# Usb11M - USB Mifare Reader

# Datasheet

## Features

- Fully supports Mfiare® Classic 1kByte; Mfiare® Classic 4kByte; Mfiare® Ultralight cards and tags;
- Based on Philips MFRC500 chip – highly integrated ISO1443A reader IC.
- Up to 50mm reading range, depending on card;
- Communication thru popular FT232BM USB to UART chip; (thanks to this USB11M acts as serial reader);
- Easy to use serial communication binary protocol;
- Convenient commands, some of them in transactional form, effectively performing group of operations
- Configurable encrypted serial communication;
- Indications – buzzer, green and red leds;
- Field proven design;
- 50 mA current consumption;
- 88 x 48 x 20 mm dimensions;
- Full functionality at -25 °C ... +75 °C environment temperatures;

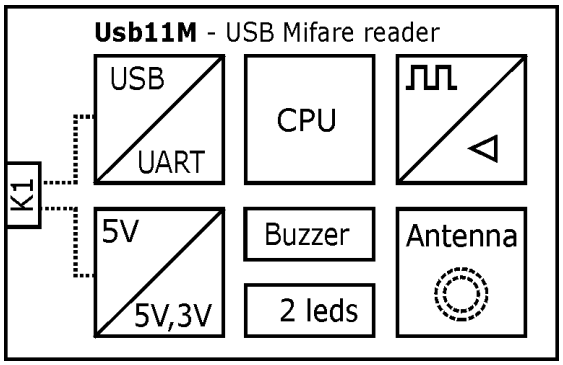
## Applications

- Smart ticketing for public transportation
- Access Control Systems
- Cashless Payment Systems
- Time and Attendance Systems
- Data Collection / Storage / Processing Systems

## General Description

**The Usb11M** USB Mifare® Reader is based on the popular Philips MFRC500 chip – highly integrated ISO1443A reader IC. It is an ideal choice for your system applications with Mifare Classic and Ultra - light Cards, because of its affordable price, small size, rich command set, and its support of standard binary communication protocol. As USB interface chip FT232BM is used, and thanks to it, from software point of view, Usb11M acts as serial device. For more details on FT232BM please refer to http://www.ftdichip.com/Documents/DataSheets/ds232b18.pdf. Software development kit (SDK), including all necessary datasheets, application notes, example applications with full source codes, software drivers and dll, helps developers to easily integrate **Usb11M** to the system.

## Block Diagram




## Cable description

| K1 – Interface Cable | | | |
|---|---|---|---|
| **No** | **Wire Color** | **Signal** | **Description** |
| 1 | Red | VBus | Supply voltage + (+4V ... 6V) |
| 2 | White | D- | USB Data- |
| 3 | Green | D+ | USB Data+ |
| 4 | Black | Gnd | Supply voltage - (0V, ground) |

## Technical specifications

| | |
|---|---|
| | **Communication specifications** |
| Communication | USB to UART chip used: FT232BM. For details refer to www.ftdichip.com. |
| UART | 19200 bps, n, 8, 1 |
| Comm. Protocol | Binary, XOR CRC checked frames |
| Comm. Encryption | On request. (32 bit, challenge-response) |
| CPU | 8 bit MCU with 16kBytes flash memory, 9 MIPS throughput |
| Software Updates | With programmer or through USB |
| | **Reader specifications** |
| Operating frequency | 13.56 MHz |
| Supported Tags (Cards) | ISO14443A (Mifare Standard 1kByte, 4 kB, Ultra light) |
| Reading Distance | Up to 100 mm, depending on card (or tag) |
| Mifare operations | Full Mifare functionality (encrypted read, write, value increment, decrement, ... ) |
| | **Electrical specifications** |
| Supply voltage | DC +4V ... +6V (Uses USB's 5V) |
| Current consumption | Max. 50 mA / 5V |
| | **Mechanical and environmental specifications** |
| Dimensions | 88 x 48 x 20 mm |
| Weight | 0.2 kg |
| Temperature Range | -20 °C ÷ +80 °C |

## Mechanical drawings