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WiFi NORA Click

PID: MIKROE-6217

WiFi NORA Click is a compact add-on board that provides WiFi and BLE connectivity for professional-grade applications. This board features the NORA-W366-00B6-00B, a dual-band WiFi module with Bluetooth Low Energy (BLE) from u-blox, offering support for WiFi 4 (802.11a/b/g/n) in both 2.4 and 5GHz bands and Bluetooth v5.3 with peripheral and central roles. It features a UART interface for easy integration with the host MCU, high-level AT command configuration, and robust security protocols, including WPA2/WPA3 and TLS encryption. The board also includes a user-configurable RGB LED indicator and buttons for bootloader and application mode selection. This Click board™ is ideal for applications in industrial automation, smart buildings, smart cities, healthcare, and EV charging, where reliable and versatile wireless communication is essential.

How does it work?

WiFi NORA Click is based on the NORA-W366-00B6-00B, a dual-band WiFi and Bluetooth Low Energy (BLE) module from u-blox, based on a Realtek RTL8720DF chip designed to enhance wireless connectivity in professional-grade applications. This module supports WiFi 4 (802.11a/b/g/n) in both 2.4 and 5GHz bands, enabling it to function as either a WiFi station or an access point. Additionally, it offers Bluetooth v5.3 capabilities, allowing it to operate as a peripheral, central, or both, with the flexibility to act as a GATT client or server. Designed for a wide range of applications, WiFi NORA Click is ideal for industrial automation, smart buildings and homes, smart cities, metering and utilities, healthcare, and EV charging. The module comes globally certified and equipped with an internal PCB antenna that delivers high performance and an extensive range.

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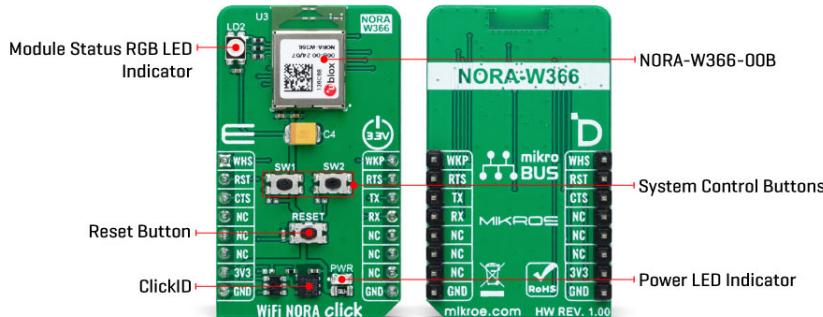
Pre-flashed with u-connectXpress software, the NORA-W366-00B module simplifies end-product integration and accelerates time-to-market. It includes a TCP/IP stack for both point-to-point and point-to-multipoint use cases and ensures secure communication with cloud-based services through support for TLS encryption and MQTT protocols. The module also offers robust security features, including WPA2/WPA3, WiFi enterprise security, and Bluetooth LE secure connections.

This Click board™ establishes communication between the NORA-W366-00B6-00B module and the host MCU through a UART interface, using standard UART RX and TX pins along with hardware flow control pins (CTS/RTS). The default communication speed is set at 115200bps, ensuring efficient data exchange. The host MCU configures wireless communication and various other features using high-level AT commands, eliminating the need for in-depth expertise in WiFi and Bluetooth protocol stacks. Besides interface pins, the module also uses some other mikroBUS™ pins like the WKP pin, which serves as an output for the host MCU wake-up function, and the WHS pin, which is used as the module wake-up signal to bring the module out of deep sleep mode. The board also features an RST pin and a RESET button, providing functionality for resetting the module.

WiFi NORA Click features two buttons, SW1 and SW2, to enter bootloader mode. When both buttons are pressed simultaneously, the module enters bootloader mode. If this state is maintained for more than 10 seconds without sending commands to the bootloader via UART, the u-connectXpress application will automatically boot, and the module settings will be restored to factory default values. Pressing only the SW1 button triggers the booting of the u-connectXpress application. Additionally, the Click board™ includes one user-configurable RGB LED indicator labeled LD2, which is used to indicate various module statuses.

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	WiFi
Applications	Ideal for industrial automation, smart buildings, smart cities, healthcare, and EV charging

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On-board modules	NORA-W366-00B6-00B - WiFi module with Bluetooth Low Energy (BLE) from u-blox
Key Features	Dual-band WiFi support, v5.3 BLE, UART interface with AT commands, pre-flashed software, user-configurable module status LED indicator, buttons for bootloader and application mode, wake-up signals for additional system control, reset, and more
Interface	UART
Feature	ClickID
Compatibility	mikroBUS™
Click board size	M (42.9 x 25.4 mm)
Input Voltage	3.3V

Pinout diagram

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

Notes	Pin					Pin	Notes
Host Wake-Up	**WHS**	1	AN	PWM	16	**WKP**	Module Wake-Up
Reset / ID SEL	**RST**	2	RST	INT	15	**RTS**	UART RTS
UART CTS / ID COMM	**CTS**	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	LD2	-	Module Status RGB LED Indicator
T1	RESET	-	Reset Button
SW1-SW2	SW1-SW2	-	Bootloader/Application Mode Button

WiFi NORA Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
WiFi Operating Range		2.4 / 5		GHz
WiFi Range	-	-	500	m
WiFi Sensitivity	-	-98	-	dBm
WiFi Output Power	-	-	+20	dBm

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Bluetooth Sensitivity	-	-101	-	dBm
Bluetooth Output Power	-	-	+8	dBm

Software Support

We provide a library for the WiFi NORA 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 WiFi NORA Click driver.

Key functions

- wifinora_hw_reset This function is used to perform HW reset.

- wifinora_send_cmd This function is used to send a desired command.

- wifinora_send_cmd_with_par This function sends a desired command with the parameter.

Example Description

This example demonstrates the use of WiFi NORA Click by processing the incoming data and displaying them on the USB UART.

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.WiFiNORA

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.

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

Resources

[mikroBUS™](#)

[mikroSDK](#)

[Click board™ Catalog](#)

[Click boards™](#)

[ClickID](#)

Downloads

[WiFi NORA click example on Libstock](#)

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

[NORA-W366 datasheet](#)

[WiFi NORA click schematic v100](#)

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