

Barcode 3 Click



PID: MIKROE-6130

Barcode 3 Click is a compact add-on board for efficient barcode scanning applications. This board features the LV30, an advanced area image engine from Rakinda. The LV30 features a laser aiming system and LED illumination, ensuring quick and accurate barcode decoding on various media, including paper and magnetic cards. This module also includes a red LED for low-light conditions, a laser aimer for precise positioning, an onboard buzzer for audible feedback, buttons for scanning and resetting, and an LED indicator for successful reads. Barcode 3 Click is ideal for developing handheld, portable, or stationary barcode scanners, making it an excellent choice for upgrading from 1D to 2D barcode scanning solutions.

How does it work?

Barcode 3 Click is based on the LV30, an area image engine from Rakinda designed for efficient barcode scanning. This component features a laser aiming system and an LED illumination system, meeting the safety standards of IEC 62471:2006 for LEDs and IEC 60825:2014 for lasers. The LV30 incorporates a CMOS image sensor and a sophisticated image recognition system-on-chip, enabling quick and accurate decoding of barcodes on various media, including paper and magnetic cards. This versatile engine can be easily integrated into OEM equipment such as handheld, portable, or stationary barcode scanners, making it an excellent choice for upgrading from 1D to 2D barcode scanning solutions.

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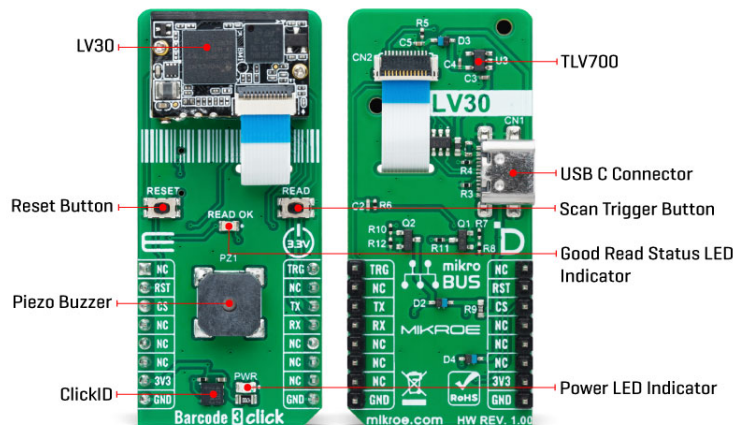
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The LV30 is equipped with a red LED (wavelength: $625 \pm 10 \text{nm}$) for additional lighting, allowing for barcode scanning even in complete darkness, with the option to turn the illumination ON or OFF. It also includes a laser aimer to help users accurately position the barcode within the scanning area, enhancing efficiency. The aiming pattern can be toggled ON or OFF, with the recommendation to keep it on during scanning for better accuracy.

When using the Barcode 3 Click for scanning through a specific surface, it is crucial to ensure proper protection against dust and other contaminants that could degrade the performance of the LV30 module. The surface through which scanning occurs must be made of clear material; it is recommended to use cell-cast plastics or optical glass such as PMMA, ADC, or chemically tempered glass. While the LV30 performs well under ambient light, exposure to high-frequency pulsed light can negatively impact its performance. The illumination LED in the LV30 is bright but designed to be safe under normal usage conditions. Nevertheless, users should avoid direct eye exposure to the beam.

The LV30's physical interface includes a 12-pin FPC connector, which allows the Barcode 3 Click to connect to the host MCU using a 12-wire 0.5mm pitch FPC cable. This setup supports communication via the UART interface (the TX and RX pins of the mikroBUS™ socket) or the USB interface. Since the LV30 operates at 3.3V, while using the USB interface, the necessary power supply is provided through an additional low-dropout (LDO) regulator, the [TLV700](#), which converts the USB voltage level to the required 3.3V for the LV30.

The Barcode 3 Click also features several additional components to enhance its functionality. An onboard buzzer provides audible feedback to the user, indicating power-on and successful read statuses. A blue READ OK LED indicator signals a successful barcode read. The READ button, when pressed and released, activates scanning until a barcode is decoded or the decode session timeout expires. This function can also be achieved through the TRG pin on the mikroBUS™ socket. Additionally, the board includes a RESET button for resetting the LV30, which can also be operated via the RST pin on the mikroBUS™ socket.

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

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Type	Miscellaneous
Applications	Ideal for developing handheld, portable, or stationary barcode scanners
On-board modules	LV30 - area image engine for barcode scanning from Rakinda
Key Features	Efficient barcode scanning with its laser aiming system and LED illumination, quick and accurate decoding of barcodes on various media, including paper and magnetic cards, laser aimer for precise positioning, onboard buzzer for audible feedback, buttons for scanning and resetting, blue LED indicator for successful reads, multiple interface options, and more
Interface	UART,USB
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 Barcode 3 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikroBUS				Pin	Notes
	NC	1	AN	PWM	16	TRG	Scan Trigger
Reset	RST	2	RST	INT	15	NC	
ID COMM	CS	3	CS	RX	14	TX	UART TX
	NC	4	SCK	TX	13	RX	UART RX
	NC	5	MISO	SCL	12	NC	
	NC	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
LD2	READ OK	-	Good Read Status LED Indicator
T1	RESET	-	Reset Button
T2	READ	-	Scan Trigger Button
PZ1	PZ1	-	Piezo Buzzer

Barcode 3 Click electrical specifications

Description	Min	Typ	Max	Unit
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Supply Voltage	-	3.3	-	V
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Software Support

We provide a library for the Barcode 3 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 Barcode 3 Click driver.

Key functions

- `barcode3_generic_read` This function reads a desired number of data bytes by using UART serial interface.
- `barcode3_start_scanning` This function starts the barcode scanning by setting the TRG pin to low logic state.
- `barcode3_stop_scanning` This function stops the barcode scanning by setting the TRG pin to high logic state.

Example Description

This example demonstrates the use of the Barcode 3 Click board™ by scanning and displaying the content of a barcode or QR Code.

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.Barcode3

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

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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

[TLV700 datasheet](#)

[Barcode 3 click example on Libstock](#)

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

[Barcode 3 click schematic v100](#)

[LV30 datasheet](#)

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