Uni-Kit Breakout Board - Button Matrix

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Uni-Kit Button Matrix Breakout Board features 8 tactile push buttons interfaced through the PCA9554B GPIO-to-I²C expander, allowing button state detection using just two I²C lines. Designed for seamless integration with the Uni-Kit via the MIKROE connector, it enables efficient input handling without consuming multiple GPIOs. Ideal for menu navigation, input testing, keypad simulations, or interactive projects in embedded system learning environments.

Uni-Kit Button Breakout Board is supported by the uni-SDK library, which includes functions that simplify software development.

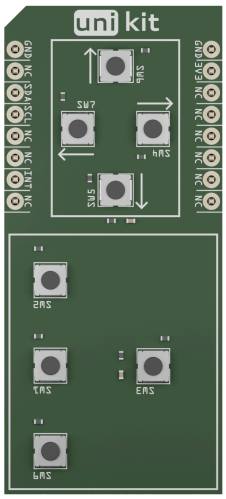

Figure: Uni-Kit Breakout Board Button Matrix

HOW DOES IT WORK?

The Button Breakout Board features 8 push buttons connected to the PCA9554B, an I²C-based GPIO expander. This allows the Uni-Kit to read all button states using just two I²C lines instead of multiple GPIO pins. Each button press changes the corresponding input pin state on the PCA9554B, which the Uni-Kit can read over I²C, making the board ideal for menus, keypads, or user input in embedded projects.

The board communicates with the host MCU using an I2C interface over the mikroBUS™ socket, with communication speeds of up to 1 MHz.

This Breakout Board can operate with 3.3 V logic voltage. However, the Breakout 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.

It works in the interrupt mode when connected to the MIKROE connector and polling mode in the Qwiic connection. This is configured in the firmware code.

SPECIFICATIONS

Type	GPIO I2C expander
Applications	The Button Breakout Board is ideal for keypads, menu navigation, game controls, and input testing
On-board modules	PCA9554B
Interface	I2C
Compatibility	mikroBUS™
Board size	M (42.9 x 25.4 mm)
Input Voltage	3.3V

PINOUT DIAGRAM

This table shows how the pinout on the Uni-Kit Breakout Board Sensor corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikroBUS				Pin	Notes
	NC	1	AN	PWM	16	NC	
Reset	**RST**	2	RST	INT	15	**INT**	Interrupt
	NC	3	CS	RX	14	NC	
	NC	4	SCK	TX	13	NC	
	NC	5	MISO	SCL	12	**SCL**	I2C Clock
	NC	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

ELECTRICAL SPECIFICATIONS

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V

SOFTWARE SUPPORT

A library for the Uni-Kit Breakout Board is available as a demo application (example). The demo can run on all the Uni-Kit development boards.