



LCD mini click

PID: MIKROE-2453

Weight: 37 g

LCD mini click displays 2x16 monochrome characters on an LMB162XFW LCD display. It features the **MCP23S17** port expander and the **MCP4161** digital potentiometer, both from Microchip.

LCD mini click is designed to communicate with both 3.3V or 5V capable MCUs. It communicates with the target microcontroller over the SPI interface and the following pins on the mikroBUS™ line: PWM, INT, RST, AN.

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Table of contents

1. **LCD and backlight control**
2. **2x16 LCD display features**
3. **Specifications**
4. **Pinout diagram**
5. **Programming**
6. **Code snippet**
7. **Downloads**

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LCD and backlight control

The PWM pin onboard the LCD mini click is used for backlight control. While the digital potentiometer is used for contrast adjustments.

2x16 LCD display features

2x16 LDC displays are ideal for displaying short messages and numbers. They can display 16 characters per one line, 32 in total. The 5x8 dot font displays characters, symbols, and numbers clearly and vividly.

Specifications

Type	LCD
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Applications	Interfacing 2x16 LED displays with mikroBUS™ compatible development boards
On-board modules	MCP23S17 port expander, MCP4161 digital potentiometer - both from Microchip
Key Features	Adapter for connecting 2x16 LCD displays, MCP23S17 port expander, MCP4161 digital potentiometer
Key Benefits	Onboard port expander for LCD control, digital potentiometer for contrast settings, PWM for backlight control.
Interface	PWM,SPI,GPIO
Input Voltage	3.3V,5V
Compatibility	mikroBUS
Click board size	S (28.6 x 25.4 mm)

Pinout diagram

This table shows how the pinout on **LCD mini click** corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin					Pin	Notes
Digipot CS	CS2	1	AN	PWM	16	PWM	Pulse-Width Modulation
Reset for the port expander	RST	2	RST	INT	15	INT	INT from the port expander
SPI chip select	CS	3	CS	RX	14	NC	
SPI clock	SCK	4	SCK	TX	13	NC	
SPI Master Input Slave Output	MISO	5	MISO	SDA	12	NC	
SPI Master Output Slave Input	MOSI	6	MOSI	SDA	11	NC	
Power supply	+3.3V	7	3.3V	5V	10	+5V	Power supply
Ground	GND	8	GND	GND	9	GND	Ground

Programming

The demo shows how to use the SPI LCD library to communicate with the LCD (with HD44780 compliant controllers) in 4-bit mode via the SPI interface. It also uses the PWM for the backlight and the on board digital

potentiometer, for controlling display contrast, which can be accessed through SPI. The demo iterates through all the values for the backlight and the contrast intensity.

Code snippet

The main function of the demo.

```
01 void main()
02 {
03     system_init();
04
05     SPI_Lcd_Out(1, 6, "mikroE");
06     SPI_Lcd_Out(2, 2, "LCD mini click");
07
08     set_bcklight(0xFF);
09     set_contrast(0xDF);
10
11     Delay_ms(5000);
12
13     while (1)
14     {
15         set_bcklight(value);
16         set_contrast(value);
17
18         value++;
19         delay_ms(40);
20     }
21 }
```

Downloads



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[MCP4161 datasheet](#)



[MCP23S17 datasheet](#)



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