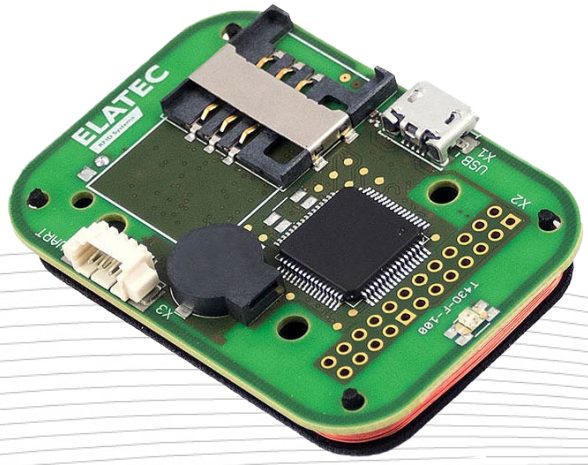
TWN4 MULTITECH 3 M LF

USER MANUAL



ELATEC
RFID Systems

TABLE OF CONTENTS

1 INTRODUCTION

1.1 ABOUT THIS MANUAL

This user manual is intended for the user and enables a 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.

1.2 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

1.3 REVISION HISTORY

VERSION	CHANGE DESCRIPTION	EDITION
04	Chapter “Technical Data” updated	09/2021
03	Chapter “Safety Information” updated	08/2021
02	Editorial changes (layout, new template), product name update (“M” added)	02/2021
01	First edition	06/2020

2 INTENDED USE

TWN4 MultiTech 3 M LF integrates RFID (125 kHz) capabilities into a compact but powerful reader. Its reduced size combined with excellent read/write performance makes it the perfect reader for all applications where small size and full performance matters, e.g. print solutions, healthcare applications, driver identification, POS integration and much more. Furthermore, TWN4 MultiTech 3 M LF provides access to most common host interfaces such as USB, serial (TTL) or I²C which are readily accessible through an on-board connector.

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.

3 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 a use under following conditions:
  - Temperature range: -25 °C – 80 °C (operating conditions)
  - Relative humidity: 5% – 95% (non-condensing)
  - 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 TWN4 MultiTech 3 M LF carefully and refer to the information given by the manufacturer of their medical devices before using TWN4 MultiTech 3 M LF or any host device containing TWN4 MultiTech 3 M LF.

Maintenance and cleaning

- Any repair or maintenance work should be done by a 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.

4 TECHNICAL DATA

Power supply

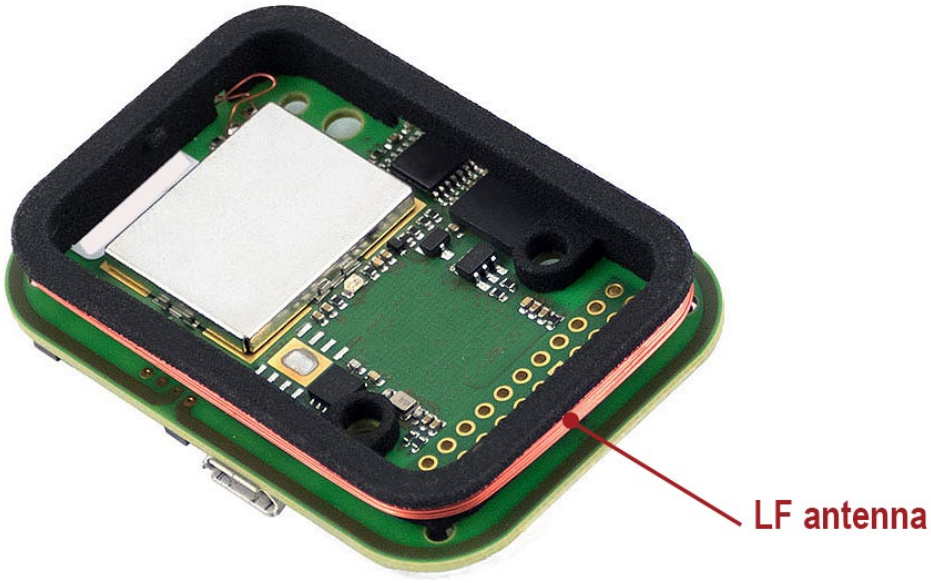
4.3 V - 5.5 V via micro USB; via connector CNB 3.3 V ± 5%

Current consumption

RF field on: 90 mA typically / Sleep: 500 µA typ.

Antenna

The reader module is equipped with the following antenna:



TWN4 MultiTech 3 M LF – bottom view

LF antenna (125 kHz)

Dimensions: 49 x 34 mm / 1.93 x 1.34 inch
Number of turns: 123

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

5 MODE OF OPERATION

5.1 OPERATING MODE

In order to start operating TWN4 MultiTech 3 M LF, it simply has to be connected directly to a host device.

5.2 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

Once TWN4 MultiTech 3 M LF is connected to the host, it detects the type of communications cable (e.g. USB or RS-232), with which it is connected to the host. In case of RS-232: Additionally, the RS-232 is sending a version string via RS-232 to the host.

5.3 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, where both LEDs are turned off.

5.4 INITIALIZATION

After powering up and enumeration (in USB mode), the device is turning on the built-in transponder reader logic. The green LED is turned on permanently. Some reader modules need some kind of initialization, which is performed in this step. After successful initialization, the device sounds a short sequence, which consists of a lower tone followed by a higher tone.

5.5 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.

5.6 DETECTION OF A TRANSPONDER

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

- Send the ID to the host. By default, the USB device sends by emulating keystrokes of a keyboard. An RS-232 device sends the ASCII code of an ID.
- Sound a beep.
- Turn off the green LED.
- Blink the red LED for two seconds.
- Turn on the green LED.

Within the two seconds timeout, where the red LED is blinking, 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 of the red LED a different transponder is detected, the complete sequence restarts immediately.

5.7 SUSPEND MODE

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

6 COMPLIANCE STATEMENTS

6.1 EU

TWN4 MultiTech 3 M LF is in compliance with the EU directives and regulations as listed in the respective declaration of conformity.

6.2 FCC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

Caution
The Federal Communications Commission (FCC) warns the users that changes or modifications to the unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC §15.105 (b)
Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC ID: WP5TWN4F8

6.3 IC

This device complies with Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions:
(1) This device may not cause interference; and
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:
(1) l'appareil ne doit pas produire de brouillage;
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

IC: 7948A-TWN4F8

6.4 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
FCC	Federal Communications Commission
IC	Industry Canada
LF	low frequency
RFID	radio frequency identification
WEEE	Waste of electrical and electronic equipment. Refers to Directive 2011/65/EU of the European Parliament and of the Council of the European Union

B – RELEVANT DOCUMENTATION

ELATEC documentation

- ELATEC quick start guide
- TWN4 MultiTech 3 M LF data sheet
- TWN4 MultiTech 3 M LF integration manual
- TWN4 MultiTech 3 technical handbook

ELATEC

RFID Systems

ELATEC GMBH

Zeppelinstr. 1 • 82178 Puchheim • Germany
P +49 89 552 9961 0 • F +49 89 552 9961 129 • E-mail: info-rfid@elatec.com
elatec.com