

IPS Display Click



PID: MIKROE-6077

IPS Display Click is a compact add-on board that displays high-resolution graphics in embedded applications. This board features the ER-TFT1.14-2, a 1.14" TFT LCD display from BuyDisplay, part of EastRising Technology, and utilizes the ST7789V controller for 262K color output. The display offers a 135x240 pixel resolution, operates through a 3-wire SPI interface, and includes additional control lines such as RST and RS for precise display management. Its small form factor and high-resolution output make it suitable for various projects, including handheld devices, smart displays, and panels requiring clear visual output.

How does it work?

IPS Display Click is based on the ER-TFT1.14-2, a 1.14" TFT LCD display without a touch panel from EastRising Technology. Designed for high-resolution visual output, this display offers a crisp 135x240 pixel resolution, ideal for applications requiring clear and vibrant graphics. It connects through an 8-pin FPC connector with a 0.5mm pitch, ensuring stable communication with the host system. This board is suitable for projects requiring a compact, high-resolution screen, such as handheld devices, smart displays, or informational panels.

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Though the display is not sunlight-readable, its compact design integrates it into various indoor applications. With a diagonal size of 1.14 inches, it boasts a compact form factor, featuring an outline dimension of 17.60mm (W) by 31.00mm (H) with the FPC folded and a thickness of just 1.6mm. The visual area of 16.06mm by 26.11mm ensures an optimal display experience, while the active area of 14.86mm (W) by 24.91mm (H) provides high precision in rendering content. The dot pitch of 0.135mm by 0.135mm guarantees fine detail in the display's output.

The ER-TFT1.14-2 is driven by the ST7789V controller, a highly integrated single-chip controller and driver specifically designed for 262K-color graphic TFT-LCDs, offering vibrant color depth and smooth graphical performance. This board operates through a 3-wire serial SPI interface, ensuring smooth communication between the display and the host MCU. Beyond the SPI interface pins, the display also uses additional control lines for enhanced functionality.

The RST pin plays a crucial role in ensuring reliable operation by allowing the display to be reset, which is essential for recovering from errors and initializing the display during power cycles. Additionally, the RS pin serves as a display data/command selection pin, crucial for distinguishing between data and command instructions sent via the SPI interface. This enables precise control over the display's functionality, ensuring that graphical content and operational commands are processed correctly.

This Click board™ can be operated only with a 3.3V logic voltage level. The board must perform appropriate logic voltage level conversion before using MCUs with different logic levels. Also, it comes equipped with a library containing functions and an example code that can be used as a reference for further development.

Specifications

Type	Displays, TFT
Applications	Ideal for handheld devices, smart displays, and panels requiring clear visual output
On-board modules	ER-TFT1.14-2 - 1.14" TFT LCD display without touch panel from EastRising Technology
Key Features	1.14" TFT LCD display, 135x240 pixel resolution, SPI interface, compact dimensions, wide visual area, additional control lines for enhanced functionality, and more

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Interface	SPI
Feature	ClickID
Compatibility	mikroBUS™
Click board size	L (57.15 x 25.4 mm)
Input Voltage	3.3V

Pinout diagram

This table shows how the pinout on IPS Display Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin					Pin	Notes
	NC	1	AN	PWM	16	NC	
Reset / ID SEL	RST	2	RST	INT	15	RS	Display Data / Command Selection
SPI Select / ID COMM	CS	3	CS	RX	14	NC	
SPI Clock	SCK	4	SCK	TX	13	NC	
	NC	5	MISO	SCL	12	NC	
SPI Data IN	SDI	6	MOSI	SDA	11	NC	
Power Supply	3.3V	7	3.3V	5V	10	NC	
Ground	GND	8	GND	GND	9	GND	Ground

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator

IPS Display Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
Display Format	135 x 240			px
Display Size	1.14			in
Display Active Area (WxH)	14.86 x 24.91			mm
Display Brightness	-	400	-	cd/m ²

Software Support

We provide a library for the IPS Display Click as well as a demo application (example), developed using MIKROE [compilers](#). The demo can run on all the main MIKROE [development boards](#).

Package can be downloaded/installed directly from NECTO Studio Package Manager (recommended), downloaded from our [LibStock™](#) or found on [MIKROE github account](#).

Library Description

This library contains API for IPS Display Click driver.

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Key functions

- `ipsdisplay_fill_screen` This function fills the screen with the selected color.
- `ipsdisplay_write_string` This function writes a text string starting from the selected position in a 6x12 font size with a specified color.
- `ipsdisplay_draw_line` This function draws a line with a specified color.

Example Description

This example demonstrates the use of the IPS Display Click by showing a practical example of using the implemented functions.

The full application code, and ready to use projects can be installed directly from NECTO Studio Package Manager (recommended), downloaded from our [LibStock™](#) or found on [MIKROE github account](#).

Other MIKROE Libraries used in the example:

- MikroSDK.Board
- MikroSDK.Log
- Click.IPSDisplay

Additional notes and informations

Depending on the development board you are using, you may need [USB UART click](#), [USB UART 2 Click](#) or [RS232 Click](#) to connect to your PC, for development systems with no UART to USB interface available on the board. UART terminal is available in all MIKROE [compilers](#).

mikroSDK

This Click board™ is supported with [mikroSDK](#) - MIKROE Software Development Kit. To ensure proper operation of mikroSDK compliant Click board™ demo applications, mikroSDK should be downloaded from the [LibStock](#) and installed for the compiler you are using.

For more information about mikroSDK, visit the [official page](#).

Resources

[mikroBUS™](#)

[mikroSDK](#)

[Click board™ Catalog](#)

[Click boards™](#)

[ClickID](#)

Downloads

[IPS Display click example on Libstock](#)

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[IPS Display click 2D and 3D files v100](#)

[IPS Display click schematic v100](#)

[ER-TFT1.14-2 datasheet](#)

[ST7789V datasheet](#)

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