



System (M5StickC)

begin()

Syntax:

```
void begin(bool LCDEnable=true, bool PowerEnable=true, bool SerialEnable=true);
```

Description: Clear the serial port buffer, set the serial port baud rate to 115200; initialize the LCD; initialize the power management chip AXP192.

Definition:

```
arduino
void M5StickC::begin(bool LCDEnable, bool PowerEnable, bool SerialEnable) {

    //! Correct init once
    if (isInited) return;
    else isInited = true;

    //! UART
    if (SerialEnable) {
        Serial.begin(115200);
        Serial.flush();
        delay(50);
        Serial.print("M5StickC initializing...");
    }

    // Power
    if (PowerEnable) {
        Axp.begin();
    }

    // LCD INIT
    if (LCDEnable) {
        Lcd.begin();
    }

    if (SerialEnable) {
        Serial.println("OK");
    }
}
```

Example:

```
arduino
#include <M5StickC.h>

void setup() {
    M5.begin();
}

void loop() {}
```

GetBm8563Time()

This is the API function of the BM8563 chip. The chip communicates with the ESP32 via I2C, and the I2C address is 0x51.

Syntax:

```
void GetBm8563Time(void);
```

Description: Get the current hour, minute, and second value and save it to M5.Rtc.Hour, M5.Rtc.Minute, M5.Rtc.Second, in ASCII format.

Example::

```
arduino

#include <M5StickC.h>

void setup() {
  // put your setup code here, to run once:
  M5.begin();
  M5.Lcd.setRotation(3);
  M5.Lcd.fillScreen(BLACK);

  M5.Lcd.setTextSize(2);
  M5.Lcd.println("rtc test");
}

void loop() {
  // put your main code here, to run repeatedly:
  M5.Rtc.GetBm8563Time();
  M5.Lcd.setCursor(0, 30, 2);
  M5.Lcd.printf("%02d : %02d : %02d\n", M5.Rtc.Hour, M5.Rtc.Minute, M5.Rtc.Second);
  delay(1000);
}
```



TFT Screen

The M5StickC screen resolution is **80x160**, the top left corner of the screen as the origin (0,0)

ScreenBreath()

Syntax:

```
void ScreenBreath(uint8_t brightness);
```

Description: Adjust the brightness of the screen backlight.

Parameter	Description
brightness	TFT backlight brightness (值: 7 - 15)

Example:

```
#include <M5StickC.h>

uint8_t i = 7;

void setup() {
  M5.begin();
  M5.Lcd.fillScreen(WHITE);
}

void loop() {
  M5.Axp.ScreenBreath(i++);
  if (i > 15) i = 7;
  delay(500);
}
```

arduino

fillScreen()

Syntax:

```
fillScreen(uint16_t color);
```

Description: Fills the entire screen with the specified color.

Parameter	Description
color	color value

Example:

```
#include <M5StickC.h>

void setup() {
  M5.begin();
  M5.Lcd.fillScreen(BLUE);
}
void loop() {}
```

setTextColor()

Syntax:

```
setTextColor(uint16_t color, [uint16_t backgroundcolor]);
```

Description: Sets the foreground color and background color of the displayed text.

Parameter	Description
color	foreground color
backgroundcolor	background color

If the function's backgroundcolor value is not given, the current background color is used.

Example:

```
#include <M5StickC.h>

void setup() {
  M5.begin();
  M5.Lcd.setTextColor(RED, WHITE);
  M5.Lcd.println("Hello, M5Stack world!!");
}
void loop() {}
```

setCursor()

Syntax:

```
setCursor(int16_t x0, int16_t y0, uint8_t font);
```

Description: Move the cursor position to (x0, y0).

Example:

arduino

```
#include <M5StickC.h>

void setup() {
  M5.begin();
  M5.Lcd.setCursor(7, 20, 2);
  M5.Lcd.println("scan done");
  M5.Lcd.setCursor(5, 60, 4);
  M5.Lcd.printf("50 AP");
}
void loop(){}
```

drawPixel()

Syntax:

```
drawPixel(int16_t x, int16_t y, [uint16_t color]);
```

Description: Draw a pixel at the position (x, y).

Parameter	Description
color	pixel color

If the function's color value is not given, the current background color is used.

Example:

arduino

```
#include <M5StickC.h>

void setup() {
  M5.begin();
  M5.Lcd.drawPixel(22, 22, RED);
}
void loop() {}
```

drawLine()

Syntax:

```
drawLine(int16_t x0, int16_t y0, int16_t x1, int16_t y1, [uint16_t color]);
```

Description: Draw a line from the point (x, y) to the point (x1, y1) in the specified color.

Parameter	Description
color	line color

If the function's color value is not given, the current background color is used.

Example:

```
#include <M5StickC.h>

void setup() {
  M5.begin();
  M5.Lcd.drawLine(0, 0, 12, 12, BLUE);
}
void loop() {}
```

drawTriangle()

Syntax:

drawTriangle(int16_t x0, int16_t y0, int16_t x1, int16_t y1, int16_t x2, int16_t y2, [uint16_t color]);

Description: Draw a triangle with the specified color, with vertices of (x, y), (x1, y1), and (x2, y2).

Parameter	Description
color	line color

If the function's color value is not given, the current background color is used.

Example:

```
#include <M5StickC.h>

void setup() {
  M5.begin();
  M5.Lcd.drawTriangle(22, 22, 69, 98, 51, 22, RED);
}
void loop() {}
```

fillTriangle()

Syntax:

fillTriangle(int16_t x0, int16_t y0, int16_t x1, int16_t y1, int16_t x2, int16_t y2, [uint16_t color]);

Description: Fill a triangle with the specified color, with vertices of (x, y), (x1, y1) and (x2, y2).

Parameter	Description
color	fill color

If the function's color value is not given, the current background color is used.

Example:

```
#include <M5StickC.h>

void setup() {
  M5.begin();
  M5.Lcd.fillTriangle(22, 22, 69, 98, 51, 22, RED);
}
void loop() {}
```

drawRect()

Syntax:

```
drawRect(int16_t x, int16_t y, int16_t w, int16_t h, [uint16_t color]);
```

Description: Draws a rectangle with a specified color, where the coordinates of the upper left corner of the rectangle are (x, y), and the width and height.

Parameter	Description
w	width (pixel)
h	height (pixel)
color	line color

If the function's color value is not given, the current background color is used.

Example:

```
#include <M5StickC.h>

void setup() {
  M5.begin();
  M5.Lcd.drawRect(50, 100, 30, 10, BLUE);
}
void loop() {}
```

fillRect()

Syntax:

```
fillRect(int16_t x, int16_t y, int16_t w, int16_t h, [uint16_t color]);
```

Description: Fill a rectangle with the specified color. The coordinates of the upper left corner are (x, y), and the width and height.

Parameter	Description
w	width (pixel)
h	height (pixel)

Parameter	Description
-----------	-------------

color	fill color
-------	------------

If the function's color value is not given, the current background color is used.

Example:

```

#include <M5StickC.h>

void setup() {
  M5.begin();
  M5.Lcd.fillRect(50, 100, 20, 10, BLUE);
}
void loop() {}

```

arduino

drawRoundRect()

Syntax:

```
drawRoundRect(int16_t x0, int16_t y0, int16_t w, int16_t h, int16_t radius, uint16_t color);
```

Description: Draw a rounded corner rectangle with the specified color, where the coordinates of the upper left corner of the rectangle are (x, y), the width, the height and the radius of the fillet.

Parameter	Description
w	width (pixel)
h	height (pixel)
radius	radius of corner fillet
color	fill color

If the function's color value is not given, the current background color is used.

Example:

```

#include <M5StickC.h>

void setup() {
  M5.begin();
  M5.Lcd.fillRoundRect(40, 70, 20, 10, 4, BLUE);
}
void loop() {}

```

arduino

print()

Syntax:


```
print();
```

Description: Printing text (string) at the current cursor position of the screen.

The default printed content color style is white on black.

Example:

```
arduino

#include <M5StickC.h>

void setup() {
  M5.begin();
  M5.Lcd.print("print text");
}
void loop() {}
```

Usage

```
arduino

#include <M5StickC.h>

void setup() {
  M5.begin();

  M5.Lcd.fillScreen(WHITE); // set the default background color
  M5.Lcd.drawLine(0, 0, 100, 100, WHITE);
  M5.Lcd.drawTriangle(22, 22, 69, 98, 51, 22, RED);
  M5.Lcd.fillTriangle(22, 22, 69, 98, 51, 22, RED);
  M5.Lcd.drawRect(50, 100, 30, 10, BLUE);
  M5.Lcd.fillRect(50, 100, 30, 10, BLUE);
  M5.Lcd.drawRoundRect(40, 70, 20, 10, 4, BLUE);
  M5.Lcd.fillRoundRect(40, 70, 20, 10, 4, BLUE);
  M5.Lcd.print("print text");
}
void loop() {}
```



IMU(SH200Q)

The SH200Q is a 6-axis IMU sensor. It can detect 3-axis gyro data and 3-axis acceleration data.

Init()

Syntax:

```
void Init();
```

Description: It initialize the SH200Q.

Example:

```
arduino
#include <M5StickC.h>

void setup() {
  uint8_t c;
  M5.begin();
  M5.IMU.Init();
  M5.IMU.I2C_Read_NBytes(SH200I_ADDRESS, SH200I_WHOAMI, 1, &c);
  M5.Lcd.print("SH200Q I AM "); M5.Lcd.println(c, HEX);
}
void loop() {}
```

getGyroData()

Syntax:

```
void getGyroData(int16_t* gx, int16_t* gy, int16_t* gz);
```

Description: It get gyro data of SH200Q.

Example:

arduino

```
#include <M5StickC.h>

int16_t gyroX, gyroY, gyroZ;

void setup() {
  M5.begin();
  M5.IMU.Init();
}

void loop() {
  M5.IMU.getGyroData(&gyroX, &gyroY, &gyroZ);
  M5.Lcd.setCursor(0, 30);
  M5.Lcd.printf("X:%7.2f\nY:%7.2f\nZ:%7.2f mg",
               ((float)gyroX) * M5.IMU.gRes,
               ((float)gyroY) * M5.IMU.gRes,
               ((float)gyroZ) * M5.IMU.gRes);
  delay(500);
}
```

getAccelData()

Syntax:

```
void getAccelData(int16_t* ax, int16_t* ay, int16_t* az);
```

Description: It get SH200Q acceleration data.

Example:

arduino

```
#include <M5StickC.h>

int16_t accX, accY, accZ;

void setup() {
  M5.begin();
  M5.IMU.Init();
}

void loop() {
  M5.IMU.getAccelData(&accX, &accY, &accZ);
  M5.Lcd.setCursor(0, 45);
  M5.Lcd.printf("X:%5.2f\nY:%5.2f\nZ:%5.2f o/s",
               ((float)accX) * M5.IMU.aRes,
               ((float)accY) * M5.IMU.aRes,
               ((float)accZ) * M5.IMU.aRes);
  delay(500);
}
```



AXP192 (Power management)

The AXP192 is a highly integrated power system management chip.

begin()

Syntax:

```
void begin(void);
```

Description: Initialize the AXP192.

Example:

```
arduino
#include <M5StickC.h>

void setup() {
  M5.begin(); //By default, "M5.begin()" will initialize AXP192 chip
}
void loop() {}
```

ScreenBreath()

Syntax:

```
void ScreenBreath(uint8_t brightness);
```

Description: Change the LDO3 output voltage of the AXP192 chip.

parameter	description
brightness	TFT backlight brightness (range: 7~15)

Example:

```
arduino
#include <M5StickC.h>

uint8_t i = 7;

void setup() {
  M5.begin(); //By default, "M5.begin()" will initialize AXP192 chip
  M5.Lcd.printf("Hello, M5Stack!!");
}
void loop() {
  M5.Axp.ScreenBreath(i++);
  if (i > 15) i = 7;
  delay(1000);
}
```

GetVbatData()

Syntax:

```
uint16_t GetVbatData(void);
```

Description: Get the battery voltage value.

Example:

```
arduino

#include <M5StickC.h>

double vbat = 0.0;

void setup() {
  M5.begin(); //By default, "M5.begin()" will initialize AXP192 chip
  M5.Lcd.fillScreen(BLACK);
}

void loop() {
  vbat = M5.Axp.GetVbatData() * 1.1 / 1000;
  M5.Lcd.setCursor(0, 0, 1);
  M5.Lcd.printf("vbat:%.3fV\r\n", vbat);
  delay(500);
}
```

GetIchargeData()

Syntax:

```
uint16_t GetIchargeData(void);
```

Description: Get the battery charging current.

Example:

```
arduino

#include <M5StickC.h>

int charge;

void setup() {
  M5.begin(); //By default, "M5.begin()" will initialize AXP192 chip
  M5.Lcd.fillScreen(BLACK);
}

void loop() {
  charge = M5.Axp.GetIchargeData() / 2;
  M5.Lcd.setCursor(0, 0, 1);
  M5.Lcd.printf("icharge:%dmA\r\n", charge);
  delay(500);
}
```

