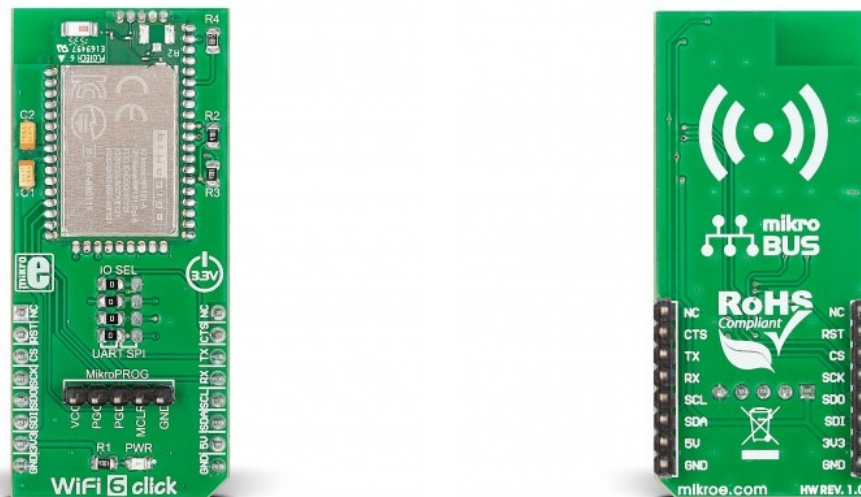


WiFi 6 Click



PID: MIKROE-2043

WiFi 6 Click is a compact add-on board that offers ultra-low power wireless connectivity for any application. This board features the [WF121-A](#), a self-contained WiFi module with an integrated antenna providing a fully integrated 2.4GHz 802.11b/g/n radio from Bluegiga. The 32-bit microcontroller under the hood makes an ideal product for embedded applications requiring simple, low-cost, and low-power wireless TCP/IP connectivity. The WF121-A also acts as a modem using the BGAPI host protocol. The WF121-A has excellent radio performance, with TX power of +17dB and RX sensitivity of -97dB. This Click board™ makes the perfect solution for PoS terminals, RFID and laser scanners, WiFi internet radios and audio streaming products, wireless cameras, video streaming, portable devices, and more.

WiFi 6 Click is supported by a [mikroSDK](#) compliant library, which includes functions that simplify software development. This [Click board™](#) comes as a fully tested product, ready to be used on a system equipped with the [mikroBUS™](#) socket.

How does it work?

WiFi 6 Click is based on the WF121-A, a self-contained WiFi module providing a fully integrated 2.4GHz 802.11b/g/n radio from Bluegiga. It features the PIC32MX695H, a 32-bit 80MHz microcontroller from Microchip. This microcontroller comes with 128KB of RAM and 512KB of FLASH memory, suitable for developing low-cost and smaller-sized products. For connecting to the local wireless network, the WF121-A uses an onboard chip antenna, although the module features an unpopulated u.F.I connector for an external one if the application needs it. In WiFi client mode, the WF121-A radio core automatically powers on the RF circuitry only when required. The WiFi core processor supports automatic Sleep mode when not communicating actively, allowing low idle consumption. When used as an access point, the radio core must

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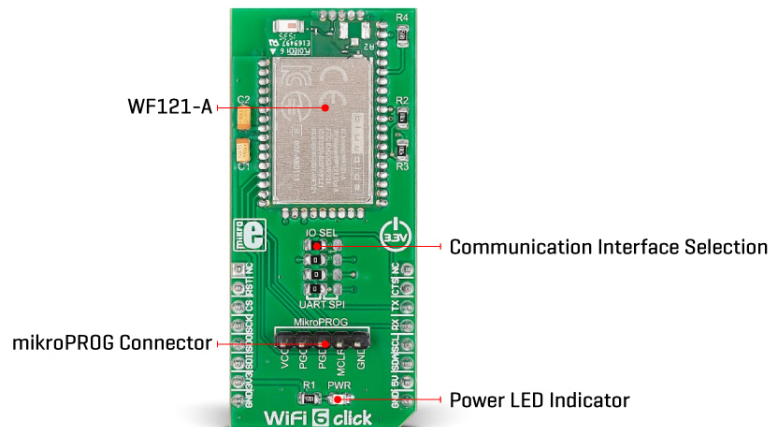


ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.



ISO 9001: 2015 certification of quality management system (QMS).

receive constantly and cannot enter Sleep mode.



The WiFi 6 Click communicates with the host MCU over the mikroBUS™ socket using one of the available interfaces, the UART, SPI, or I2C interface, with additional functionality provided by the UART CTS pin. To use the SPI serial interface and its maximum 40Mbps data rate, the four IO SEL jumpers must be set from UART to SPI (the UART interface with its 20Mbps is selected by default). The I2C interface with 100KHz and 400KHz speeds does not depend on the position of these jumpers. The integrated firmware of the internal PIC32 provides WiFi and networking stack services TCP/IP, UDP, DHCP, and DNS and can be updated over a populated mikroProg connector.

This Click board™ can only be operated with a 3.3V logic voltage level. The board must perform appropriate logic voltage level conversion before using MCUs with different logic levels. However, the Click board™ 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	Can be used for PoS terminals, RFID and laser scanners, WiFi internet radios and audio streaming products, wireless cameras, video streaming, portable devices, and more
On-board modules	WF121-A - self-contained WiFi module from Bluegiga
Key Features	Fully integrated 2.4GHz 802.11b/g/n radio, onboard PIC32MX695H for application development, onboard chip antenna and u.F.I connector in addition, fully integrated 2.4MHz radio with TCP/IP, UDP, DHCP, and DNS, high performance, selectable interface, and more
Interface	I2C,SPI,UART
Feature	No ClickID
Compatibility	mikroBUS™
Click board size	L (57.15 x 25.4 mm)

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Input Voltage	3.3V
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Pinout diagram

This table shows how the pinout on WiFi 6 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	
	NC	2	RST	INT	15	CTS	UART CTS
SPI Chip Select	CS	3	CS	RX	14	TX	UART TX
SPI Clock	SCK	4	SCK	TX	13	RX	UART RX
SPI Data OUT	SDO	5	MISO	SCL	12	SCL	I2C Clock
SPI Data IN	SDI	6	MOSI	SDA	11	SDA	I2C Data
Power Supply	3.3V	7	3.3V	5V	10	5V	Power Supply
Ground	GND	8	GND	GND	9	GND	Ground

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
JP1-JP4	IO SEL	Left	Communication Interface Selection UART/SPI: Left position UART, Right position SPI
-	MikroPROG	Populated	MikroPROG Header

WiFi 6 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
Frequency Range	-	2.4	-	GHz
Transmit Power	-	+17	-	dB
Receiver Sensitivity	-	-97	-	dB
Data Rate	-	-	72.2	Mbps

Resources

[mikroBUS™](#)

[Click board™ Catalog](#)

[Click Boards™](#)

Downloads

[WiFi 6 click example on Libstock](#)

[WF121-A datasheet](#)

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Time-saving embedded tools

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[WiFi 6 click schematic](#)

[WiFi Click boards™ guide](#)

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