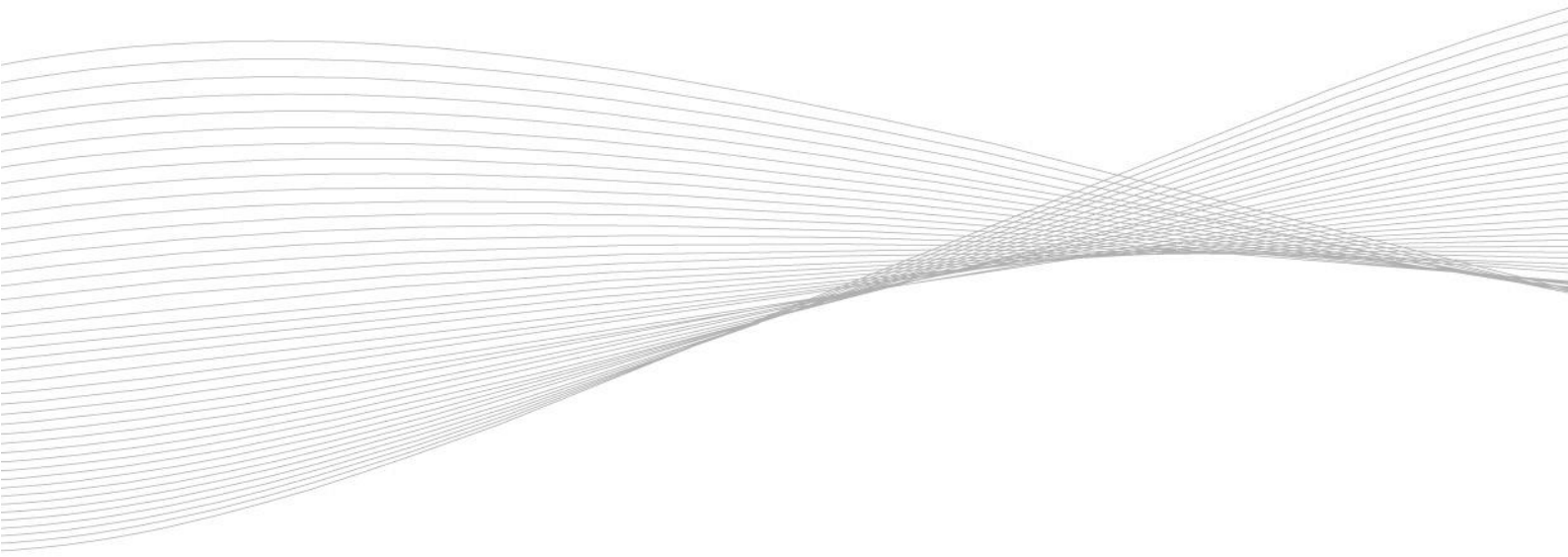
TWN4 USB Front Reader family

TWN4 USB Front Reader
TWN4 USB Front Reader LEGIC

USER MANUAL



ELATEC
RFID Systems

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1 INTRODUCTION

1.1 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 manual.

For the sake of better understanding and readability, this 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.

The original version of this manual has been written in English. Wherever the manual is available in another language, it is considered as a translation of the original document for information purposes only. In case of discrepancy, the original version in English will prevail.

1.2 ELATEC SUPPORT

In case of any technical questions or product malfunction, 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, contact your Sales representative or ELATEC customer service at **info-rfid@elatec.com**.

2 SAFETY INFORMATION

Transport and storage

- Carefully observe the transport and storage conditions described on the product packaging or other relevant product documents (e.g. data sheet).

Unpacking and installation

- Before unpacking and installing the product, this manual and all relevant installation instructions must be read carefully and understood.

- The product might show sharp edges or corners and requires a particular attention during the unpacking and installation.
  Unpack the product carefully and do not touch any sharp edges or corners, or any sensitive components on the product.
  If necessary, wear safety gloves.

- After unpacking the product, check that all components have been delivered according to your order and delivery note.
  Contact ELATEC if your order is not complete.

- The product is an electronic device whose installation requires specific skills and expertise.
  The installation of the product should be done by trained and qualified personnel only.

Handling

- To comply with the applicable RF exposure requirements, the product should be installed and operated with a minimum distance of 20 cm to any user's/nearby person's body at all times. Refer to Chapter "Compliance statements" for further information about RF exposure compliance.

- 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 specific conditions, e.g. in a specific temperature range (refer to the product data sheet).
  Any use of the product under different conditions might damage the product or alter its reading performance.

- The use of other RFID devices 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 excludes any liability for damages 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.
  The RFID readers of the TWN4 USB Front Reader family fulfill general radio and EMC requirements. However, users with a pacemaker or any other medical device should use the readers carefully and

refer to the information given by the manufacturer of their medical devices before using the readers or any host device containing the readers.

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 RFID readers of the TWN4 USB Front Reader family do not need any special cleaning. However, the housing of the readers may be carefully cleaned up with a soft, dry cloth and a non-aggressive or non-halogenated cleaning agent on the outer surface only.
  Make sure that the cloth and cleaning agent used to clean up the housing of the readers do not damage the product or its components (e.g. label(s)).

Disposal

- The product must be disposed of in accordance with applicable local regulations.

Product modifications

- The product has been designed, manufactured and certified as defined by ELATEC.
  Any product modification without prior written approval from ELATEC is prohibited and considered improper use of the product. Unauthorized product modifications may also result in the loss of product certifications.

If you are unsure about any part of the safety information above, contact ELATEC support.

Any failure to comply with the safety information given in this document is considered improper use. ELATEC excludes any liability in case of improper use or faulty product installation.

3 PRODUCT DESCRIPTION

3.1 INTENDED USE

The RFID readers of the TWN4 USB Front Reader family allow users to read and write RFID media in the 125 kHz (LF) and 13.56 MHz (HF) frequency bands. In addition, the readers also support the BLE (2.4 GHz) technology. All products are for indoor use only and must be used in environmental conditions according to the respective product data sheets and installation instructions. All products are for professional use only.

Any use other than the intended use described in this section, as well as any failure to comply with the safety information given in this document, is considered improper use. ELATEC excludes any liability in case of improper use or faulty product installation.

3.2 PRODUCT FAMILY

The TWN4 USB Front Reader family contains the following RFID readers:

TWN4 USB Front Reader		
 	Frequencies	125 kHz (LF) / 13.56 MHz (HF) / 2.4 GHz (BLE)
	Antennas	**Integrated RFID LF antenna** Dimensions: 48.00 x 33.00 mm / 1.89 x 1.30 inch Number of turns: 128 **Integrated RFID HF antenna** Dimensions: 48.00 x 33.00 mm / 1.89 x 1.30 inch Number of turns: 3 **Bluetooth Low Energy** Integrated BLE chip
	Dimensions (L x W x H)	Approx. 60.00 x 39.00 x 16.50 mm / 2.36 x 1.54 x 0.65 inch
	Power	USB: 4.3 V - 5.5 V ES1/PS2 classified power source according to IEC 62368-1, short-circuit current < 8 A
	Current consumption	RF field on: 260 mA typically + 16 mA (BLE)
	Temperature ranges	Operating: 0 °C up to +65 °C / +32 °F up to +149 °F Storage: -40 °C up to +70 °C / -40 °F up to +158 °F
	Relative humidity	5% to 95% non-condensing
	R/W distance	LF and HF: up to 51 mm / 4 inch, depending on environment and transponder
	MTBF	500,000 hours
	Weight	Approx. 22 g / 0.78 oz

TWN4 USB Front Reader LEGIC		
 	Frequencies	125 kHz (LF) / 13.56 MHz (HF) / 2.4 GHz (BLE)
	Antennas	**Integrated RFID LF antenna** Inner dimensions: 43.40 x 28.40 mm / 1.71 x 1.12 inch (± 0.1) Number of turns: 123-128 (max.) **Integrated RFID HF antenna** Outer dimensions: 48.00 x 33.00 mm / 1.89 x 1.30 inch (± 1%) Number of turns: 3 **Bluetooth Low Energy** Integrated BLE chip
	Dimensions (L x W x H)	Approx. 60.00 x 39.00 x 16.50 mm / 2.36 x 1.54 x 0.65 inch
	Power	USB: 4.3 V - 5.5 V ES1/PS2 classified power source according to IEC 62368-1, short-circuit current < 8 A
	Current consumption	RF field on: 260 mA typically + 16 mA (BLE)
	Temperature ranges	Operating: 0 °C up to +65 °C / +32 °F up to +149 °F Storage: -40 °C up to +70 °C / -40 °F up to +158 °F
	Relative humidity	5% to 95% non-condensing
	R/W distance	LF and HF: up to 51 mm / 4 inch, depending on environment and transponder
	MTBF	500,000 hours
	Weight	Approx. 22 g / 0.78 oz

3.3 FIRMWARE

Your product is delivered ex-works with a specific firmware version, which is displayed on the product label (Fig. 1).

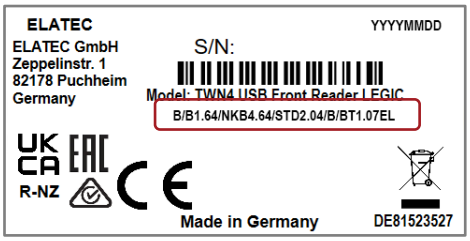


Fig. 1 - exemplary illustration

3.4 LABELING

The RFID readers of the TWN4 USB Front Reader family are delivered ex-works with a label (Fig. 1) attached on the rear side of the housing (Fig. 2).



Fig. 2 - exemplary illustration

This label contains important product information (e.g. certification information) and may not be removed or damaged. In case of a label wear-out, contact ELATEC.

3.5 SCOPE OF DELIVERY

The RFID readers of the TWN4 USB Front Reader family are delivered with the following mounting components:

	**Mounting angle kit** The mounting angle kit contains 4 screws and a mounting angle intended to fix the reader onto a host device.
	**Adhesive pads** 4 pieces, 24 x 11 mm The adhesive pads enable to fix the reader onto the host device. They can be used alone or in combination with the mounting angle kit.

Refer to Chapter “Installation” for more information about the mounting options.

4 INSTALLATION

The RFID readers of the TWN4 USB Front Reader family are Plug & Play devices that can simply be connected to a host device (e.g. printer) thanks to the USB connector on the rear side of the readers. This patented USB connector can be turned to 90°, which enables a quick and easy installation into any host system equipped with a USB port.

Optionally, the readers can be fixed onto a host device (e.g. printer) using the mounting angle kit and/or adhesive pads listed in Chapter “Scope of delivery”. The illustrations below describe both mounting configurations:

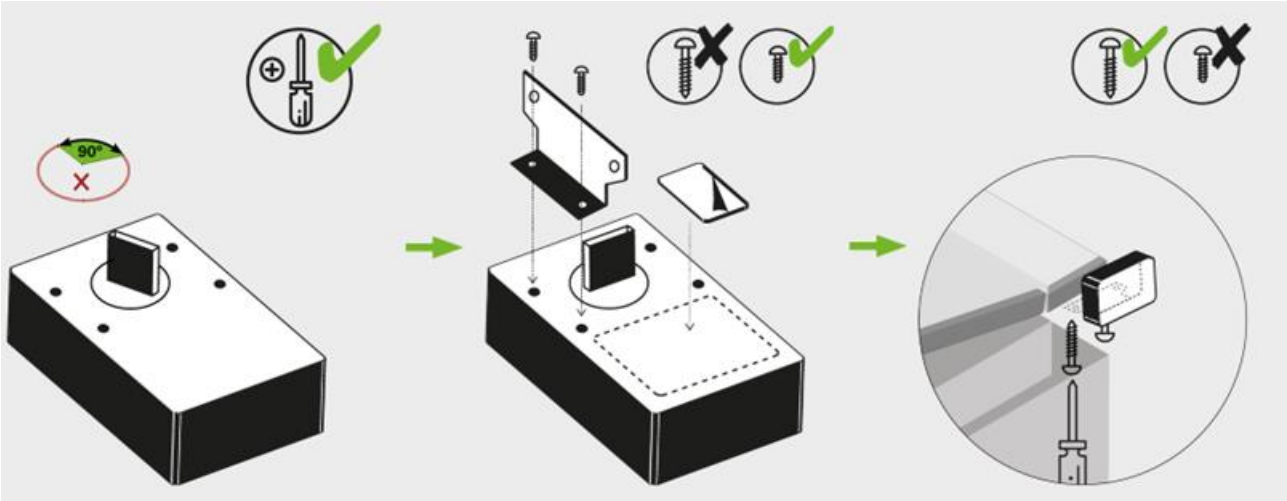


Fig. 3 - installation with mounting angle kit and one adhesive pad

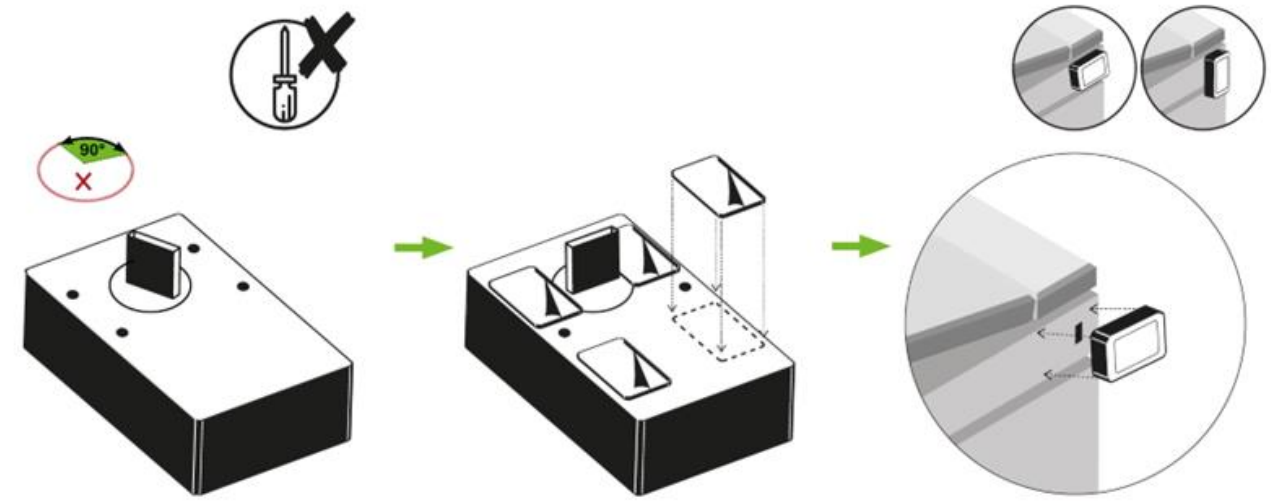


Fig. 4 - installation with four adhesive pads

5 MODE OF OPERATION

The mode of operation described in the following chapter is based on a standard ELATEC RFID reader equipped with two LEDs. Depending on your product (number of LEDs, installed firmware, etc.) and in case the product settings have been modified with the ELATEC AppBlaster tool, the information below might differ from your product configuration when in operation. In particular, the color and sequence of the LEDs on your product might be different.

5.1 OPERATING MODE

To start operating the reader, it simply has to be connected directly to a host device. The readers of the TWN4 USB Front Reader family are not designed to be operated with any extension lead.

5.2 POWER UP

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

- ES1/PS2 classified power source according to IEC 62368-1
- Short-circuit current < 8 A

5.3 ENUMERATION

Once the reader has been powered up, it waits for completion of the enumeration by the USB host. As long as the reader is not enumerated, it is in a minimum power consumption mode, where both LEDs are turned off.

5.4 INITIALIZATION

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

5.5 NORMAL OPERATION

As soon as the reader has completed the initialization, it enters the normal operation mode. During normal operation, the reader searches for a transponder continuously.

5.6 DETECTION OF A TRANSPONDER

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

- Send the ID to the host. By default, the reader sends by emulating keystrokes of a keyboard.
- 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 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 readers of the TWN4 USB Front Reader family support the USB suspend mode. If the USB host signals suspend via the USB bus, the reader turns 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 resumes 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 GENERAL STATEMENTS

6.1.1 RF EXPOSURE STATEMENT

The RFID readers of the TWN4 USB Front Reader family comply with the RF exposure requirements for mobile and fixed devices (47 CFR 2.1091). However, the devices shall be used in such a manner that the potential for human contact during normal operation is minimized.

6.1.2 MEXICO / MÉXICO

La operación de este equipo está sujeta a las siguientes dos condiciones:

(1) Es posible que este equipo o dispositivo no cause interferencia perjudicial y
(2) Este equipo o dispositivo debe aceptar cualquier interferencia, incluyendo la que pueda causar su operación no deseada.

6.2 TWN4 USB FRONT READER

6.2.1 EU

Hereby, ELATEC GmbH declares that TWN4 USB Front Reader complies with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: elatec.com/approvals

6.2.2 FCC

Contains FCC ID: WP5TWN4F4
Contains FCC ID: QOQBGM12LMA

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. (except receivers associated with operation of a licensed radio service and stand-alone devices).

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.

6.2.3 ISED / ISDE CANADA

Contains IC: 7948A-TWN4F4
Contains IC: 5123A-BGM12LMA

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:
1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique 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'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

6.2.4 ARGENTINA

R! RAMATEL C-27760

6.2.5 BRAZIL / BRASIL

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados.

6.2.6 MOROCCO / المغرب

AGRÉÉ PAR L'ANRT MAROC
Numéro d'agrément : MR00005767ANRT2024
Date d'agrément : 24/12/2024

6.2.7 SINGAPORE

Complies with
IMDA Standard
[DA 103787]

6.2.8 TAIWAN / 臺灣

注意!

取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前述合法通信，指依電信管理法規定作業之無線電通信。低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

6.2.9 THAILAND / ประเทศไทย



6.2.10 UKRAINE / УКРАЇНА UA

Технічний регламент радіообладнання, затвердженого Постановою Кабінету Міністрів України від 24 травня 2017 р. №355:
справжнім «ELATEC GmbH» (Zeppelinstrasse 1, 82178 Puchheim, Germany/Німеччина) заявляє, що тип радіообладнання: Пристрій радіочастотної ідентифікації [RFID Reader/Writer 125 kHz, 13,56 MHz] т.м. «ELATEC» моделі TWN4 USB Front Reader відповідає Технічному регламенту радіообладнання.

ОСНОВНІ ХАРАКТЕРИСТИКИ

Радіотехнологія	Смуги радіочастот	Максимальна потужність випромінювання
LF RFID	119 – 140 кГц	Мінус 1,87 дБмкА/м, Напруженість магнітного поля, виміряна на відстані 10 м
HF RFID	13,553 – 13,567 МГц	Мінус 7,45 дБмкА/м, Напруженість магнітного поля, виміряна на відстані 10 м

6.2.11 UNITED KINGDOM

TWN4 USB Front Reader complies with the requirements of the UK legislations and other regulations as listed in the respective UK declaration of conformity. The importer is responsible for applying the following information to the packaging of the product:

- the importer company's details, including the company's name and a contact address in the United Kingdom.
- UKCA marking

6.3 TWN4 USB FRONT READER LEGIC

6.3.1 EU

Hereby, ELATEC GmbH declares that TWN4 USB Front Reader LEGIC complies with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: elatec.com/approvals

6.3.2 MOROCCO / المغرب

AGRÉÉ PAR L'ANRT MAROC
Numéro d'agrément : MR00005768ANRT2024
Date d'agrément : 24/12/2024

6.3.3 SINGAPORE

Complies with
IMDA Standard
[DA 103787]

6.3.4 THAILAND / ประเทศไทย



6.3.5 UNITED KINGDOM

TWN4 USB Front Reader LEGIC complies with the requirements of the UK legislations and other regulations as listed in the respective UK declaration of conformity. The importer is responsible for applying the following information to the packaging of the product:

- the importer company's details, including the company's name and a contact address in the United Kingdom.
- UKCA marking

APPENDIX

A – RELEVANT DOCUMENTATION

ELATEC documentation

- ELATEC quick start guide / TWN4 USB Front Reader family, instructions for use
- TWN4 USB Front Reader data sheet
- TWN4 USB Front Reader LEGIC data sheet
- TWN4 USB Front Reader technical handbook

External documentation

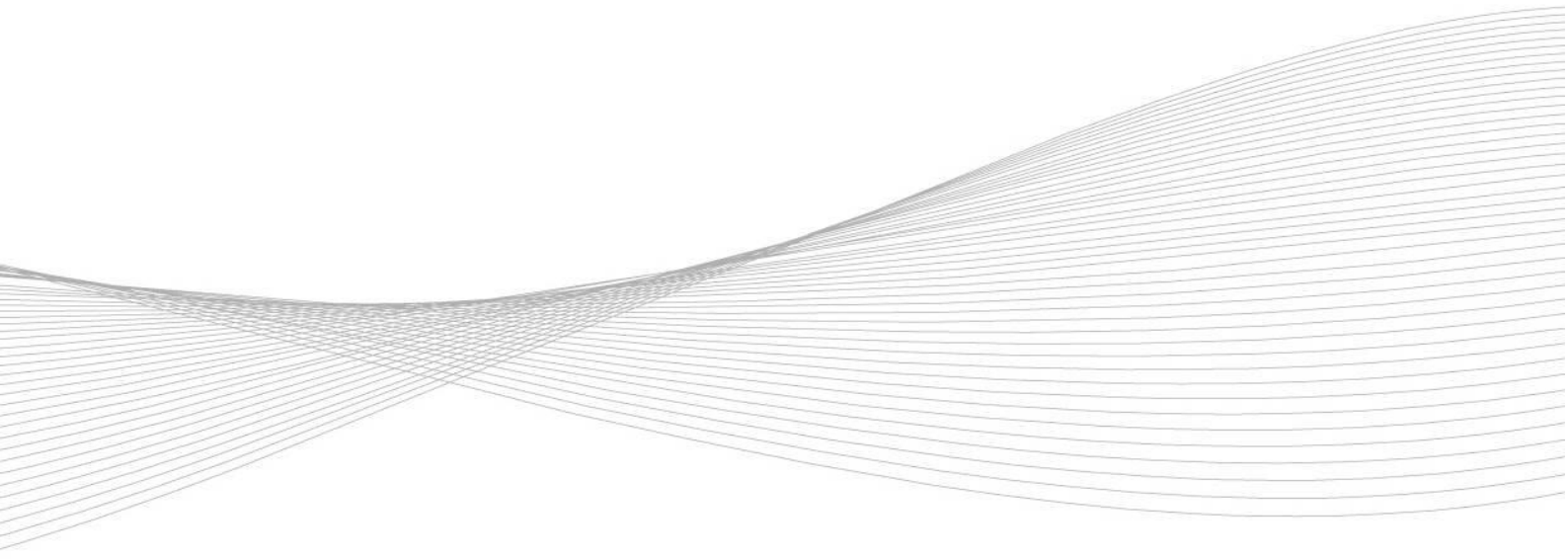
- Technical documentation related to the installation site or connected devices

B – TERMS AND ABBREVIATIONS

TERM	EXPLANATION
BLE	Bluetooth Low Energy
EMC	electromagnetic compatibility
HF	high frequency
LF	low frequency
MTBF	mean time between failures
RFID	radio frequency identification
R/W	read/write (distance)

C – REVISION HISTORY

VERSION	CHANGE DESCRIPTION	EDITION
03	Chapter “Compliance statements” updated	01/2025
02	Chapters “Intended use”, “Product family” and “Relevant documentation” updated	10/2024
01	First edition	05/2024



elatec.com

EMEA
Puchheim, Germany
+49 89 552 9961 0
sales-rfid@elatec.com

AMERICAS
Palm City, Florida, USA
+1 772 210 2263
americas-info@elatec.com

ASIA
Shenzhen, China
+86 755 23946014
apac-info@elatec.com

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