LCD1602 with IIC

Overview

This is an experiment on how to use LCD1602 with IIC, the next lesson will do a temperature and humidity monitoring experiment.

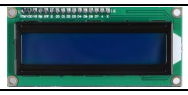
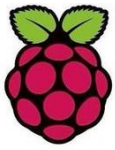
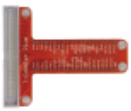
Specification

Please view LCD1602-datasheet.pdf.
Path: \Public_materials\Datasheet\LCD1602-datasheet.pdf

Pin definition

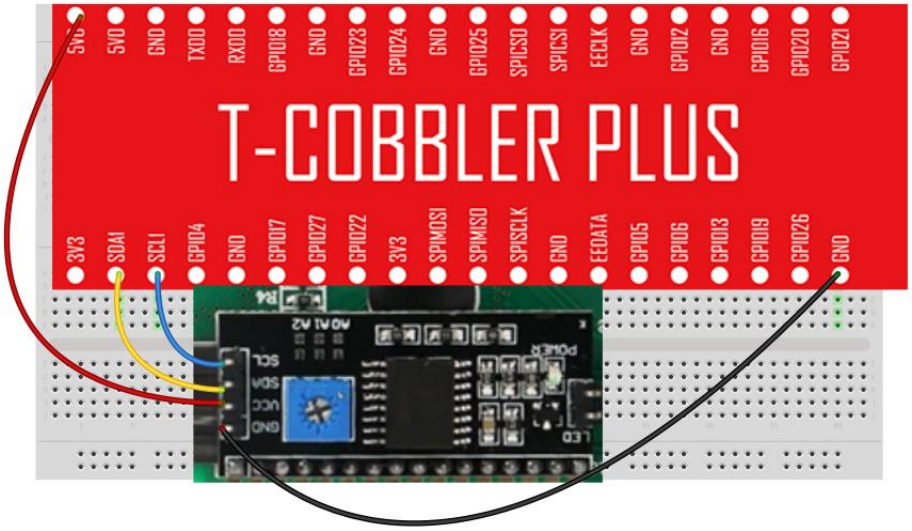
LCD1602		RPI
GND	->	GND
VCC	->	5V0
SDA	->	SDA1
SCL	->	SCL1

Hardware required

Material diagram	Material name	Number
	LCD1602 with IIC	1
	Raspberry Pi Board	1
	T-Cobbler Plus	1
	40P GPIO Cable	1
	Breadboard	1

	Jumper wires	Several

Connection diagram



Connection

LCD1602		RPI
GND	->	GND
VCC	->	5V0
SDA	->	SDA1
SCL	->	SCL1

Sample code

Note: sample code under the **Sample code** folder.

```
#include <wiringPi.h>
#include <pcf8574.h>
#include <lcd.h>
#include <stdio.h>
#include <stdlib.h>
#include <stdint.h>

//PCF8574 Start I/O address
// PCF8754 64+8
#define AF_BASE 64
#define AF_RS (AF_BASE + 0)
#define AF_RW (AF_BASE + 1)
#define AF_E (AF_BASE + 2)
#define AF_LED (AF_BASE + 3)
#define AF_DB4 (AF_BASE + 4)
#define AF_DB5 (AF_BASE + 5)
```

```
#define AF_DB6 (AF_BASE + 6)
#define AF_DB7 (AF_BASE + 7)
// Global lcd handle:
static int lcdHandle;

int main(void)
{
	int i;
	wiringPiSetup();		//Initialise WiringPi
	printf( "Welcome to Smraza\n");
	printf( "Raspberry Pi LCD1602 with IIC test program\n" );
	pcf8574Setup(AF_BASE,0x3F);
	lcdHandle = lcdInit (2, 16, 4, AF_RS, AF_E, AF_DB4,AF_DB5,AF_DB6,AF_DB7, 0,0,0,0) ;
	if (lcdHandle < 0)
	{
	fprintf (stderr, "lcdInit failed\n") ;
	exit (EXIT_FAILURE) ;
	}
	for(i=0;i<8;i++)
	pinMode(AF_BASE+i,OUTPUT);   //Will expand the IO port as the output mode
	digitalWrite(AF_LED,1);		//Open back light
	digitalWrite(AF_RW,0);		//Set the R/Wall to a low level, LCD for the write state
	lcdClear(lcdHandle);		//Clear display
	lcdPosition(lcdHandle,0,0);		//Position cursor on the first line in the first
column
	lcdPuts(lcdHandle, "Welcome to");   //Print the text on the LCD at the current cursor
postion
	lcdPosition(lcdHandle,8,1);
	lcdPuts(lcdHandle, "Smraza");
	return 0;
}
```

Compiling: gcc -Wall -o LCD_1602_IIC LCD_1602_IIC.c -lwiringPi -lwiringPiDev

Run: sudo ./LCD_1602_IIC

Tips: Press “Ctrl+C” to exit

Application effect

When you are running program, LCD display string. If the LCD display is abnormal, please check the lines or adjust the potentiometer.