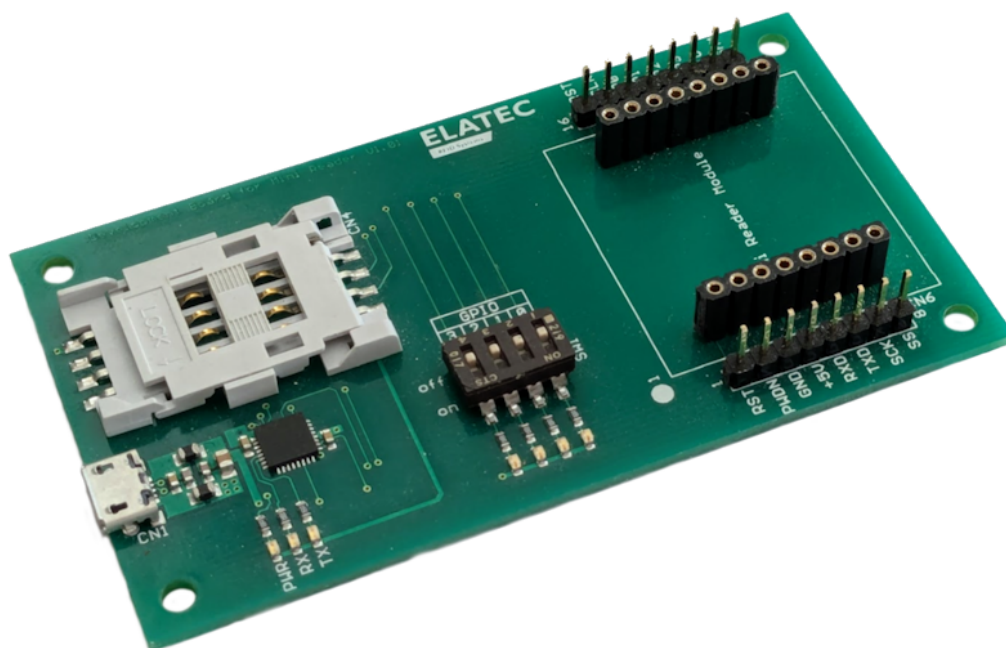


# TWN4

## MultiTech Mini Development Kit

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ELATEC GmbH

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# 1 Introduction

ELATEC RFID modules of the TWN4 Mini family are devices for reading and writing RFID transponders. It can communicate with a large range of transponder types in the frequency range of 13.56MHz. This Development Kit is a vehicle intended to support the User with the integration of the TWN4 Mini family Modules into their Product and the development of the required software. It allows investigation of the most important interfaces of the modules, like UART (via USB), GPIOs and SAM.

Package Contents:

- Development board
- Micro USB cable
- 2 x sample cards 13.56MHz

## 2 Getting Started

### 2.1 Functional Overview

The functional layout of the Development Board is shown on Figure 2.1. Main features of the Development Board are:

- Pin header to insert TWN4 Mini EVP or TWN4 MultiTech HF Mini module
- Break out connector (Expansion slot)
- Ready-to-Use primary interface to the USB (Micro USB)
- 1 SAM card slot
- 4 configurable LEDs

The Board offers a breakout connector (Expansion slot) for the entire Mini family Modules pinout. This extra interface allows for live monitoring of the signals going to/from the Mini family modules.

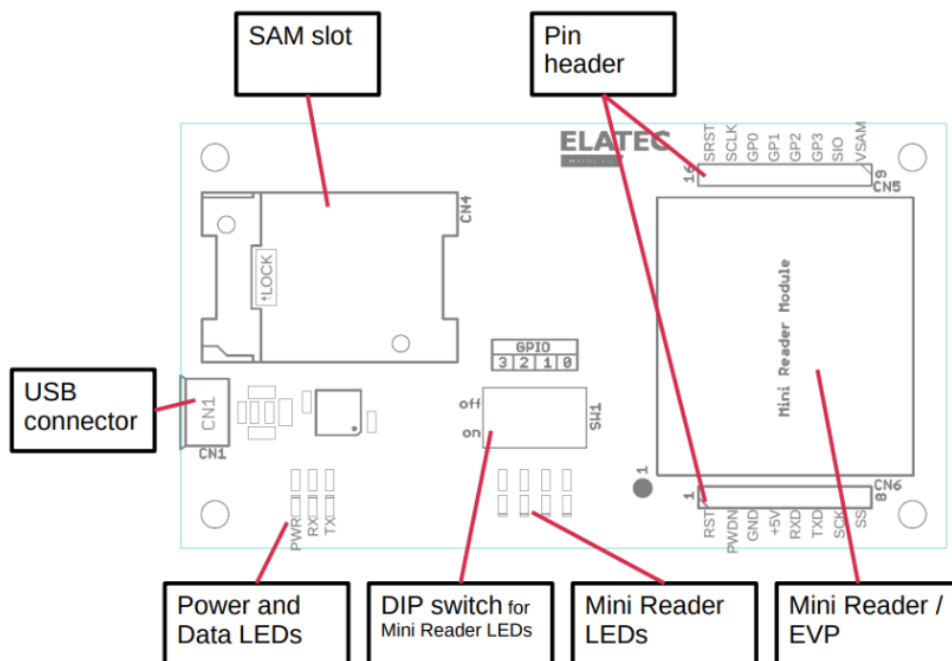


Figure 2.1: Development Board Functional Overview

## 2.2 Placing the TWN4 Mini EVP or TWN4 MultiTech HF Mini

To work with the modules, connect the module in the appropriate connector of the Development Board.

### 2.2.1 Placing the TWN4 MultiTech HF Mini



Figure 2.2: TWN4 MultiTech HF Mini on Development board

**Warning:** Please be sure to connect the module in the right way (the marking for pin 1 of Development Board and TWN4 MultiTech HF Mini should match). Inserting the TWN4 MultiTech HF Mini module into the board with incorrect polarity can cause permanent damage to the Module!

### 2.2.2 Placing the TWN4 Mini EVP

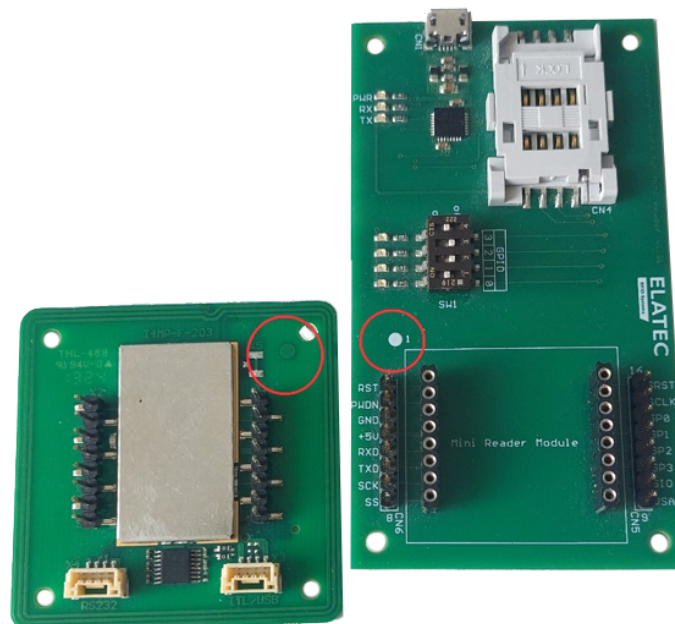


Figure 2.3: TWN4 Mini EVP on Development board



Figure 2.4: TWN4 Mini EVP on Development board

**Warning:** Please be sure to connect the module in the right way (the marking for pin 1 of Development Board and TWN4 Mini EVP reader should match). Inserting the TWN4 Mini EVP reader into the board with incorrect polarity can cause permanent damage to the Module!

## 2.3 Establishing Connection

The Development Board can be connected to via USB (Micro USB) port. In order to start operating the TWN4 Development Board, simply connect the desired port to the Host. Once the Board is connected to the host, a driver must be installed. If this is not done automatically, you can download the driver for your operating system on the FTDI website: <http://www.ftdichip.com/Drivers/VCP.htm>. When the driver installation is finished, a new virtual COM port is installed on the PC. Now you can set up a connection to the TWN4 Mini EVP or TWN4 MultiTech HF Mini Module using this COM port.

## 2.4 Flashing Firmware and Application Code

TWN4 MultiTech Development Pack contains ready-to-use Firmware images that can be programmed into the TWN4 Mini EVP or TWN4 MultiTech HF Mini using the AppBlaster program (present within the same Development Pack). Generic Firmware used to identify most RFID cards can be found at the path below:

- TWN4DevPack###\Firmware\TWN4\_xCx###\_STD204\_Multi\_CDC\_Standard.bix

Please see the AppBlaster User Guide for instructions on flashing Firmware and programming custom Applications.

## 2.5 Demo: Reading Cards

The easiest way to demonstrate the reading capability of the the TWN4 Mini EVP or TWN4 MultiTech HF Mini Module is with the *Director* software (for Windows), included in the DevPack. To start reading card IDs, execute the *Director* software and follow the steps below:

- To setup a connection to the reader, select the correct COM port on the *Port* drop-down menu.
- Make sure the reader contains the correct firmware to communicate with *Director* (TWN4DevPack###\Firmware\TWN4\_xCx###\_STD204\_Multi\_CDC\_Simple\_Protocol.bix)
- Click the button *Connect*.
- Enable the checkbox *Cycle*. This will make the TWN4 Mini EVP or TWN4 MultiTech HF Mini search for transponders cyclically.
- Optional: use the *Select Tag Types* drop-down menu to restrict the types of cards that can be detected.
- Now just place a transponder near the antenna, and the Director software will print the UID out in the log window, as shown on Figure 2.5.

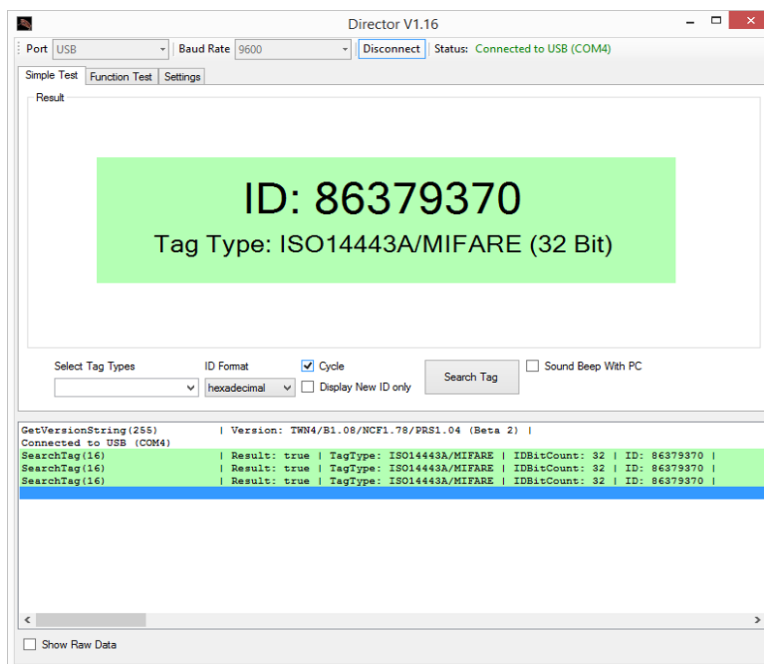


Figure 2.5: Reading Card IDs with Director Software



## 3 Using Peripherals

### 3.1 Ready-to-Use Functionality on Dev Board

Table 3.1 contains instructions on how to enable built-in functionality of the Development Board. Refer to TWN4 MultiTech API documentation for detailed instructions on programming these devices.

Peripheral	Instructions to Enable
Debug LEDs	There is a bank of 4 LEDs available next to the "LED Connect" DIP Switch. Use the DIP Switch to enable individual LEDs. These LEDs are driven by TWN4 Mini EVP or TWN4 MultiTech HF Mini module.
USB-Side LEDs	There are 3 LEDs next to the USB port. These include "a module Power-ON", and RX/TX traffic indicators.

Table 3.1: Ready-to-Use Functionality on Dev Board

## 4 Disclaimer

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