

ST67W Click



PID: MIKROE-6921

ST67W Click is a compact add-on board designed for adding low-power WiFi 6 and Bluetooth® LE connectivity to embedded applications. This board is based on the [ST67W611M1](#), a low-power WiFi 6 and Bluetooth® LE combo coprocessor module from [STMicroelectronics](#). Key features include IEEE 802.11b/g/n/ax Wi-Fi 6 support, Bluetooth® LE 5.4, STA, SoftAP, and concurrent STA + SoftAP operation, up to 17Mbps TCP throughput, integrated RF matching network with antenna filter, onboard 40MHz crystal, SPI and UART interfaces. It also supports secure boot, OTA updates, and PSA Level 1 certified security. ST67W Click is suitable for IoT devices, smart home systems, industrial IoT nodes, wireless sensor networks, gateways, remote monitoring equipment, connected appliances, and secure OTA-enabled embedded products.

For more information about **ST67W Click** visit the official [product page](#).

How does it work?

ST67W Click is based on the ST67W611M1, a low-power WiFi 6 and Bluetooth® LE combo coprocessor module from STMicroelectronics. Powered by the Qualcomm 2.4GHz Wi-Fi 6 and Bluetooth 5.4 QCC743 microcontroller, this module provides a complete wireless coprocessor solution with integrated processing capabilities, Wi-Fi and Bluetooth combo connectivity, onboard memory, and all required RF components for reliable wireless operation. The ST67W611M1 module integrates an all-in-one Wi-Fi, Bluetooth® LE, and 802.15.4 wireless microcontroller, a 40MHz crystal, and the RF transmission and reception matching network, including the antenna filter, simplifying wireless integration into embedded systems. It is suitable for applications such as Wi-Fi 6 and Bluetooth LE enabled IoT devices, smart home systems, industrial IoT nodes, wireless sensor networks, gateway and bridge devices, remote

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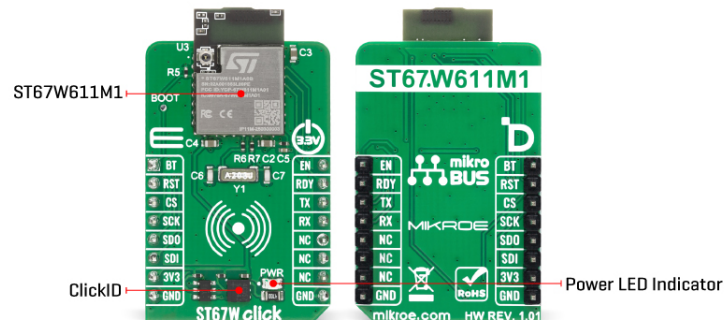


ISO 27001: 2013 certification of informational security management system.
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ISO 9001: 2015 certification of quality management system (QMS).

monitoring equipment, connected appliances, asset tracking systems, building automation, low-power embedded connectivity, secure OTA-enabled devices, and embedded products requiring 2.4GHz wireless communication.



ST67W Click supports IEEE 802.11b/g/n/ax standards and Bluetooth® LE 5.4, making it suitable for modern low-power connected applications. Its Wi-Fi interface operates in the 2.4GHz band with Wi-Fi 6 support, 20/40MHz bandwidth, and 1T1R operation, supporting STA, SoftAP, and concurrent STA + SoftAP modes. The module delivers up to 21dBm maximum transmit power, 16dBm transmit power in HE40 and MCS9 mode, -67dBm receive sensitivity in HE40 and MCS9 mode, and application throughput of up to 17Mbps over TCP. Advanced Wi-Fi features include LDPC, STBC, beamforming, DL/UL OFDMA, MU-MIMO, spatial reuse, dual carrier modulation, extended range, A-MPDU, A-MSDU, immediate block ACK, fragmentation, and defragmentation.

For Bluetooth® LE operation, ST67W Click supports Bluetooth® LE 5.4 with up to +10dBm transmit power in both 1Mbps and 2Mbps modes, along with receive sensitivity of -99dBm at 1Mbps and -96.5dBm at 2Mbps, allowing short-range wireless communication for low-power devices, sensor nodes, configuration interfaces, and mobile connectivity. The module also includes security features suitable for connected embedded systems, including PSA Level 1 certification, a security system encryption engine, secure boot, and secure OTA support, helping protect firmware integrity and enable secure remote updates.

Communication with the host MCU is available through SPI and UART interfaces, while additional mikroBUS™ control lines are used for module management and status monitoring. The EN pin is used for module enable control, the RDY pin acts as an SPI data ready indicator, and the BT pin is used for boot selection, with the boot signal also available through the BOOT test point for easier development and debugging.

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. It also comes equipped with a library containing functions and example code that can be used as a reference for further development.

Specifications

Type	WiFi+BLE
Applications	Ideal for IoT devices, smart home systems, industrial IoT nodes, wireless sensor networks,

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	gateways, remote monitoring equipment, connected appliances, and secure OTA-enabled embedded products
On-board modules	ST67W611M1 - low-power WiFi 6 and Bluetooth® LE combo coprocessor module from STMicroelectronics
Key Features	Qualcomm 2.4GHz Wi-Fi 6 and Bluetooth 5.4 QCC743 microcontroller, IEEE 802.11b/g/n/ax support, Bluetooth® LE 5.4 support, 2.4GHz Wi-Fi 6 RF transceiver, 20/40MHz Wi-Fi bandwidth, 1T1R operation, STA, SoftAP, and concurrent STA + SoftAP modes, up to 21dBm Wi-Fi transmit power, up to 17Mbps TCP application throughput, LDPC, STBC, beamforming, DL/UL OFDMA, MU-MIMO, spatial reuse, dual carrier modulation, extended range, A-MPDU and A-MSDU support, and more
Interface	SPI,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 ST67W Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikroBUS				Pin	Notes
Boot	BT	1	AN	PWM	16	EN	Device Enable
ID SEL	RST	2	RST	INT	15	RDY	Data-Ready Indicator
SPI Select / ID COMM	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	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

ST67W Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
Frequency Band	-	2.4	-	GHz

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WiFi Bandwidth	20	-	40	MHz
WiFi TX Power	-	-	21	dBm
WiFi RX Sensitivity	-	-67	-	dBm
BLE TX Power	-	-	+10	dBm
BLE RX Sensitivity @ 1Mbps	-	-99	-	dBm

Software Support

[ST67W Click](#) demo application is developed using the [NECTO Studio](#), ensuring compatibility with [mikroSDK](#)'s open-source libraries and tools. Designed for plug-and-play implementation and testing, the demo is fully compatible with all development, starter, and mikromedia boards featuring a [mikroBUS™](#) socket.

Example Description

Application example shows device capability of connecting to a WiFi network and sending TCP/UDP messages to an echo server, or processing data from a connected BLE device.

Key Functions

- `st67w_cfg_setup` This function initializes Click configuration structure to initial values.
- `st67w_init` This function initializes all necessary pins and peripherals used for this Click board.
- `st67w_cmd_run` This function sends a specified command to the Click module.
- `st67w_cmd_set` This function sets a value to a specified command of the Click module.
- `st67w_cmd_get` This function is used to get the value of a given command from the Click module.
- `st67w_generic_read` This function reads a desired number of data bytes by using SPI serial interface.

Application Init

Initializes the driver and logger.

Application Task

Application task is split in few stages:

- `ST67W_POWER_UP`:
Powers up the device, performs a factory reset and reads system information.
- `ST67W_CONFIG_CONNECTION`:
Configures connection to WiFi or BLE depending on the selected example.
- `ST67W_EXAMPLE`:
Depending on the selected demo example, it sends a TCP/UDP message to an echo server over a WiFi network or processes all data from a connected BLE device and sends back an adequate response message.

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By default, the WiFi TCP/UDP example is selected.

Application Output

This Click board can be interfaced and monitored in two ways:

- Application Output - Use the "Application Output" window in Debug mode for real-time data monitoring. Set it up properly by following [this tutorial](#).
- UART Terminal - Monitor data via the UART Terminal using a [USB to UART converter](#). For detailed instructions, check out [this tutorial](#).

Additional Notes and Information

The complete application code and a ready-to-use project are available through the NECTO Studio Package Manager for direct installation in the [NECTO Studio](#). The application code can also be found on the MIKROE [GitHub](#) account.

Resources

[mikroBUS™](#)

[mikroSDK](#)

[Click board™ Catalog](#)

[Click boards™](#)

[ClickID](#)

Downloads

[ST67W click example package](#)

[ST67W click 2D and 3D files v101](#)

[ST67W click schematic v101](#)

[ST67W611M1 datasheet](#)

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