TouchKey 2 click

PID: MIKROE-2474

TouchKey 2 click has four capacitive pads powered by ATtiny817 which has an integrated touch QTouch® controller. The click is designed to run on a 3.3V power supply. The four LEDs onboard the click indicate when the Key (Pad) is pressed. TouchKey 2 click communicates with the target microcontroller over UART interface (SPI interface is optional).

High moisture tolerance

You can use TouchKey 2 click in all kinds of conditions, without fearing something will happen to it due to moisture and water droplets falling on it.

The plastic overlay on the TouchKey 2 click protects the board from moisture. Thanks to this feature the electronic components are safe. The ATtiny817 has a driven shield for improved moisture and noise handling performance.

ATtiny817 features

The Atmel® ATtiny817 is a microcontroller that uses an 8-bit AVR® processor with hardware multiplier, running at up to 20MHz and with up to 8KB Flash, 512 bytes of SRAM and 128 bytes of EEPROM.

ATtiny817 uses the latest technologies from Atmel® with a flexible and low power architecture including Event System and SleepWalking, accurate analog features and advanced peripherals.

Capacitive touch interfaces with proximity sensing and driven shield are supported with the integrated QTouch® peripheral touch controller.

The module supports wake-up on touch from power-save sleep mode.

Button features

Capacitive buttons can be toggled even when placed under a layer of glass or paper.

How it works

There are four LEDs for four touch keys. If key A is pressed LED_A is ON, etc. In addition, there is UART communication between ATtiny817 and main MCU.

Note: The header onboard the TouchKey 2 click can be used for device programming. Current firmware sends data packets via UART (on which the demo example in our library is based). **SPI communication** is possible with firmware modifications.

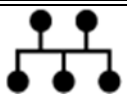
Key features

- ATtiny817 module
  - Atmel® AVR® 8-bit CPU
  - Running at up to 20MHz
  - 128B EEPROM
  - 256/512B SRAM
  - 32.768kHz external crystal oscillator
- UART interface (SPI optional)
- 3.3V power supply

Product Type	Capacitive
Applications	A replacement for mechanical buttons
On-board modules	ATtiny817 from Microchip
Key Features	Four capacitive touch pads, 3.3V power supply, protective plastic overlay
Key Benefits	High moisture tolerance
Interface	UART (SPI is optional)
Power Supply	3.3V
Compatibility	mikroBUS
Click board size	L (57.15 x 25.4 mm)

Pinout diagram

This table shows how the pinout on **TouchKey 2 click** corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	 mikroBUS™				Pin	Notes
Not connected	NC	**1**	AN	PWM	**16**	NC	Not connected
Reset	**PC5_TARGET_RESET**	**2**	RST	INT	**15**	NC	Not connected
SPI Chip Select	**PC3_SPI_SS**	**3**	CS	TX	**14**	**PA1_UART_TXD**	UART transmit
SPI Clock	**PC0_SPI_SCK**	**4**	SCK	RX	**13**	**PA2_UART_TXD**	UART receive
SPI Master Input Slave Output	**PC1_SPI_MISO**	**5**	MISO	SCL	**12**	NC	Not connected
SPI Master Output Slave Input	**PC2_SPI_MOSI**	**6**	MOSI	SDA	**11**	NC	Not connected
Power supply	**+3.3V**	**7**	3.3V	5V	**10**	NC	Not connected
Ground	**GND**	**8**	GND	GND	**9**	**GND**	Ground

Buttons and LEDs

Designator	Name	Type (LED, BUTTON…)	Description
PWR	PWR	LED	Power Supply Indication LED.
LD1	A	LED	Key A Press Indication LED
LD2	B	LED	Key B Press Indication LED
LD3	C	LED	Key C Press Indication LED

LD4	D	LED	Key D Press Indication LED
J1	PDI	Header	Programming header

Maximum ratings

Description	Min	Typ	Max	Unit
Power Supply Voltage	-0.5	3.3	6	V
Current into VDD pin	-	100	200	mA
Reset pin Voltage	-0.5	3.3	13	V
I/O pin sink/source Current	-40	-	40	mA

Programming

Code examples for TouchKey 2 click, written for MikroElektronika hardware and compilers are available on Libstock.

This code snippet initializes the MCU and display, and in an endless loop recognizes which key is being pressed. The key that was touched last is shown on the display.

```
01 void main( void )
02 {
03     system_init();
04     display_init();
05
06     TFT_Set_Font( &HandelGothic_BT21x22_Regular, CL_RED, FO_HORIZONTAL );
07     TFT_Write_Text( "Press Any On-board Key", 50, 120 );
08
09     while( true )
10     {
11         // Key A has been pressed
12         if( key_A_pressed && old_key != KEY_A )
13         {
14             display_key( "A", CL_RED );
15             key_A_pressed = false;
16             old_key = KEY_A;
17         }
18         // Key B has been pressed
19         else if( key_B_pressed && old_key != KEY_B )
20         {
```

```
            display_key( "B", CL_GREEN );
            key_B_pressed = false;
            old_key = KEY_B;
        }
        // Key C has been pressed
        else if( key_C_pressed && old_key != KEY_C )
        {
            display_key( "C", CL_BLUE );
            key_C_pressed = false;
            old_key = KEY_C;
        }
        // Key D has been pressed
        else if( key_D_pressed && old_key != KEY_D )
        {
            display_key( "D", CL_PURPLE );
            key_D_pressed = false;
            old_key = KEY_D;
        }
    }
}
```