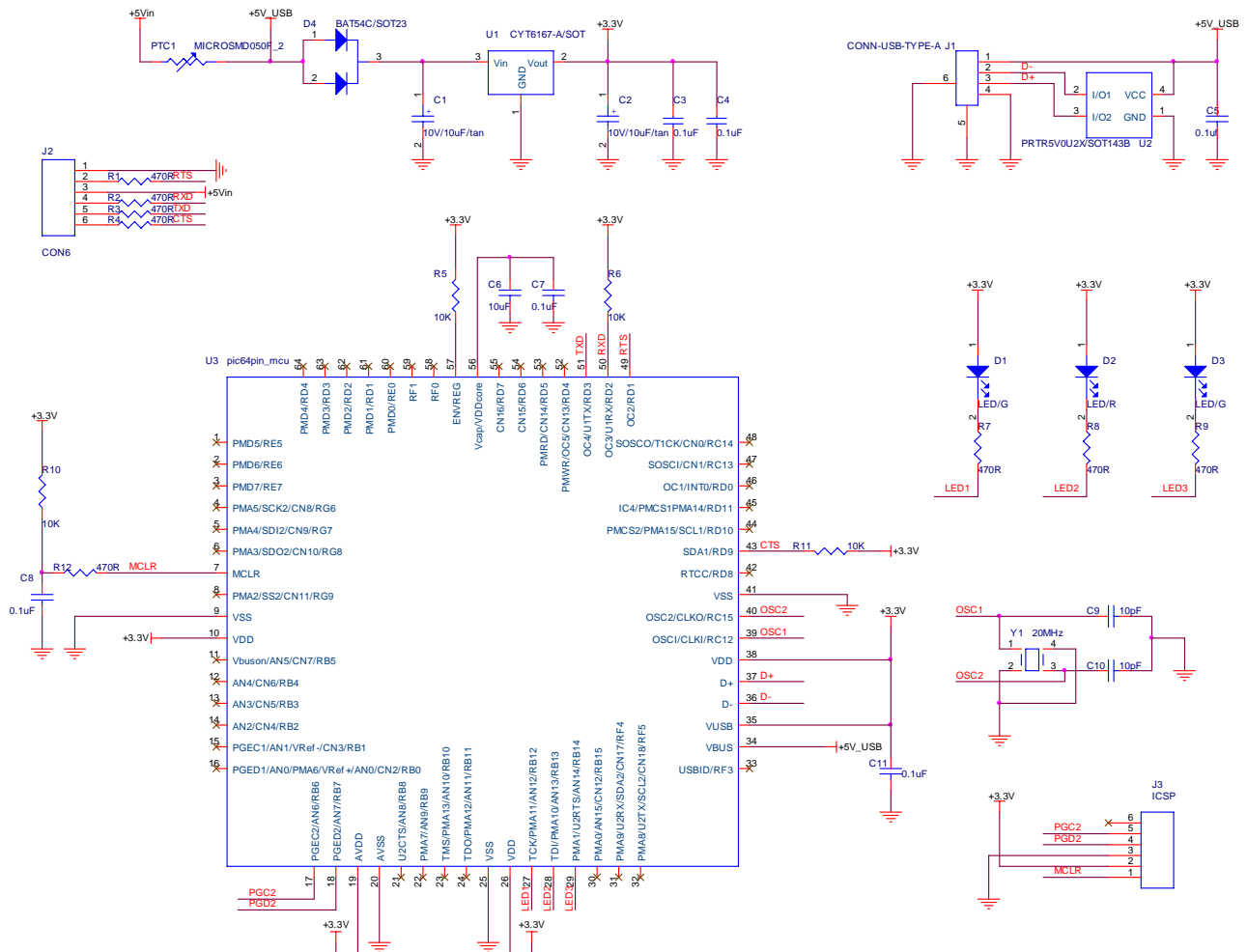
**Chapter 4. Mechanical Drawing**

**FIGURE 4-1 MECHANICAL DRAWING**



## Chapter 5. Appendix

FIGURE 5-1 SCHEMATIC



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## Chapter 6. Contact Us

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