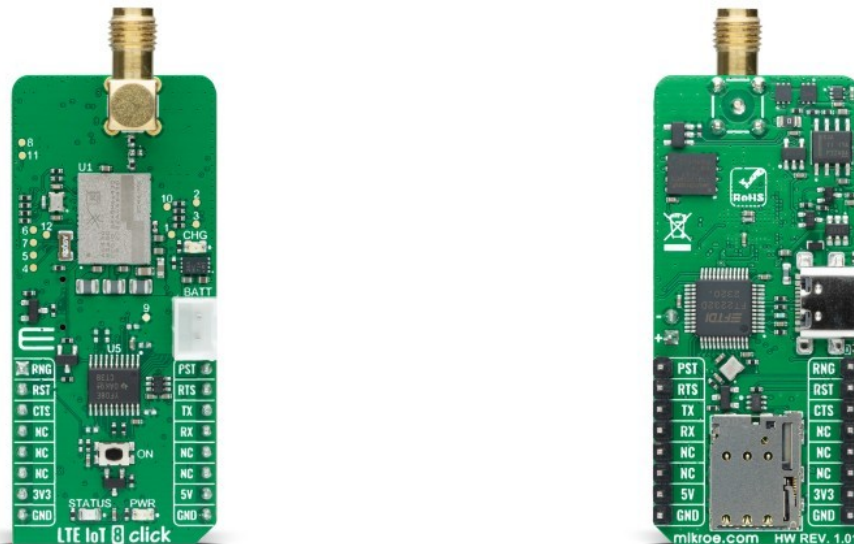


LTE IoT 8 Click



PID: MIKROE-4493

LTE IoT 8 Click is a compact add-on board that contains a low-power solution for LTE and NB-IoT connectivity. This board features the [SKY66430-11](#), a multi-band multi-chip System-in-Package (SiP) supporting 5G Massive IoT (LTE-M/NB-IoT) platforms from [Skyworks Solutions and Sequans Communications](#). The SiP integrates the entire RF front end, transceiver, power management, memory, and baseband modem for an LTE multi-band radio operating in the 698 to 2200MHz frequency range. According to Skyworks, the SKY66430-11 is a fully pre-certified, all-in-one SiP that supports a range of low power, low data rate consumer and industrial IoT applications, including asset tracking, industrial monitoring, smart metering, and wearables.

LTE IoT 8 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?

LTE IoT 8 Click as its foundation uses the SKY66430-11, 5G Ready IoT SiP, compact low-power solution for LTE-M and NB-IoT connectivity in wearables, asset tracking, industrial monitoring, and smart metering from Skyworks Solutions and Sequans Communications. The SiP integrates the RF front-end, transceiver, baseband modem, memory, and power management and provides 18 bands from 698 to 2200MHz. It is pre-certified with major network operators, regulatory agencies, and standards organizations for fast global deployment. The device offers up to 300kbps download and 375kbps upload, and it supports Positioning over LTE.

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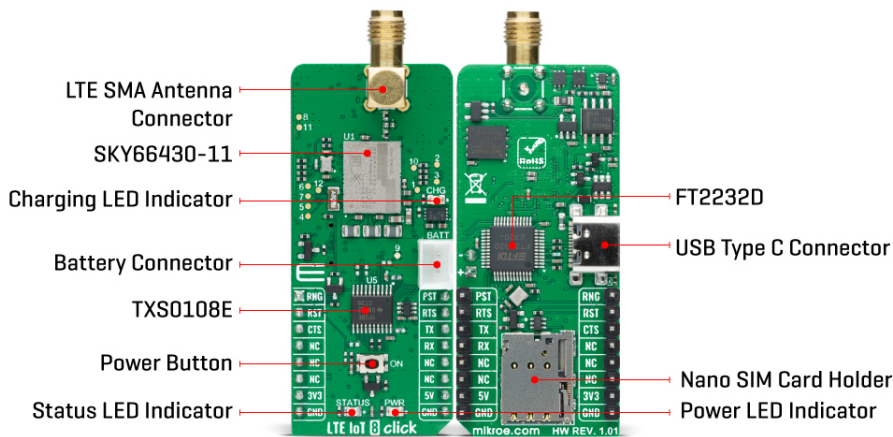
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It also has the best-in-class “Deep Sleep” power consumption of 1uA, representing a significant benefit for battery-powered IoT devices. Besides, it features a 100% software-based low power secure positioning solution that works anywhere (enables location deep indoors where GPS doesn’t work).

The SKY66430-11 communicates with MCU using the UART interface with commonly used UART RX and TX pins with the hardware flow control pins UART CTS, RTS, RI (Clear to Send, Ready to Send, and Ring Indicator). It operates at 115200 bps by default configuration to transmit and exchange data with the host MCU. It is also equipped with a USB type C connector, which allows the module to be powered and configured by a personal computer (PC) using [FT2232D](#), a compact USB to a serial UART interface device designed to operate efficiently with USB host controllers.

This Click board™ can be battery-powered and used as a stand-alone device. It also contains the [MC34671](#), a fully-integrated Li-Ion or Li-Polymer battery charger allowing a battery charge when Click board™ is inserted in mikroBUS™ socket or plugged into a USB port with the CHG LED indicator used as an indicator of the charging progress. CHG LED will turn off once the battery charging is finished.

Also, this Click board™ has an additional yellow LED labeled as STAT that indicates different operating modes of the module, while the PWM pin on the mikroBUS™ socket is used as Power Saving Status indicator. This indicator is set to a high logic state when the modem is in an active state or low logic state when the modem is in low power mode. An onboard pushbutton labeled ON is routed to the RST pin on the mikroBUS™, representing the Ignition button.

LTE IoT 8 Click has the SMA antenna connector with an impedance of 50Ω used for connecting the appropriate antenna that MikroE has in its [offer](#). Besides the LTE SMA connector, this Click board™ also has a Nano-SIM card slot that provides multiple connections and interface options.

This Click board™ can operate with both 3.3V and 5V MCUs. A proper logic voltage level conversion is performed by appropriate voltage level translator [TXS0108E](#), while the on-board LDOs ensure that the recommended voltage levels power module. However, the Click board™ comes equipped with a library containing easy-to-use functions and an example code that can be used, as a reference, for further development.

For all additional support questions, the customers can submit a ticket to the official [Sequans Support Cloud Portal page](#).

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Specifications

Type	5G IoT, LTE IoT
Applications	Can be used in wearables, asset tracking, industrial monitoring, and smart metering.
On-board modules	SKY66430-11 - multi-band multi-chip System-in-Package (SiP) supporting 5G Massive IoT (LTE-M/NB-IoT) platforms from Skyworks Solutions
Key Features	Low power consumption, complete RF solution, supports 5G Massive IoT (LTE-M/NB-IoT) platforms, fully pre-certified, supports a range of low power, low data rate consumer and industrial IoT applications, and more.
Interface	UART
ClickID	No
Compatibility	mikroBUS™
Click board size	L (57.15 x 25.4 mm)
Input Voltage	3.3V or 5V

Pinout diagram

This table shows how the pinout on LTE IoT 8 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikroBUS				Pin	Notes
UART Ring Indicator	RNG	1	AN	PWM	16	PST	Power-Saving Status
Ignition	RST	2	RST	INT	15	RTS	UART Ready to Send
UART Clear to Send	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	5V	Power Supply
Ground	GND	8	GND	GND	9	GND	Ground

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
LD2	CHG	-	Charging LED Indicator
LD3	STATUS	-	Status LED Indicator
SW1	ON	-	Module Power-On Button

LTE IoT 8 Click electrical specifications

Description	Min	Typ	Max	Unit
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Supply Voltage	3.3	-	5	V
Operating Frequency Range	698	-	2200	MHz
Datarate Download Link	-	-	300	kbps
Datarate Uplink	-	-	375	kbps
Operating Temperature Range	-40	+25	+85	°C

Software Support

We provide a library for the LTE IoT 8 Click as well as a demo application (example), developed using MikroElektronika [compilers](#). The demo can run on all the main MikroElektronika [development boards](#).

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

Library Description

This library contains API for LTE IoT 8 Click driver.

Key functions:

- lteiot8_cfg_setup - Config Object Initialization function.
- lteiot8_init - Initialization function.
- lteiot8_default_cfg - Click Default Configuration function.

Examples description

The demo application is composed of two sections :

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

Other mikroE Libraries used in the example:

- MikroSDK.Board
- MikroSDK.Log
- Click.LTEIoT8

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. The terminal available in all MikroElektronika [compilers](#), or any other terminal application of your choice, can be used to read the message.

mikroSDK

This Click board™ is supported with [mikroSDK](#) - MikroElektronika 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™](#)

Downloads

[MC34671 datasheet](#)

[TXS0108E datasheet](#)

[FT2232D datasheet](#)

[LTE IoT 8 click 2D and 3D files](#)

[LTE IoT 8 click schematic](#)

[SKY66430-11 datasheet](#)

[LTE IoT 8 click example on Libstock](#)

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