

# TFT PROTO™

## Manual

*All Mikroelektronika's development systems feature a large number of peripheral modules expanding microcontroller's range of application and making the process of program testing easier. In addition to these modules, it is also possible to use numerous additional modules linked to the development system through the I/O port connectors. Some of these additional modules can operate as stand-alone devices without being connected to the microcontroller.*

# Additional Board



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## TFT PROTO

The TFT PROTO additional board is used to display graphic contents such as images and video recordings. This board is connected to the microcontroller via parallel or serial SPI communication. This board may also serve as a touch panel.

### Key features:

- 320x240 display resolution;
- 262.000 colours;
- Touch panel;
- Backlight; and
- 3.3V power supply voltage.

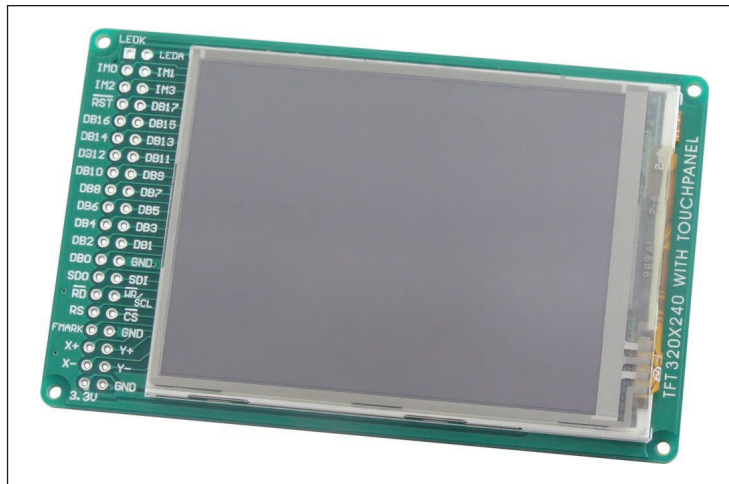


Figure 1: TFT PROTO additional board

### How to connect the board?

The TFT PROTO board is connected to a microcontroller or some other device via pads CN1. Prior to supply the power supply voltage to the backlight pins (LED-A and LED-K), it is necessary to connect an external resistor to the LED-A pin. The function of this resistor is to limit current that can damage the TFT display. When connecting the touch panel, it is necessary to connect pull-up or pull-down resistors to X+, X-, Y+ and Y- pins.

### How to use the board?

The additional board may be configured to receive data from the microcontroller in one of five modes. Mode selection is performed by supplying the appropriate logic level (logic 1 (VCC-3.3) or logic 0 (GND)) on pins IM0, IM1, IM2 and IM3. Data transfer is performed via parallel or serial interface, table 1. Data from the touch panel are sent to X+, X-, Y+ and Y- pins provided on the additional board, table 2.

IM[3:0]	INTERFACE MODE	USED PINS
0010	16-BIT INTERFACE	DB[17:10], DB[8:1]
0011	8-BIT INTERFACE	DB[17:10]
010X	SPI	SDI, SDO
1010	18-BIT INTERFACE	DB[17:0]
1011	9-BIT INTERFACE	DB[17:9]

Table 1

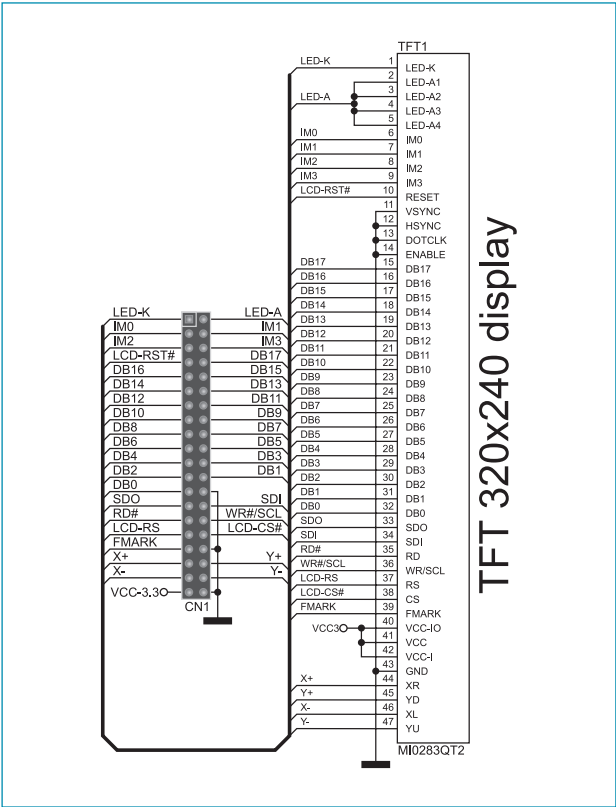


Figure 2: TFT PROTO additional board connection schematic

TOUCHPANEL DRIVER	
X+	RIGHT SIDE
Y+	DOWN SIDE
X-	LEFT SIDE
Y-	UP SIDE

Table 2

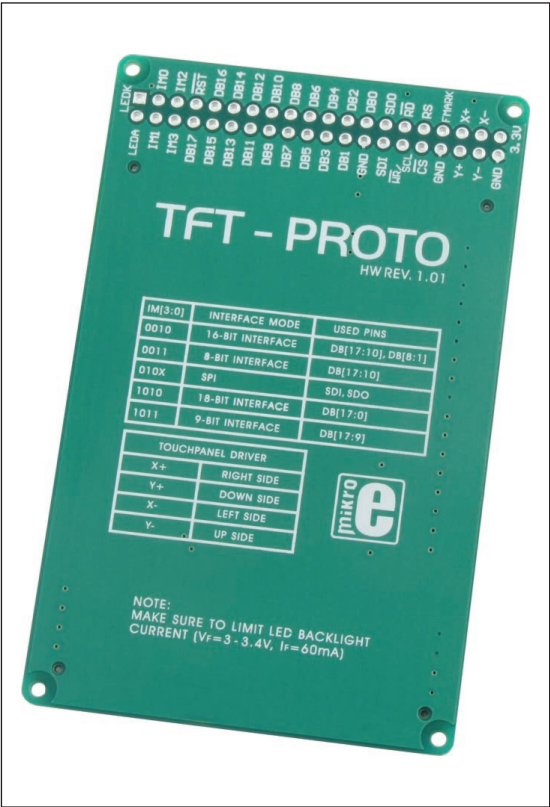
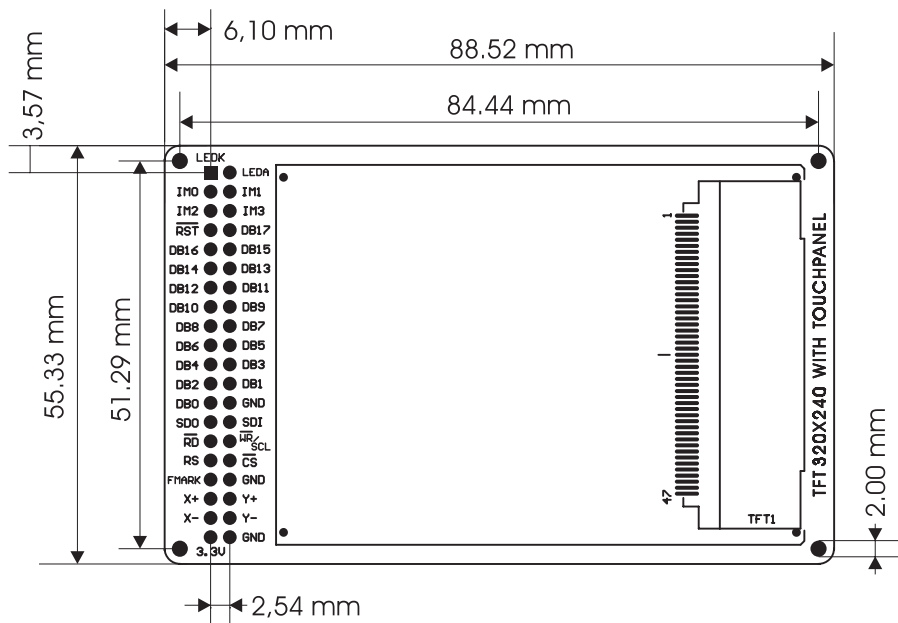


Figure 3: Back side of the TFT PROTO additional board



**Figure 4:** Dimensions of the TFT PROTO additional board





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