iMETOS NBIoT
Firmware upgrade

Manual

Pessl Instruments, GmbH

Version 1.1, 10-2017

Content

1. Purpose

Purpose of this document is to describe steps needed, to update the firmware on the iMETOS NBIoT Rev 2.0 motherboards.

2. Requirements

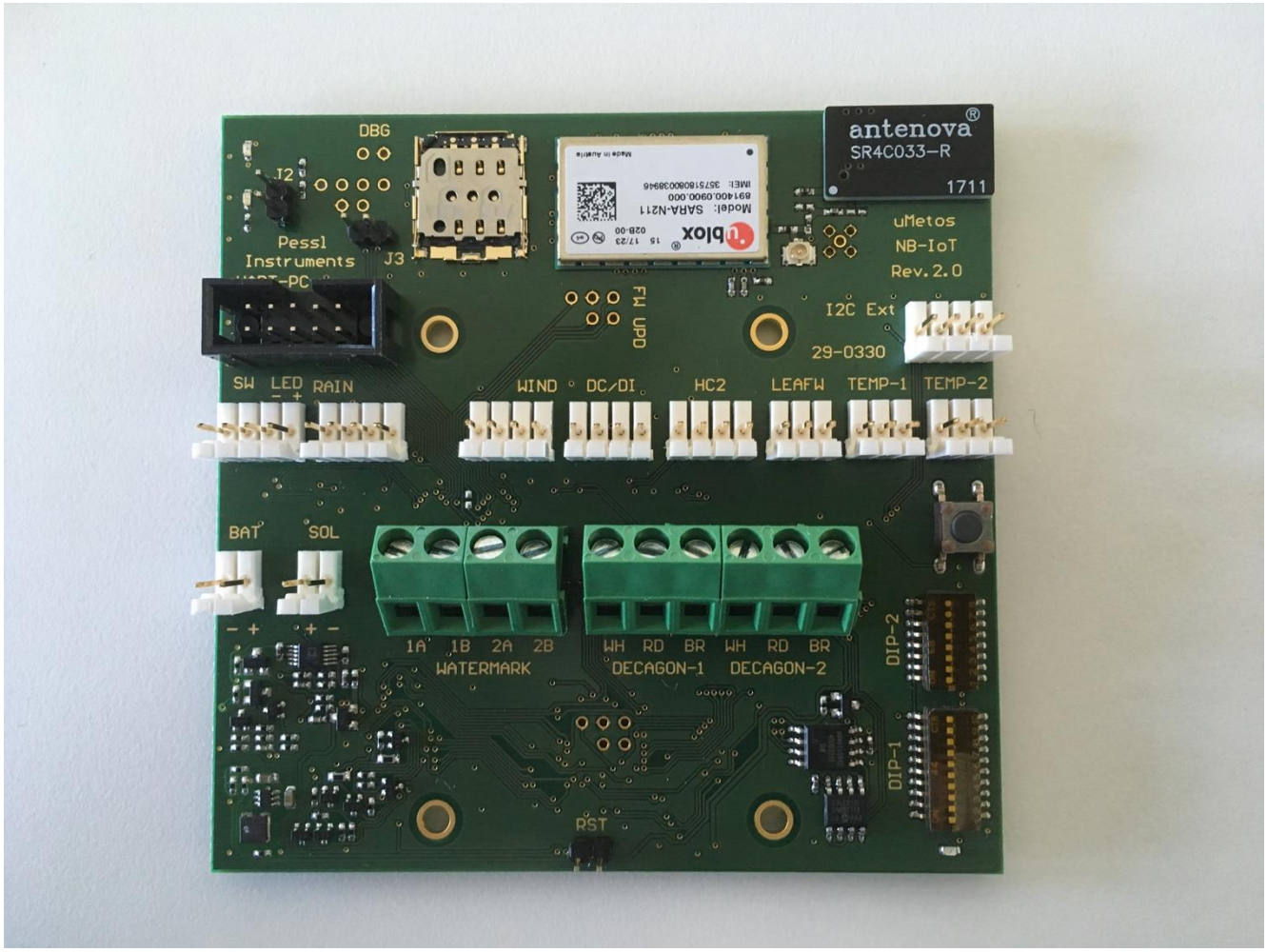
In order to update the firmware on the iMETOS NBIoT motherboard you need:

- Microchip MPLAB IPE application
- Microchip PICkit3 programmator with the correct programming cable
- iMETOS NBIoT Rev 2.0
- Battery

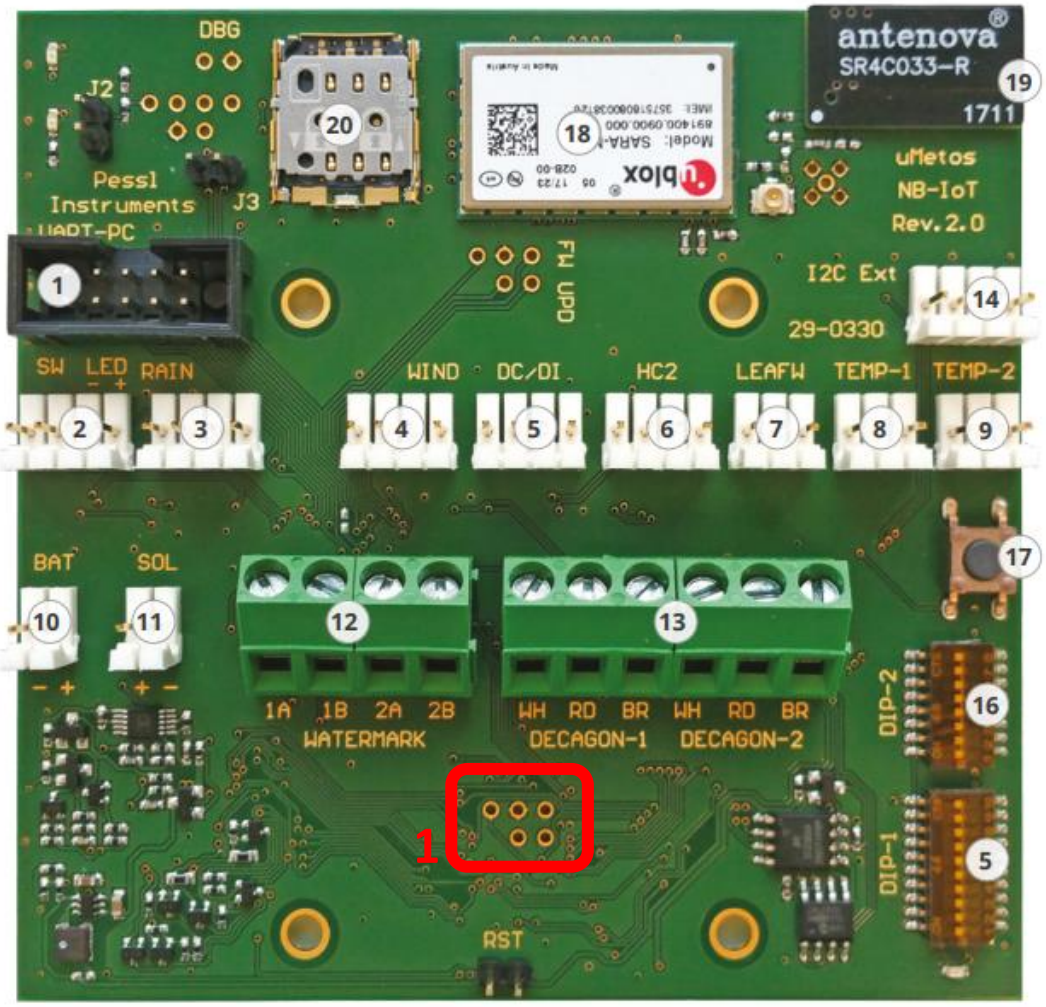
Microchip MPLAB IPE application is part of the Microchip MPLAB(R) X suite. Download link and installation instructions are available at http://microchipdeveloper.com/ipe:installation .

Microchip PICkit3 programmator with the correct programming cable is delivered on request by the Pessl Instruments.

3. iMETOS NBIoT motherboard overview



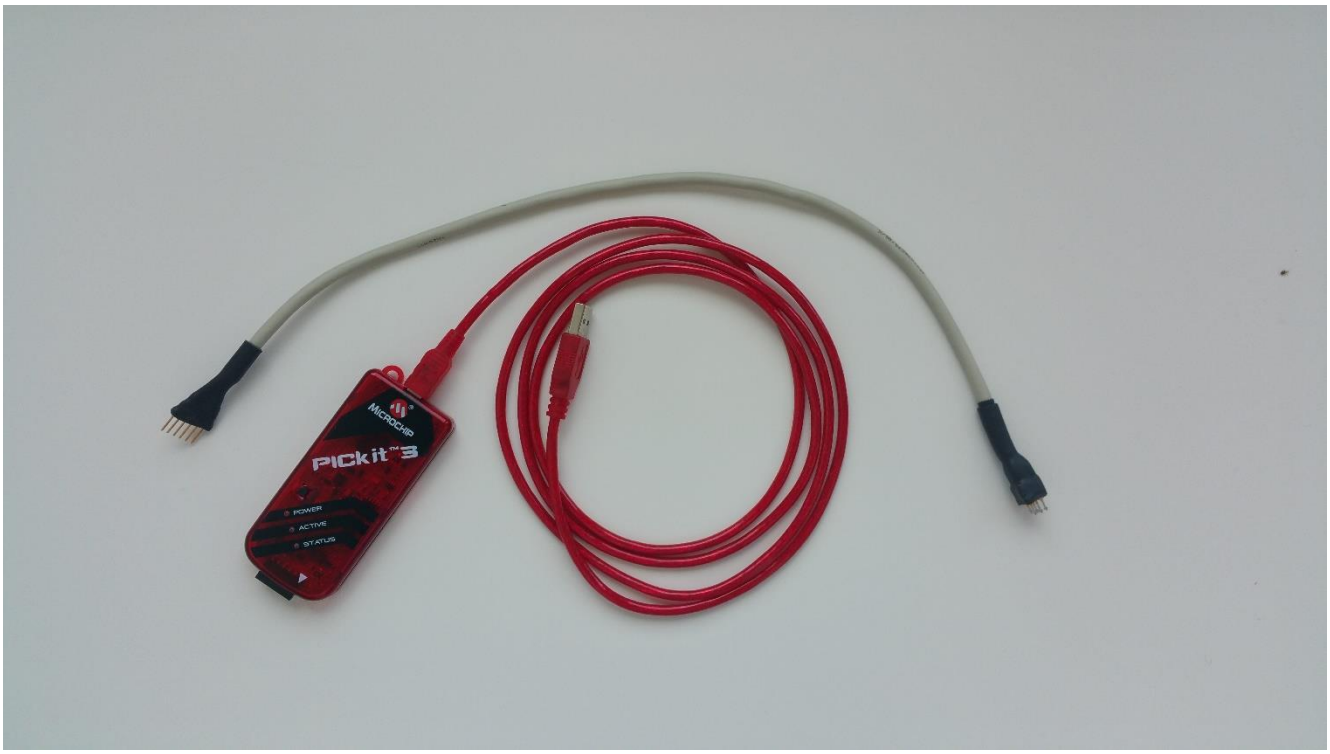
Picture 1 - Top view of the iMETOS NB-IoT Rev. 2.0 board (29-0330)



1. PC terminal connector
2. External comunication button with blue LED
3. Rain gauge or flow meter
4. Wind Speed sensor
5. Duty Clicle sensor or Digital input
6. HC2 temperature & relative humidity
7. Leaf wetness sensor or presostat
8. Extra temperature sensor
9. Extra temperature sensor
10. Lithium primary battery
11. Solar panel
12. Conector for 2 watermark sensors
13. Conector for 2 decagon
14. I2C External connector
15. DIP-1
16. DIP-2
17. Connect button
18. NBIoT module
19. On-board LoRa antenna
20. SIM card holder

Picture 2 - Connectors on the iMETOS NBIoT Rev 2.0 board (29-0330)

The red square with number 1 indicates the programming pins.



Picture 3 - Microchip PICkit3 programmator with correct programming cable (grey cable)

4. Initial steps

First, install the Microchip MPLAB IPE application.

Second, connect the programming cable to the PICkit 3 device:

Picture 2 - connecting the programming cable to the Microchip PICkit3 programmator

Make sure, the blue marked pin is connected to the right side of the programmator (marked with white arrow pointing to the correct input).

Third, connect the PICkit3 to the PC via USB port.

Fourth, connect the battery to the iMETOS NBIoT motherboard.

5. Programming steps

First, open the MPLAB IPE application.

Second, select the correct Device (PIC18F97J94) (box 1 on the Picture 5).

Third, make sure the PICkit3 tool is selected (box 2 on the Picture 5).

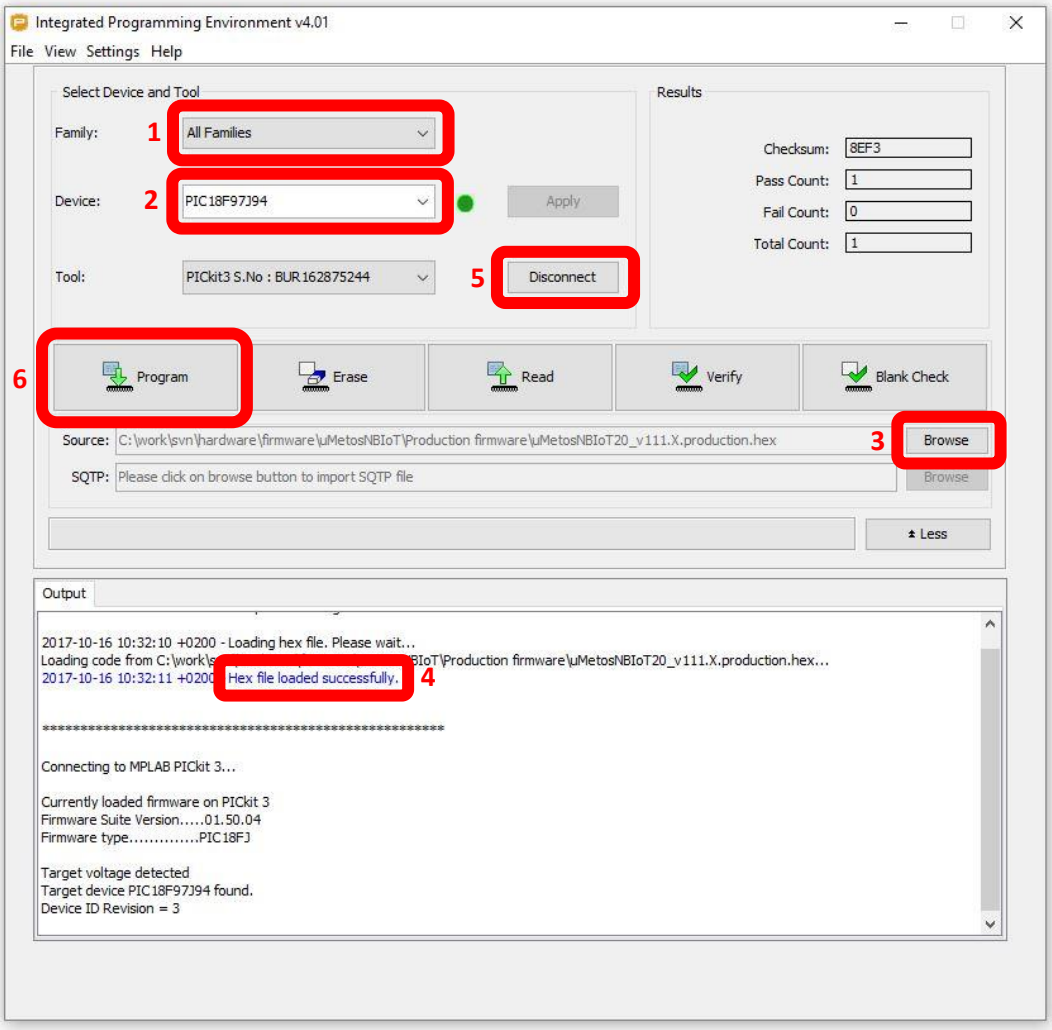
Fourth, click on the Browse button (box 3 on the Picture 5) and select the firmware file for this product (ex. iMETOS NBIoT20_v111.X.production.hex). You should see the 'Hex file loaded successfully' message in the Output (box 4 on the Picture 5).

Fifth, with one hand, push the programming cable to the correct programing pins on the iMETOS NBIoT motherboard (Picture 6). Programming pins are marked on the Picture 6.

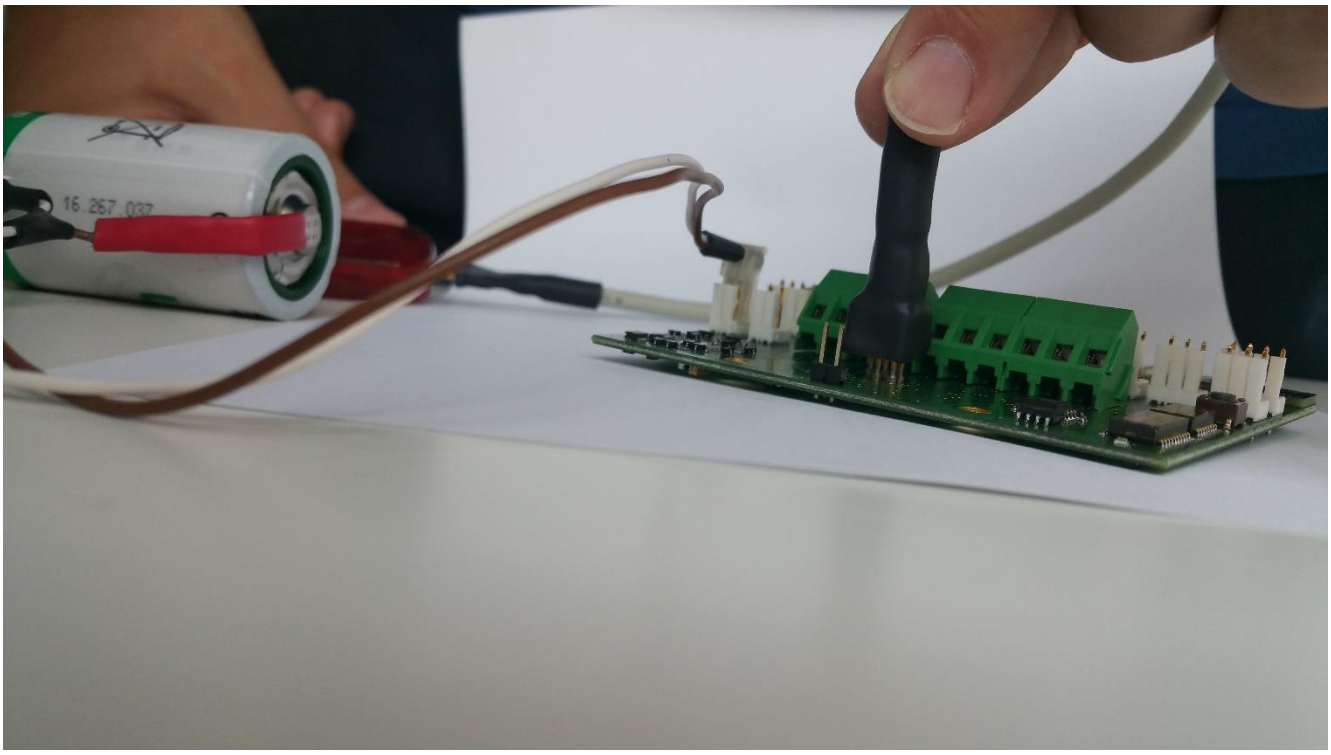
Sixth, click on the Connect button (box 5 on the Picture 5).

Seventh, click on the Program button (box 6 on the Picture 5).

Eight, after successful programming, you should see 'Programming complete' message in the Output tab.



Picture 3 - MPLAB IPE app with settings



Picture 4 - Connecting the programming cable to the iMETOS NBIoT motherboard

6. Final steps

Connect the iMETOS NBIoT board to the serial cable (see iMETOS NBIoT - TeraTerm terminal example v1.00.pdf and/or iMETOS NBIoT - Communication Terminal v1.00.pdf). Check the station information, Firmware version, measurement and transfer interval etc. to make sure the correct Firmware was programmed and that all settings are correct.

7. Guide revisions

GUIDE VERSION	MODIFICATIONS
1.10	- Renaming.
1.00	- First release of the document.