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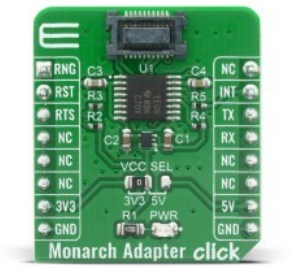
Monarch Adapter Click



PID: MIKROE-4057

The **Monarch Adapter Click** is used to connect a compatible Monarch Go LTE-M modems from Sequans to your development board or prototype device. This Click adapter provide connection to cloud server with AT commands. The Monarch Go LTE-M modem component with embedded antenna is perfectly suited for a broad range of IoT applications, including telemetry, vending machines, agriculture sensor applications, asset and transportation trackers, hardware tools, and home security monitoring applications.

Monarch Adapter 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.

Monarch GO and Monarch GO-GPS are certified for use on the Verizon network (LTE band 13) with roadmap for global band support. Monarch module is not delivered as part of the Click board package. For more information about module features please read Monarch GO module specification.

How does it work?

The Monarch Adapter Click is intended to help customers to successfully integrate and test their application based on Monarch Go. This Click adapter communication with your device through a serial UART interface and can exchange data with a cloud server using Verizon LTE network. The UART and GPIO pins of Monarch Go LTE-M modem is connected to one side of the

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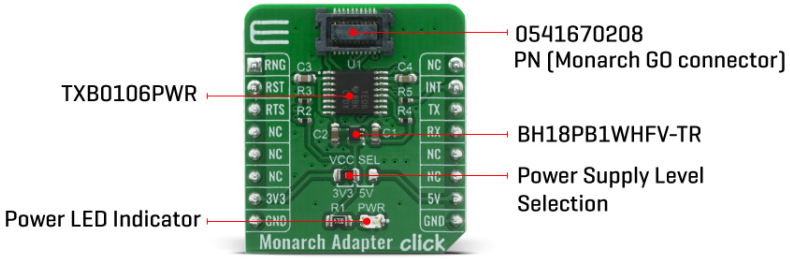
level shifter, while the other side (Shifted) is connected to the respective mikroBUS™ UART and GPIO pins. However, the Monarch Go LTE-M modem series module is designed as the traditional DCE device (Data Communication Equipment) offering the full UART pin count, including the hardware flow control pins (CTS, RTS). These pins are routed to the mikroBUS™ CS (RTS) and the INT pin (CTS) and can be used in the MCU software if the hardware flow control is needed.



Digital sections of the Monarch Go LTE-M modem are internally supplied by 1.8V, so it is necessary to condition the communication bus lines which connect the host MCU with the module. The Monarch Adapter Click provide internal 1.8V via BH18PB1WHFV-TR LDO regulator from Rohm Semiconductor, output from its internal LDO regulator, providing a needed reference voltage for one side of the TXB0106, a 6bit bidirectional level shifting and voltage translator with automatic direction sensing, from Texas Instruments. The reference voltage for the other side of the level shifter is taken from the onboard SMD jumper, labeled as I/O Level This jumper is used to select between 3.3V and 5V from the mikroBUS™, depending on the used MCU type and its logic voltage level requirements.

Specifications

Type	Adapter
Applications	Adapter Click helps you to easily connect Sequans Monarch Go to your developement boards with mikroBUS sockets
On-board modules	0541670208 connector from Molex
Key Features	Support SEQUANS Monarch Go modem
Interface	GPIO,UART
Feature	No ClickID
Compatibility	mikroBUS™
Click board size	S (28.6 x 25.4 mm)
Input Voltage	3.3V or 5V

Pinout diagram

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

Notes	Pin	mikroBUS				Pin	Notes
Ring signal	**RNG**	1	AN	PWM	16	NC	
Reset	**RST**	2	RST	INT	15	**INT**	Clear to Send
Ready to Send	**RTS**	3	CS	RX	14	**TX**	UART TX (transmit)
	NC	4	SCK	TX	13	**RX**	UART RX (receive)
	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
JP1	VCC SEL	Left	Power supply voltage selection: left position 3V3, right position 5V

Software Support

We provide a library for the Monarch Adapter Click on our LibStock page, as well as a demo application (example), developed using MikroElektronika compilers. The demo can run on all the main MikroElektronika development boards.

Library Description

The library contains basic functions for working with the Monarch Adapter click.

Key functions:

- void monarch_send_command(uint8_t *cmd_buf, uint8_t len) - Send command function

Examples description

The application is composed of three sections :

- System Initialization - Initializes UART modules and all required GPIO modules
- Application Initialization - Initializes driver inti and send basic commands.
- Application Task - Sends ATI1 command every 5000 ms.

The full application code, and ready to use projects can be found on our LibStock page.

Other mikroE Libraries used in the example:

- UART library
- Conversions Library

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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.

For more information about mikroSDK, visit the official page.

Resources

mikroBUS™

mikroSDK

Click board™ Catalog

Click Boards™

Downloads

Monarch Adapter click 2D and 3D files

Monarch Adapter click schematic

Monarch Adapter click example on Libstock

Monarch Go datasheet

Monarch Go Starter Kit