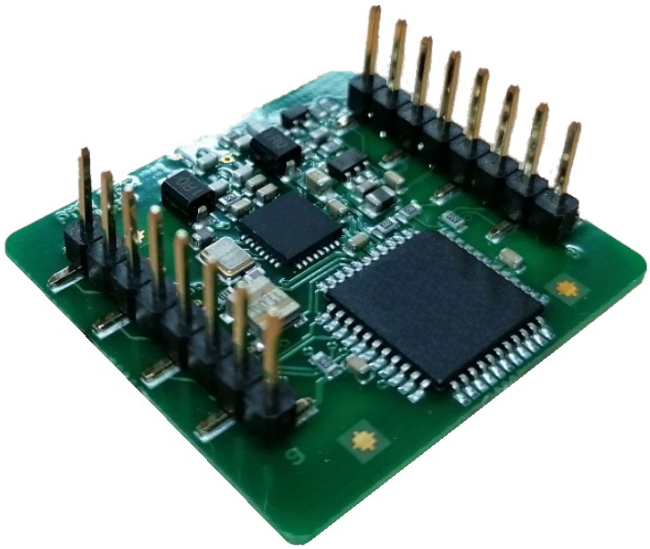
ELATEC TWN3 Mini Reader Mifare NFC User Manual

ELATEC

RFID Systems

TWN3 MINI READER MIFARE NFC
USER MANUAL



Contents

INTRODUCTION

ABOUT THIS MANUAL

This user manual is intended for the user and enables safe and appropriate handling of the product. It gives a general overview, as well as important technical data and safety information about the product. Before using the product, the user should read and understand the content of this user manual.

For the sake of better understanding and readability, this user manual might contain exemplary pictures, drawings, and other illustrations. Depending on your product configuration, these pictures might differ from the actual design of your product.

ELATEC SUPPORT

In case of any technical questions, refer to the ELATEC website (www.elatec.com) or contact ELATEC technical support at: **support-rfid@elatec.com**

In case of questions regarding your product order or if you wish additional copies of this user manual, contact your Sales representative or ELATEC customer service at:
info-rfid@elatec.com

REVISION HISTORY

VERSION	CHANGE DESCRIPTION	EDITION
01	First edition (replaces Transponder Reader Mini Reader MIFARE NFC Quick Start Guide , DocRev1, dated 08/2020)	10/2021

INTENDED USE

ELATEC TWN3 Mini Reader MIFARE NFC is designed for integration into machines, handheld computers or any other device. The focus has especially been set on size, low power consumption, price, and flexibility. Thanks to its compact dimensions, integration directly on a PC board is possible.
The product is intended to be integrated into a host device.
Any use other than the intended use described in this section, as well as any failure to observe the safety information listed in this document, will be considered misuse and will void the warranty. ELATEC is not responsible for any damage or injuries resulting from any misuse of the product.

SAFETY INFORMATION

Installation

- The installation of the product should be done by a trained and qualified personnel only.
  Do not install the product by yourself.
- Metallic materials on or in direct vicinity to the product might reduce the reading performance of the product. In some circumstances, plastic screws should be preferred to metallic screws when installing the product. Refer to the installation instructions or integration manual of the product for more information.

Handling

- Depending on your product configuration, the product might be equipped with one or more light-emitting diodes (LED).
  Avoid direct eye contact with the blinking or steady light of the light-emitting diodes.
- The product has been designed for use under the following conditions:
  o Temperature range: -25 °C – 80 °C (operating conditions)
  o Relative humidity: 5% – 95% (non-condensing)
  o Integration into a host device.
  Any use of the product under different conditions might damage the product or alter its reading performance
- The use of other RFID readers or reader modules in direct vicinity to the product, or in combination with the product might damage the product or alter its reading performance. In case of doubts, contact ELATEC for more information.
- The user is liable for the use of spare parts or accessories other than the ones sold or recommended by ELATEC.
  ELATEC is not responsible for any damage or injuries resulting from the use of spare parts or accessories other than the ones sold or recommended by ELATEC.
- Like most electronic devices, RFID systems generate electromagnetic waves that can vary in amplitude and

frequency. It is generally known and accepted that some RFID devices might potentially interfere with personal medical devices, like pacemakers or hearing aids.

Users with a pacemaker or any other medical device should use TWN3 Mini Reader MIFARE NFC carefully and refer to the information given by the manufacturer of their medical devices before using TWN3 Mini Reader MIFARE NFC or any host device containing TWN3 Mini Reader MIFARE NFC.

Maintenance and cleaning

- Any repair or maintenance work should be done by trained and qualified personnel only.
  Do not try to repair or carry out any maintenance work on the product by yourself.
  Do not allow any repair or maintenance work on the product by an unqualified or unauthorized third party.
- The product does not need any special cleaning.
  Do not use any detergents or other cleaning agents on the product.

Disposal

- The product must be disposed of in accordance with the EU directive on waste electrical and electronic equipment (WEEE) or other applicable local regulations.

Product modifications

- The product has been designed, manufactured, and certified as defined by ELATEC.
  Any product modifications not expressly approved by ELATEC, including – but not limited to – modifications of antennas or other radio-related components, is not allowed and will void the warranty and all approvals granted to the product.

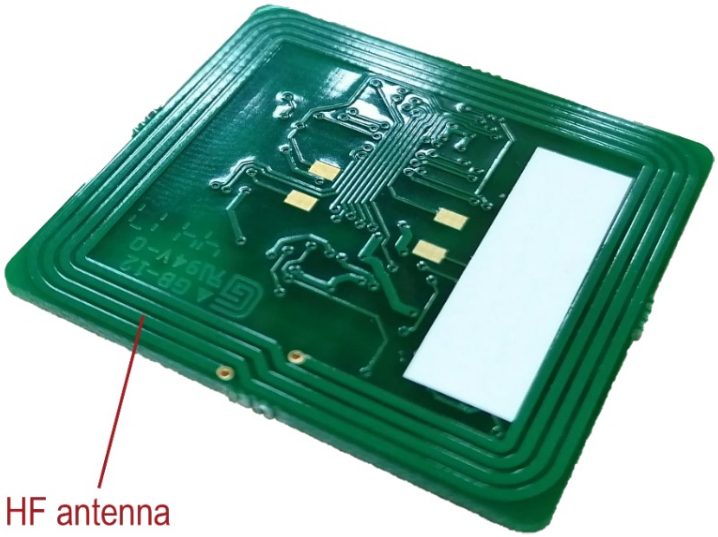
If you are unsure about any part of the safety information above, contact ELATEC support.
Any failure to observe the safety information above will be considered misuse and will void the warranty. ELATEC is not responsible for any damage or injuries resulting from any misuse of the product.

TECHNICAL DATA

Power supply
3.2 V – 5.5 V DC

Current consumption
RF field on 80 mA typically, RF field off: 10 mA, power down: < 2 µA

Antenna
The reader module is equipped with the following antenna:



TWN3 Mini Reader MIFARE NFC – HF antenna (integrated)

HF antenna (13.56 MHz)
Dimensions: 27.5 x 25 mm / 1.08 x 0.98 inch
Number of turns: 4

For more information, refer to the related product data sheet or other technical documents.

MODE OF OPERATION

OPERATING MODE

In order to start operating TWN3 Mini Reader MIFARE NFC, it simply has to be connected directly to a host device.

POWER UP

In case of an external power supply unit is used, the following requirements must be satisfied:

- Limited power source according to the safety norms listed in the respective declaration(s) of conformity
- Short-circuit current < 8 A

ENUMERATION

This is only applicable for the USB version: Once the device has been powered up, it is waiting for completion of the enumeration by the USB host. As long as the device is not enumerated, it is entering a minimum power consumption mode.

INITIALIZATION

After powering up and enumeration (in USB mode), the device is turning on the built-in transponder-reader logic. Some RFID reader modules need some kind of initialization, which is performed in this step.

NORMAL OPERATION

As soon as the reader module has completed the initialization, it is entering normal operation. During normal

operation, the reader module is searching for a transponder continuously.

DETECTION OF A TRANSPONDER

If a transponder is detected by the reader module, the following actions are performed:

- Send the ID to the host. By default, the USB device sends by emulating keystrokes of a keyboard.

Within the two seconds timeout, the transponder, which just has been recognized, will not be accepted again. This prevents the reader module from sending identical IDs more than one time to the host.
If during the two seconds timeout a different transponder is detected, the complete sequence restarts immediately.

SUSPEND MODE

The USB version of the reader module supports the USB suspend mode. If the USB host is signaling suspension via the USB bus, the reader module is turning off most of its power-consuming peripherals. During this operation mode, no detection of transponders is possible. Once the host is resuming to normal operation mode, this is also signaled via the USB bus. Therefore, the reader module will resume normal operation too.

COMPLIANCE STATEMENTS

EU

TWN3 Mini Reader MIFARE NFC is in compliance with the EU directives and regulations as listed in the respective declaration of conformity.

RF EXPOSURE COMPLIANCE

RF exposure statement (mobile and fixed devices)
This device complies with the RF exposure requirements for mobile and fixed devices. However, the device shall be used in such a manner that the potential for human contact during normal operation is minimized.

APPENDIX

A – TERMS AND ABBREVIATIONS

TERM	EXPLANATION
HF	high frequency
NFC	near field communication
RFID	radio frequency identification
WEEE	Waste of electrical and electronic equipment. Refers to Directive 2012/19/EU of the European Parliament and of the Council of the Euro pean Union

B – RELEVANT DOCUMENTATION

ELATEC documentation

- ELATEC quick start guide
- TWN3 Mini Reader MIFARE NFC datasheet
- TWN3 Mini Reader MIFARE NFC integration manual

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RFID Systems

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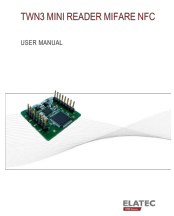
Documents / Resources

	**ELATEC TWN3 Mini Reader Mifare NFC** [pdf] User Manual TWN3, Mini Reader Mifare NFC
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