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Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
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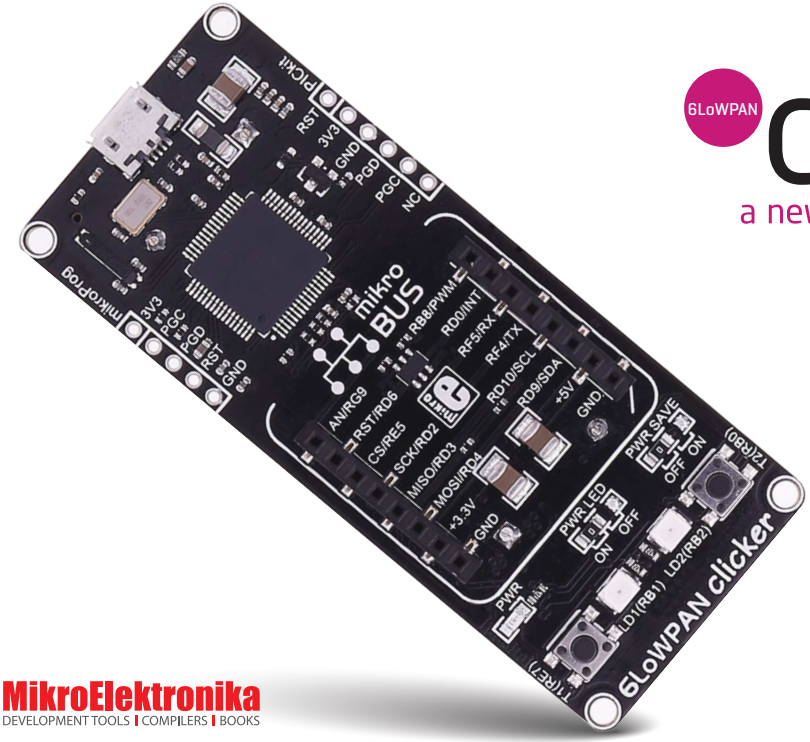

6LoWPAN

clicker

a new idea just a click away

A compact starter kit with your favorite microcontroller and a mikroBUS™ socket.

USB

mikro BUS

PIC

MikroElektronika

DEVELOPMENT TOOLS | COMPILERS | BOOKS

TO OUR VALUED CUSTOMERS

I want to express my thanks to you for being interested in our products and for having confidence in MikroElektronika.

The primary aim of our company is to design and produce high quality electronic products and to constantly improve the performance thereof in order to better suit your needs.

Nebojsa Matic
General Manager

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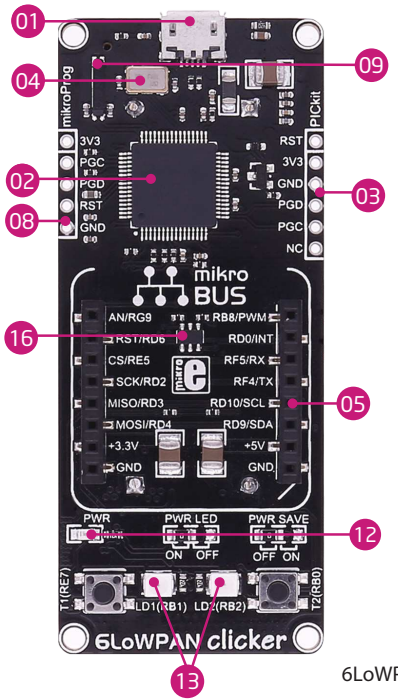
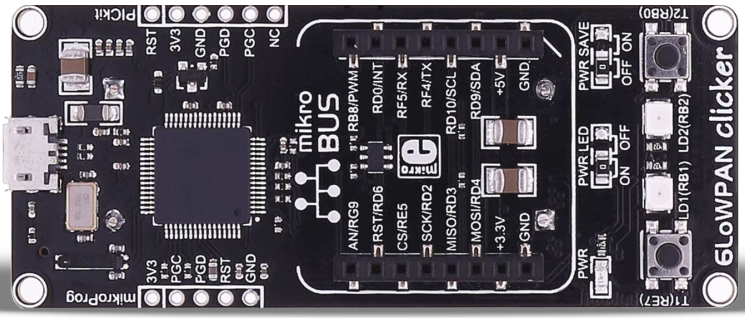
1. Key features



6LoWPAN clicker

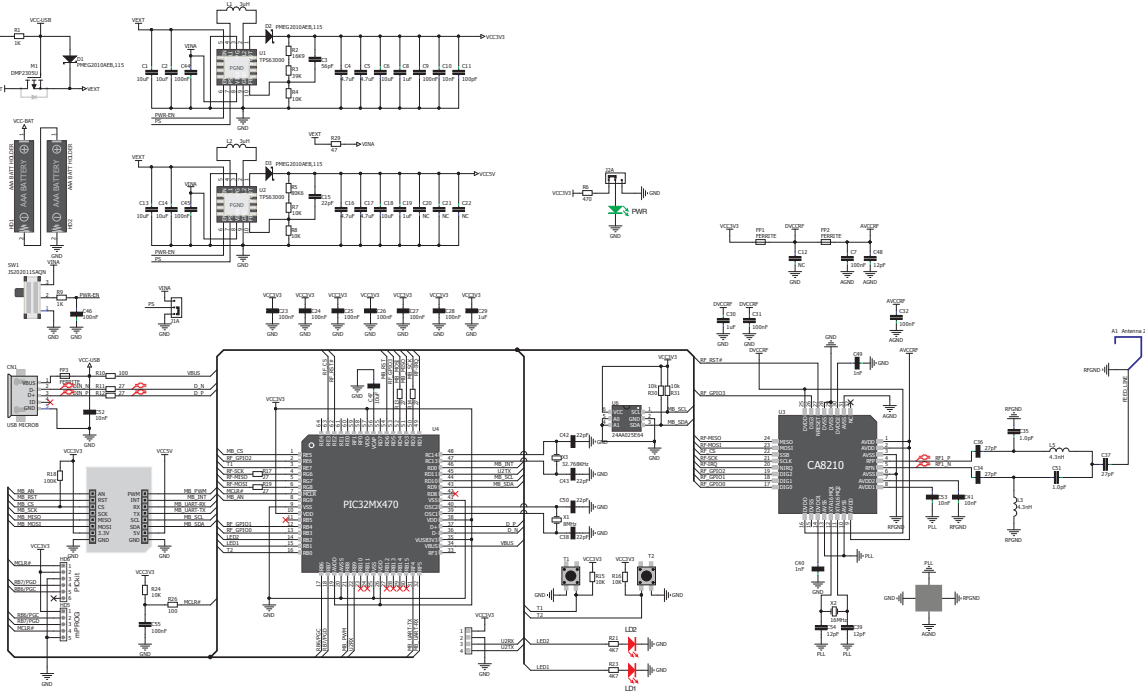
01 Micro USB connector
02 PIC32MX470 MCU
03 PICkit™ connector
04 8 MHz crystal oscillator
05 mikroBUS™ socket
06 5V voltage regulator
07 3.3V voltage regulator
08 mikroProg connector
09 32.768 KHz crystal oscillator
10 Battery slots
11 ON/OFF switch
12 Power indication LED
13 Additional LEDs
14 CA-8210
15 16 MHz crystal oscillator
16 EEPROM memory

2. What is 6LoWPAN clicker?



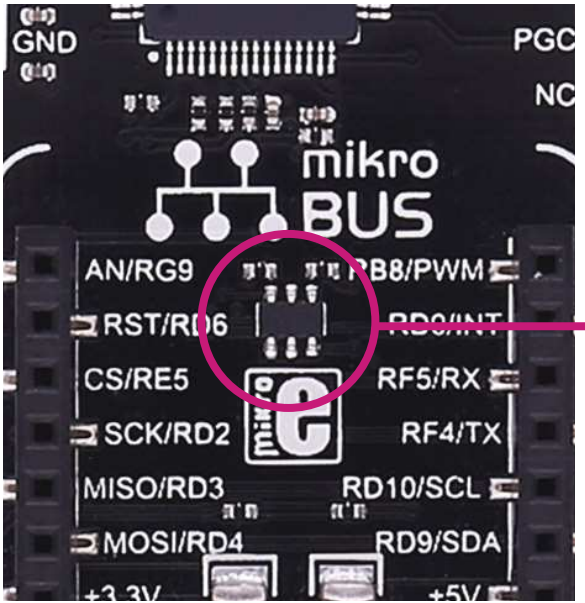
6LoWPAN clicker

6LoWPAN clicker is an amazingly compact starter development kit which brings innovative mikroBUS™ host socket to your favorite microcontroller. It features the PIC32MX470 32-bit microcontroller,CA-8210 2.4GHz ISM band transceiver, two indication LEDs, two general purpose buttons, ON/OFF switch, micro USB connector and a single mikroBUS™ host socket. mikroProg connector and pads for interfacing with external electronics are provided as well. mikroBUS™ host connector consists of two 1x8 female headers with SPI, I2C, UART, RST, PWM, Analog and Interrupt lines as well as 3.3V, 5V and GND power lines. The 6LoWPAN clicker board can be powered over two standard AAA batteries, or USB cable.



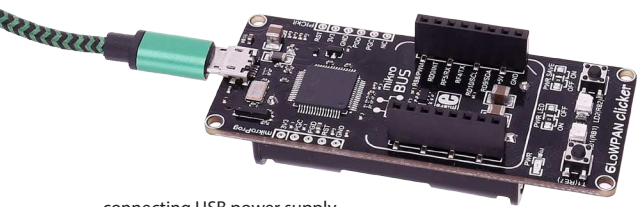
6LoWPAN clicker schematic

3. EEPROM memory



The 24AA025E64 is a a 2 Kbit Electrically Erasable PROM. The device is organized as two blocks of 128 x 8-bit memory with a 2-wire serial interface.

4. Power supply



connecting USB power supply through CN1 connector

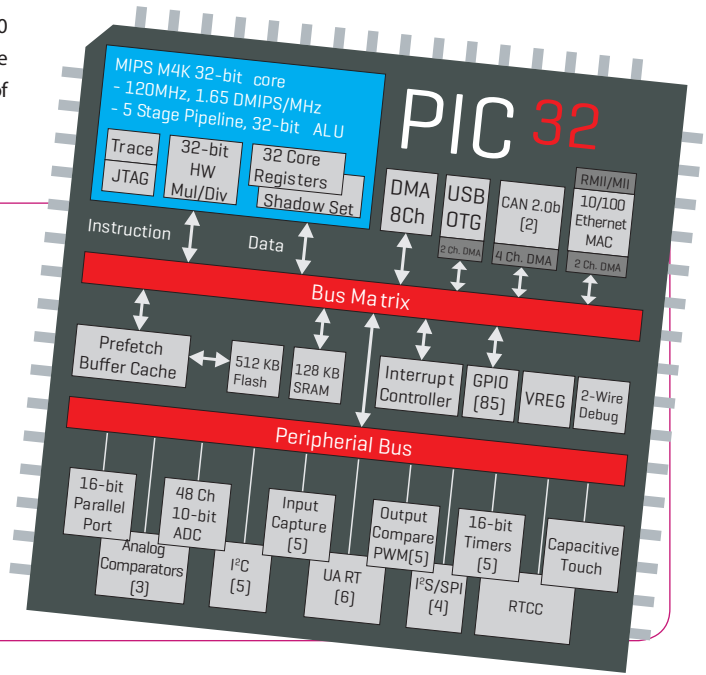
When the board is powered up the power indication LED will be automatically turned on. The USB connection can provide up to 500mA of current which is more than enough for the operation of all on-board and additional modules.

powered with AAA batteries

6LoWPAN clicker can be powered with two standard AAA batteries. The TPS63000 Buck-Boost converter onboard the clicker regulates the power supply from the batteries.

5. PIC32MX470 microcontroller

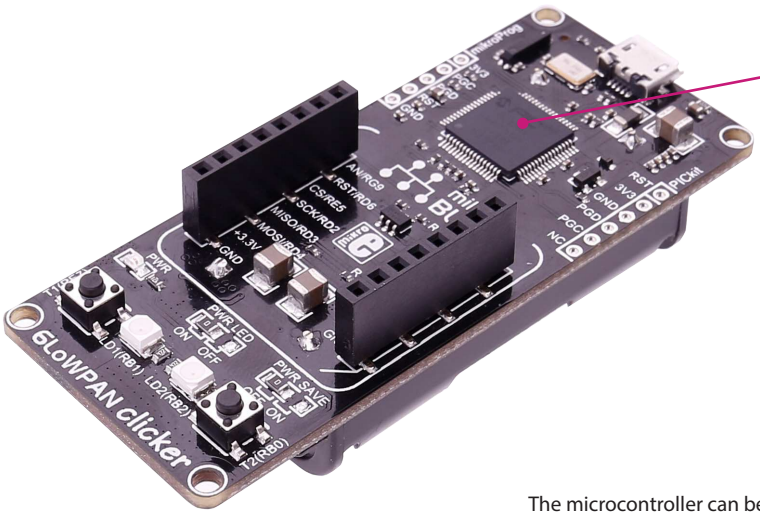
The 6LoWPAN clicker development tool comes with the PIC32MX470 microcontroller. This 32-bit MIPS M4K Core high performance microcontroller is rich with on-chip peripherals and features 512KB of Flash and 128KB RAM. It has integrated full speed USB 2.0. support.



Key microcontroller features

- MIPS32® M4K™ Core @ 120 MHz/150 DMIPS
- 512KB of program memory
- 128KB or RAM
- USB device/host/OTG
- 10-bit, 1 Msps, 28-channel
  Analog-to-Digital Converter (ADC)
- Max Speed MHz: 120
- Temperature range: –40°C to 105°C

6. Programming the microcontroller



PIC32MX470
microcontroller

The microcontroller can be programmed in two ways:

01 Using USB HID mikroBootloader,

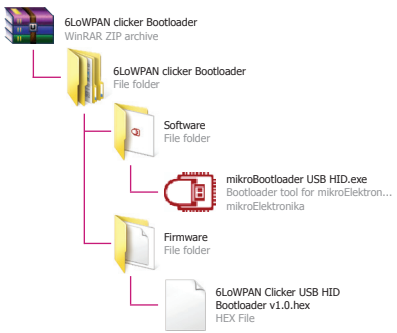
02 Using external mikroProg™ for PIC®, dsPIC®, PIC32® programmer.

Programming with mikroBootloader

You can program the microcontroller with bootloader which is preprogrammed by default. To transfer .hex file from a PC to MCU you need bootloader software (mikroBootloader USB HID) which can be downloaded from:

download.mikroe.com/examples/starter-boards/clicker/6lowpan/clicker-6lowpan-bootloader.zip

After the mikroBootloader software is downloaded, unzip it to desired location and start it.

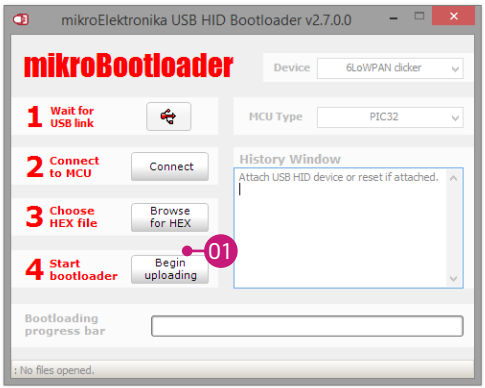


step 1 – Connecting 6LoWPAN clicker

USB HID mikroBootloader window

01 To start, connect the USB cable, or if already connected press the Reset button on your 6LoWPAN clicker. Click the Connect button within 5s to enter the bootloader mode, otherwise existing microcontroller program will execute.

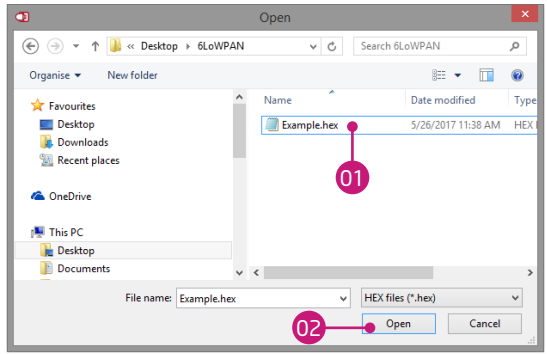
step 2 – Browsing for .HEX file



Browse for HEX

01 Click the Browse for HEX button and from a pop-up window choose the .HEX file which will be uploaded to MCU memory.

step 3 – Selecting .HEX file



Selecting HEX

01 Select .HEX file using open dialog window.

02 Click the Open button.

step 4 – Uploading .HEX file

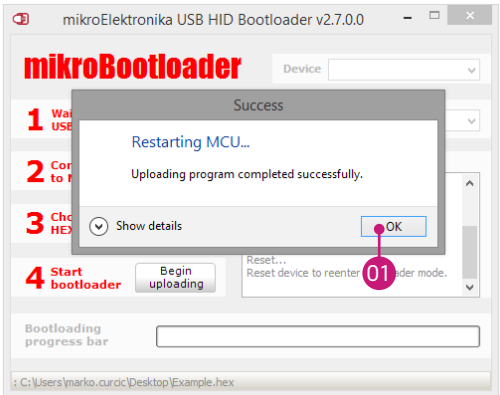
Begin uploading

01 To start .HEX file bootloading click the Begin uploading button.

Progress bar

01 Progress bar enables you to monitor .HEX file uploading.

step 5 – Finish upload



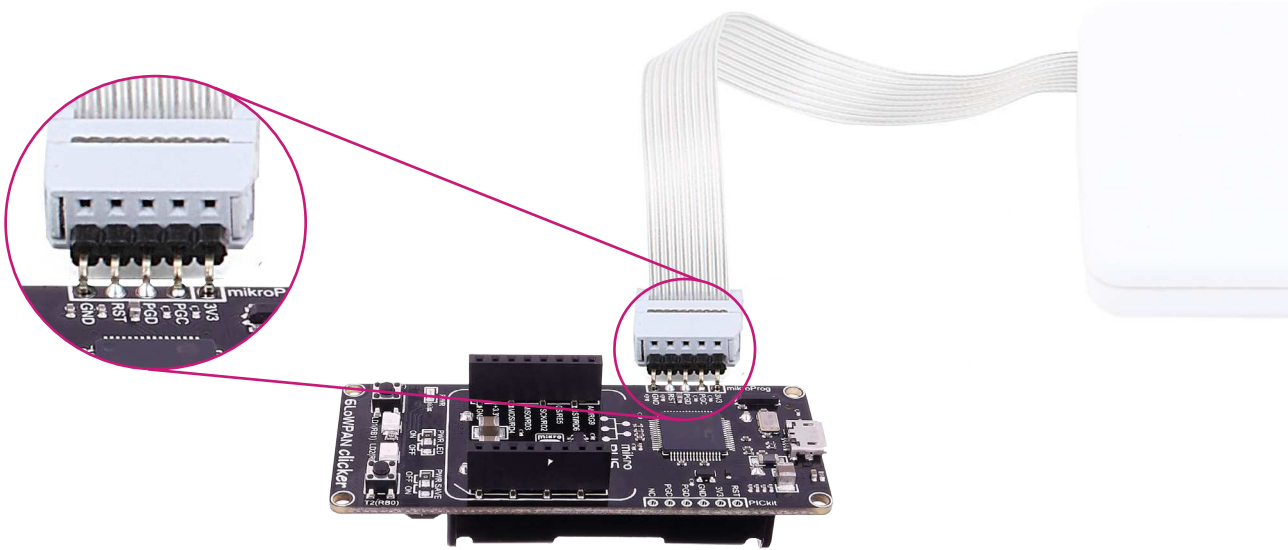
Restarting MCU

mikroBootloader ready for next job

01 Click OK button after the uploading process is finished.

02 Press Reset button on 6LoWPAN clicker board and wait for 5 seconds. Your program will run automatically.

Programming with mikroProg™ programmer

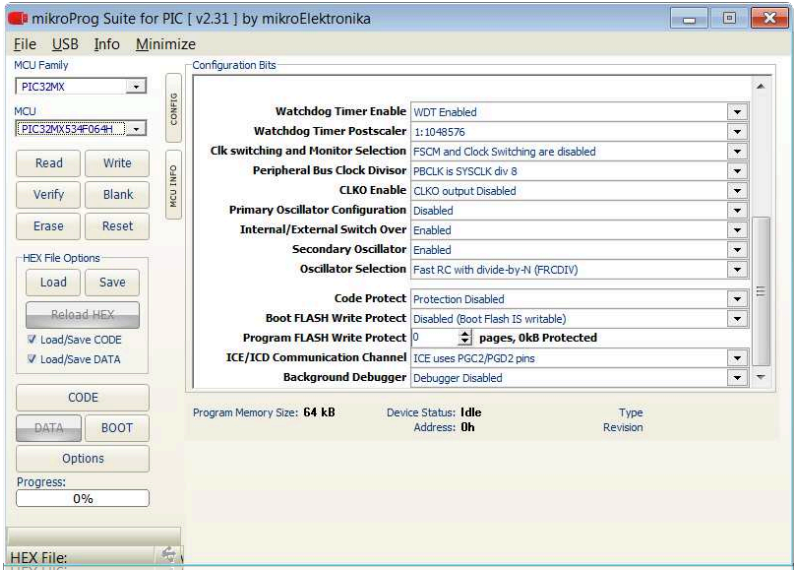


mikroProg™ connector

The microcontroller can be programmed with external mikroProg™ for PIC®, dsPIC® and PIC32® programmer and mikroProg Suite™ for PIC® software. The external programmer is connected to the development system via 1x5 mikroProg™ connector. mikroProg™ is a fast USB 2.0 programmer with hardware debugger support. It supports PIC10®, PIC12®, PIC16®, PIC18®, dsPIC30/33®, PIC24® and PIC32® devices from Microchip®. Outstanding performance, easy operation and elegant design are its key features.

7. mikroProg Suite™ for PIC® Software

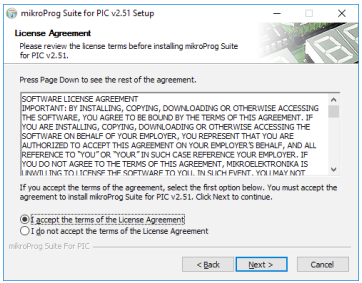
The mikroProg programmer requires special programming software called mikroProg Suite for PIC®. It can be used for programming all Microchip® microcontroller families, including PIC10®, PIC12®, PIC16®, PIC18®, dsPIC30/33®, PIC24® and PIC32®. The software has intuitive interface and SingleClick™ programming technology. Just download the latest version of mikroProg Suite™ and your programmer is ready to program new devices. mikroProg Suite is updated regularly, at least four times a year, so your programmer will be more and more powerful with each new release.



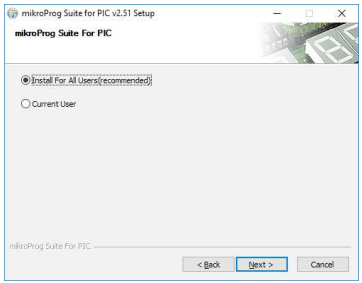
Main window of mikroProg Suite™ for PIC® programming software

Software Installation Wizard

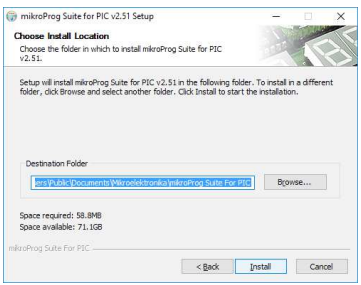
01 Start Installation



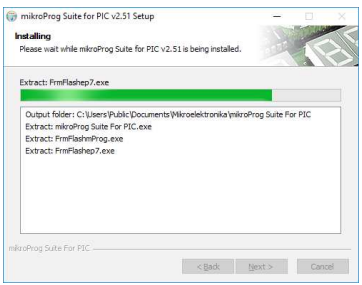
02 Accept EULA and continue



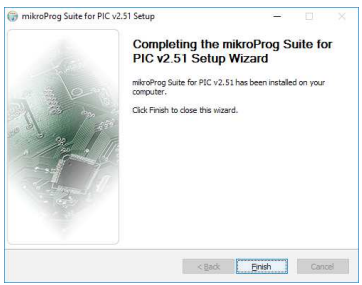
03 Install for all users



04 Choose destination folder

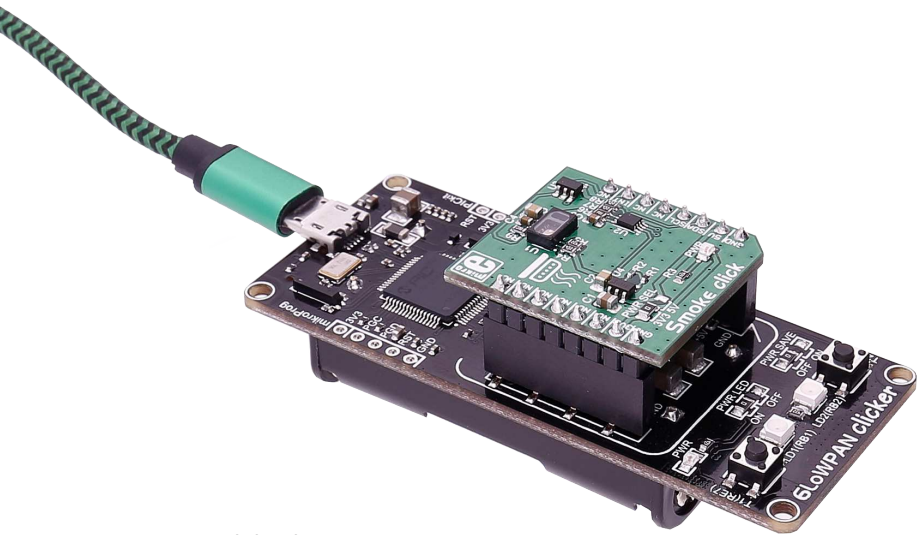


05 Installation in progress



06 Finish installation

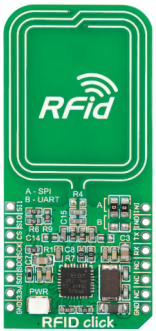
8. click boards are plug and play!



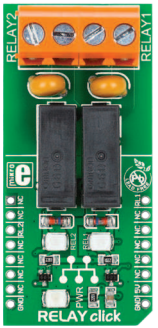
6LoWPAN clicker driving
Smoke click™ board

Up to now, MikroElektronika has released more than 300 mikroBUS™ compatible click™ boards. On the average, we make one click per day. It is our intention to provide you with as many add-on boards as possible, so you will be able to expand your development board with additional functionality. Each board comes with a set of working example codes. Please visit the click™ boards webpage for the complete list of currently available boards:

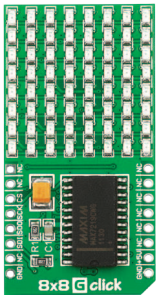
shop.mikroe.com/click



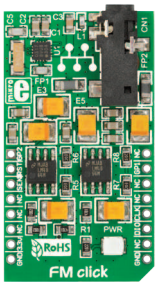
RFid click™



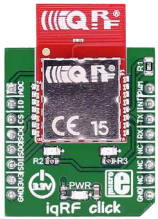
Relay click™



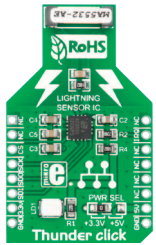
8x8 click™



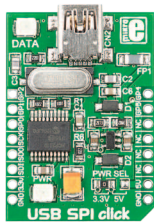
FM click™



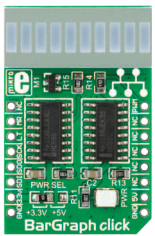
Bluetooth2 click™



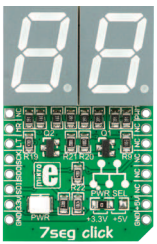
Thunder click™



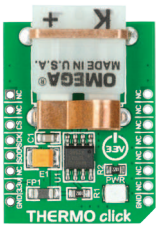
USB SPI click™



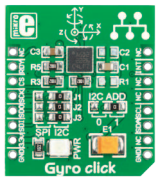
BarGraph click™



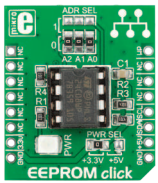
7seg click™



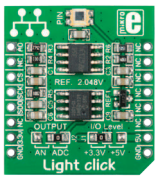
THERMO click™



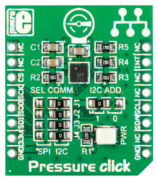
Gyro click™



EEPROM click™



LightHz click™



Pressure click™

9. Dimensions

Legend

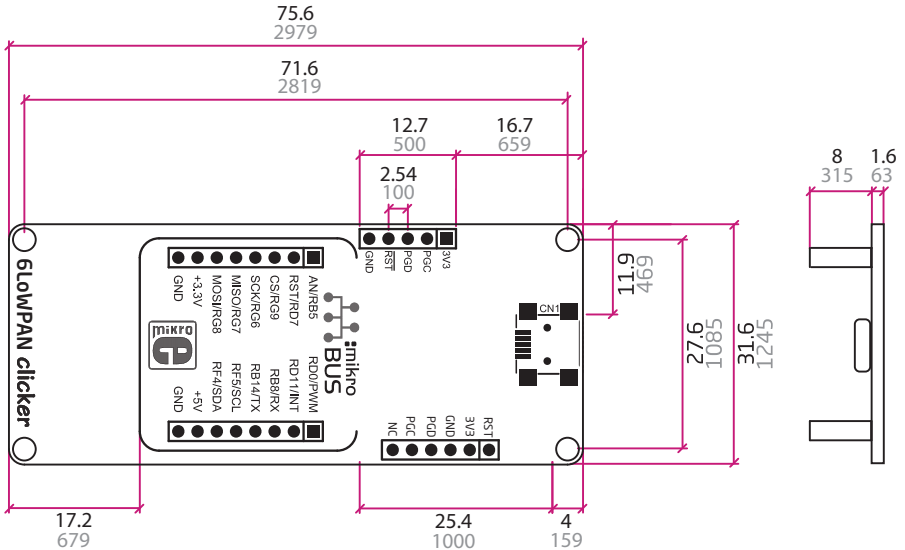
mm

mils

Mounting hole size

Ø2 mm

Ø79 mils



DISCLAIMER

HIGH RISK ACTIVITIES

TRADEMARKS

If you want to learn more about our products, please visit our web site at www.mikroe.com

If you are experiencing some problems with any of our products or just need additional information, please place your ticket at helpdesk.mikroe.comsupport

If you have any questions, comments or business proposals, do not hesitate to