

TWN4 Slim family

TWN4 Slim

TWN4 Slim JP

TWN4 Slim LEGIC

TWN4 Slim MK2

TWN4 Slim MK2 LF HF

USER MANUAL

TABLE OF CONTENTS

1	INTRODUCTION	3
1.1	ABOUT THIS MANUAL	3
1.2	ELATEC SUPPORT	3
2	SAFETY INFORMATION	4
3	PRODUCT DESCRIPTION	6
3.1	INTENDED USE	6
3.2	PRODUCT FAMILY	6
3.3	FIRMWARE	9
3.4	LABELING	9
3.5	ACCESSORIES	9
4	MOUNTING OPTIONS	11
4.1	STAND-ALONE READER INSTALLATION	11
4.2	INSTALLATION IN AN MFP INTEGRATION POCKET	11
4.3	MOUNTING FRAME	12
4.4	MOUNTING HOLES	12
5	CONNECTION TO A HOST DEVICE	14
5.1	CONNECTION WITH FLEXIBLE MICRO USB CABLE	14
5.2	CONNECTION WITH MICRO USB CONNECTOR	14
6	MODE OF OPERATION	15
6.1	OPERATING MODE	15
6.2	POWER UP	15
6.3	ENUMERATION	15
6.4	INITIALIZATION	15
6.5	NORMAL OPERATION	15
6.6	DETECTION OF A TRANSPONDER	15
6.7	SUSPEND MODE	16
7	COMPLIANCE STATEMENTS	17
7.1	GENERAL STATEMENTS	17
7.2	TWN4 SLIM	17
7.3	TWN4 SLIM JP	21
7.4	TWN4 SLIM LEGIC	21
7.5	TWN4 SLIM MK2	25
7.6	TWN4 SLIM MK2 LF HF	26

APPENDIX	28
A – RELEVANT DOCUMENTATION.....	28
B – TERMS AND ABBREVIATIONS.....	28
C – REVISION HISTORY.....	28

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.

- In case the product is equipped with a cable, do not twist or pull the cable excessively.

- In case the product is equipped with a cable, the cable may not be replaced or extended.

ELATEC excludes any liability for damages or injuries resulting from the use of the product with a cable extension or a replaced cable.

- 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 Slim 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 product does not need any special cleaning. However, the housing 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 used cloth and cleaning agent 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 Slim family allow users to read and write RFID media in the 125 kHz (LF) and 13.56 MHz (HF) frequency bands. In addition, some reader models also support the BLE (2.4 GHz) technology. All readers are for indoor use only in environmental conditions according to the respective product data sheets and installation instructions given in this manual and in the instructions for use delivered with the product. Although they are intended for general identification purposes, the readers have been optimized for machine integration and secure printing applications.

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

TWN4 Slim	
	Frequencies 125 kHz (LF) / 13.56 MHz (HF) / 2.4 GHz (BLE)
	Integrated RFID LF antenna Diameter: 20.50 mm / 0.81 inch Number of turns: 229
Antennas	Integrated RFID HF antenna Dimensions: 55.00 x 41.00 mm / 2.17 x 1.61 inch Number of turns: 3
	Bluetooth Low Energy Integrated BLE chip
	Dimensions (L x W x H) Approx. 65.50 x 45.50 x 4.00 mm / 2.58 x 1.79 x 0.16 inch
Power	Micro 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: 135 mA typically (preliminary) Idle: 70 mA
Temperature ranges	Operating: -20 °C up to +60 °C / -4 °F up to +140 °F Storage: -30 °C up to +70 °C / -22 °F up to +158 °F
Relative humidity	5% to 95% non-condensing
R/W distance	LF and HF: up to 80 mm / 3.15 inch, depending on environment and transponder BLE: up to several meters/feet
MTBF	500,000 hours
Weight	Approx. 18 g / 0.64 oz (without cable and holder)

TWN4 Slim JP



Frequencies	13.56 MHz (HF) / 2.4 GHz (BLE)
Antennas	Integrated RFID HF antenna Dimensions: 55.00 x 41.00 mm / 2.17 x 1.61 inch Number of turns: 3 Bluetooth Low Energy Integrated BLE chip
Dimensions (L x W x H)	Approx. 65.50 x 45.50 x 4.00 mm / 2.58 x 1.79 x 0.16 inch
Power	Micro 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: 135 mA typically (preliminary) Idle: 70 mA
Temperature ranges	Operating: -20 °C up to +60 °C / -4 °F up to +140 °F Storage: -30 °C up to +70 °C / -22 °F up to +158 °F
Relative humidity	5% to 95% non-condensing
R/W distance	HF: up to 80 mm / 3.15 inch, depending on environment and transponder BLE: up to several meters/feet
MTBF	500,000 hours
Weight	Approx. 18 g / 0.64 oz (without cable and holder)

TWN4 Slim LEGIC



Frequencies	125 kHz (LF) / 13.56 MHz (HF) / 2.4 GHz (BLE)
Antennas	Integrated RFID LF antenna Diameter: 20.50 mm / 0.81 inch Number of turns: 229 Integrated RFID HF antenna Dimensions: 55.00 x 41.00 mm / 2.17 x 1.61 inch Number of turns: 3 Bluetooth Low Energy Integrated BLE chip
Dimensions (L x W x H)	Approx. 65.50 x 45.50 x 4.00 mm / 2.58 x 1.79 x 0.16 inch
Power	Micro 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: 135 mA typically (preliminary) Idle: 70 mA
Temperature ranges	Operating: -20 °C up to +60 °C / -4 °F up to +140 °F Storage: -30 °C up to +70 °C / -22 °F up to +158 °F
Relative humidity	5% to 95% non-condensing
R/W distance	LF and HF: up to 80 mm / 3.15 inch, depending on environment and transponder BLE: up to several meters/feet
MTBF	500,000 hours
Weight	Approx. 18 g / 0.64 oz (without cable and holder)

TWN4 Slim MK2



Frequencies	125 kHz (LF) / 13.56 MHz (HF) / 2.4 GHz (BLE)
Antennas	Integrated RFID LF antenna Inner Ø: 16.20 mm ± 0.3 / 0.64 inch ± 0.01 Outer Ø (max.): 20.70 mm / 0.81 inch Number of turns: 132 (min. 125, max. 140)
	Integrated RFID HF antenna Dimensions: 55.00 x 41.00 mm / 2.17 x 1.61 inch Number of turns: 3
	Bluetooth Low Energy Integrated BLE chip
Dimensions (L x W x H)	Approx. 65.50 x 45.50 x 4.00 mm / 2.58 x 1.79 x 0.16 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: 135 mA typically (preliminary) Idle: 70 mA
Temperature ranges	Operating: -20 °C up to +60 °C / -4 °F up to +140 °F Storage: -30 °C up to +70 °C / -22 °F up to +158 °F
Relative humidity	5% to 95% non-condensing
R/W distance	LF and HF: up to 80 mm / 3.15 inch, depending on environment and transponder BLE: up to several meters/feet
MTBF	500,000 hours
Weight	Approx. 18 g / 0.64 oz (without cable and holder)

TWN4 Slim MK2 LF HF



Frequencies	125 kHz (LF) / 13.56 MHz (HF)
Antennas	Integrated RFID LF antenna Inner Ø: 16.20 mm ± 0.3 / 0.64 inch ± 0.01 Outer Ø (max.): 20.70 mm / 0.81 inch Number of turns: 132 (min. 125, max. 140)
	Integrated RFID HF antenna Dimensions: 55.00 x 41.00 mm / 2.17 x 1.61 inch Number of turns: 3
Dimensions (L x W x H)	Approx. 65.50 x 45.50 x 4.00 mm / 2.58 x 1.79 x 0.16 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: 135 mA typically (preliminary) Idle: 70 mA
Temperature ranges	Operating: -20 °C up to +60 °C / -4 °F up to +140 °F Storage: -30 °C up to +70 °C / -22 °F up to +158 °F
Relative humidity	5% to 95% non-condensing
R/W distance	LF and HF: up to 80 mm / 3.15 inch, depending on environment and transponder
MTBF	500,000 hours
Weight	Approx. 18 g / 0.64 oz (without cable and holder)

Refer to the data sheet of your product for additional technical specifications.

3.3 FIRMWARE

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

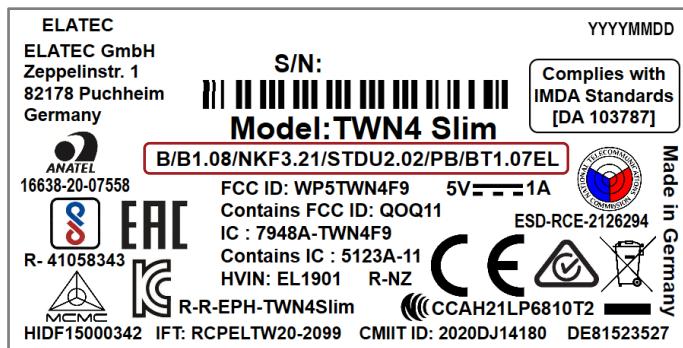


Fig. 1 - exemplary illustration

3.4 LABELING

The RFID readers of the TWN4 Slim 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 ACCESSORIES

The RFID readers of the TWN4 Slim family can be delivered with the following optional components:



Adhesive pads

The adhesive pads delivered with the TWN4 Slim mounting frame enable to fix the frame and the reader on the desired location



TWN4 Slim mounting frame

The TWN4 Slim mounting frame is delivered with adhesive pads and enables to fix the reader on the desired location and to prevent unauthorized removal of the reader or unintentional removal of the USB cable.



HIP1 cover

MFP printers equipped with an integration pocket usually have a large or a small recess for the integration of RFID readers. The HIP1 cover offered by ELATEC can be used to integrate TWN4 Slim readers in the larger recess of these MFP printers.



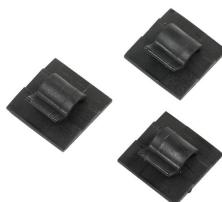
HIP2 cover

MFP printers equipped with an integration pocket usually have a large or a small recess for the integration of RFID readers. The HIP2 cover offered by ELATEC can be used to integrate TWN4 Slim readers in the smaller recess of these MFP printers.



Rubber feet

The rubber feet can be fixed to the rear side of the TWN4 Slim readers and confer a better grip when the reader is used on a flat surface, like a desk.



Cable clips

The cable clips are delivered as a kit containing 3 adhesive clips that can be used to fix the cable of the reader.

In addition, ELATEC also offers cables of different types (e.g. micro USB) in various lengths for connecting the RFID readers of the TWN4 Slim family to the intended host devices.

Refer to the ELATEC website for more information about the available cables and accessories.

4 MOUNTING OPTIONS

4.1 STAND-ALONE READER INSTALLATION

To use the reader as a stand-alone unit, it simply has to be connected to the host device using an appropriate cable and the flexible micro USB cable or the micro USB connector, as described in Chapter "Connection to a host device". Optionally, the 4 rubber feet can be placed on the back of the reader as illustrated below.

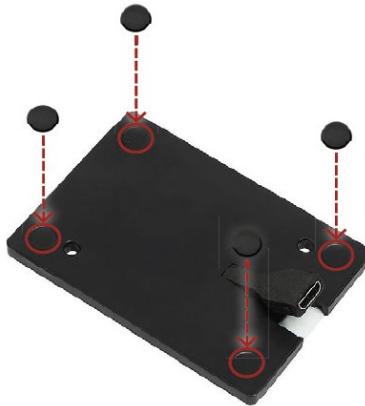


Fig. 3



It is recommended to place the reader on a clean and flat, non-metallic surface (e.g., on a desk or a table) and to avoid metallic objects in the direct vicinity of the reader.

4.2 INSTALLATION IN AN MFP INTEGRATION POCKET

Some printers have been equipped with a recess, also known as integration pocket, that enables users to integrate their own solutions, such as an RFID reader. Depending on the printer model, the pockets are available in two different sizes. For readers intended to be used with such a printer, the readers of the TWN4 Slim family can also be delivered and mounted with a HIP1 (larger recess) or HIP2 (smaller recess) cover. Proceed as follows to install the reader in an integration pocket:



Fig. 4 - example with ELATEC standard inlay and TWN4 Slim

1. Remove the HIP cover on the printer. If necessary, use a slot screwdriver to release the tabs of the cover.
2. Connect the reader to the host device as described in Chapter "Connection to a host device" and insert the reader into the HIP cover. Then, place the HIP cover into the recess of the printer.
3. Snap the HIP cover into place by positioning the tabs of the cover in the slots in the recess and pressing the cover down to create a flat surface.
4. Make sure that the HIP cover is correctly seated.

Refer to Chapter “Accessories” for more information about ELATEC HIP covers and to the user manual of your printer for more information about the integration pockets.

4.3 MOUNTING FRAME

The RFID readers of the TWN4 Slim family can also be installed on a wall, host device or any other appropriate surface using the specific TWN4 Slim mounting frame. This frame can be easily fixed with the delivered adhesive pads. To do so, proceed as follows:



Fig. 5 - exemple with ELATEC standard mounting frame

1. Connect the reader to the host device as described in Chapter “Connection to a host device”. Make sure that the USB cable is correctly seated in the cable strain relief before connecting the cable to the reader.
2. Using the adhesive pads, fix the reader to the mounting frame first, then fix the mounting frame with the reader to the desired location (e.g. printer, machine, wall).
3. Make sure that the reader and the mounting frame have been fixed correctly to avoid any damage to the reader or unintentional removal of the USB cable.

Refer to Chapter “Accessories” for more information about the TWN4 Slim mounting frame.

4.4 MOUNTING HOLES

The RFID readers of the TWN4 Slim family are equipped with two mounting holes that can be used to fix the reader. In this configuration, the readers are delivered with a specific inlay designed with two mounting hole cutouts that enable proper use of the mounting holes (Fig. 6).



Fig. 6 - TWN4 Slim reader with mounting hole cutouts

Proceed as follows to fix the reader using the mounting holes:

1. Connect the reader to the host device as described in Chapter “Connection to a host device”.
2. Place the reader in the desired mounting location.

3. Using a screwdriver and the mounting holes, fix the reader with two plastic screws $\varnothing 3.0 \text{ mm}^1$.
4. Make sure that the reader is firmly seated and connected and that the housing and other components are not damaged².

¹ Please be aware of the influence of metallic materials on or in direct vicinity to the reader. These materials could reduce the reading performance of the reader. Thus, it is necessary to use non-ferromagnetic screws (e.g. plastic screws) when fixing the reader through the mounting holes.

² The readers of the TWN4 Slim family consists of a thin plastic housing and sensitive electronic components. When fixing a reader using the mounting holes, do not overtighten the screws to avoid any damage to the housing or the components on the circuit board.

5 CONNECTION TO A HOST DEVICE

5.1 CONNECTION WITH FLEXIBLE MICRO USB CABLE

This chapter applies to the TWN4 Slim, TWN4 Slim JP and TWN4 Slim LEGIC reader models only.

Before connecting the reader to the host device with the flexible micro USB cable, the following safety information must be read carefully and understood:

- The reader is equipped with a flexible cable that can be safely and easily turned to 180°, which facilitates the installation process. However, the cable shall not be pulled excessively or twisted if not necessary.
- The flexible cable is an integral component of the reader and may not be replaced or extended.
- The micro USB connector on the flexible cable is a sensitive component that requires particular attention. When plugging a host cable in and out, the connector must always be held, e.g. with a thumb.
- After a host cable has been plugged in, the micro USB connector may not be held or blocked when turning the flexible cable.
- When turning the flexible cable, it is important to use the largest bending radius to avoid overbending or excessive kinking of the cable.

Proceed as follows to connect the reader to the host device:

1. Hold the micro USB connector on the reader with a thumb and insert the host cable carefully.
2. If the installation of the reader requires the flexible cable to be turned, **do not** hold or block the connector when turning the flexible cable and try to use the largest bending radius.
3. **Do not** twist the cable or connector if not necessary.
In case the reader is installed in a printer integration pocket, it is necessary to plug the host cable in the connector and turn the flexible cable first before inserting the reader in the HIP cover.
4. **Do not** insert the cable in the connector and **do not** bend the connector when the reader is installed in the HIP cover.

5.2 CONNECTION WITH MICRO USB CONNECTOR

This chapter applies to the TWN4 Slim MK2 and TWN4 Slim MK2 LF HF reader models only.

Before connecting the reader to the host device with the micro USB connector, the following safety information must be read carefully and understood:

- The reader is equipped with a micro USB connector that enables a quick and easy connection to the host device. Once an appropriate cable has been plugged in to the micro USB connector, the cable shall not be pulled excessively.
- In addition, the USB plug connector of the cable should not be held and twisted excessively when the cable is plugged in to the micro USB connector of the reader. Otherwise, the micro USB connector of the reader might be damaged.

To connect the reader to the host device, it simply has to be connected through the micro USB connector using an appropriate USB cable.

6 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 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.

6.1 OPERATING MODE

In order to start operating the reader, it simply has to be connected directly to a host device.

6.2 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

6.3 ENUMERATION

Once the device 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.

6.4 INITIALIZATION

After powering up and enumeration, the device 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 device sounds a short sequence, which consists of a lower tone followed by a higher tone.

6.5 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.

6.6 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 USB device 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.

6.7 SUSPEND MODE

The reader supports 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.

7 COMPLIANCE STATEMENTS

7.1 GENERAL STATEMENTS

7.1.1 RF EXPOSURE STATEMENT

The RFID readers of the TWN4 Slim 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.

7.1.2 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.

7.2 TWN4 SLIM

7.2.1 EU

Hereby, ELATEC GmbH declares that TWN4 Slim 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

7.2.2 FCC

FCC ID: WP5TWN4F9

Contains FCC ID: QOQ11

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.

7.2.3 ISED / ISDE CANADA

IC: 7948A-TWN4F9

Contains IC: 5123A-11

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.

7.2.4 BRAZIL / BRASIL

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

7.2.5 CHINA (PRC) / 中华人民共和国

Micropower scope of use declaration:	微功率使用规范声明：
TWN4 Slim supports transmission frequencies of 13.56 MHz and 125 kHz. The user needs to adhere to the following specifications when using the product:	TWN4 Slim 支持 13.56MHz 和 125kHz 发射频率，用户在使用过程中，需要遵守以下要求：
(1) The specific provisions listed in the "catalog and the technical specifications for micropower short-range radio transmission equipment" as well as the usage scenarios for the antenna type used, the functions, and the customary use of the control system, regulation, and switches must be complied with;	(一) 符合“微功率短距离无线电发射设备目录和技术要求”的具体条款和使用场景，采用的天线类型和性能，控制、调整及开关等使用方法；
Transmission power:	<p>发射功率：</p> <p>13.56MHz : $\leq -6.17\text{dB}\mu\text{A}/\text{m}$ (10 米处场强，准峰值)</p> <p>125kHz : $\leq -23.94\text{dB}\mu\text{A}/\text{m}$</p>

<p>13.56 MHz: $\leq -6.17 \text{ dB}\mu\text{A/m}$ (field strength at 10 meters, standard max value) 125 kHz: $\leq -23.94 \text{ dB}\mu\text{A/m}$ (field strength at 10 meters, standard max value)</p>	<p>(10 米处场强 · 准峰值)</p> <p>天线：内置天线（不可拆卸）</p>
<p>Antenna: built-in antenna (cannot be removed)</p> <p>Control system, regulation, and switches: The user cannot control, regulate, or switch over the radio transmission function of the antenna.</p>	<p>控制、调整及开关：用户不能控制、调制及开关此无线电发射功能</p>
<p>(2) The unauthorized modification of usage scenarios or the conditions of use, expansion of the transmission frequency range, or increase of the transmission power (including installing additional transmission power amplifiers), as well as the unauthorized modification of the transmission antenna are not allowed;</p>	<p>(二) 不得擅自改变使用场景或使用条件、扩大发射频率范围、加大发射功率（包括额外加装射频功率放大器）· 不得擅自更改发射天线；</p>
<p>(3) The product may not interfere in any way with any legal radio transmitters (stations) and may not offer any shielding from harmful interference;</p>	<p>(三) 不得对其他合法的无线电台（站）产生有害干扰· 也不得提出免受有害干扰保护；</p>
<p>(4) The product must be able to tolerate interference caused by industrial, scientific, and medical (ISM) devices which radiate high frequency energy or other legal interference from radio transmitters (stations);</p>	<p>(四) 应当承受辐射射频能量的工业、科学及医疗 (ISM) 应用设备的干扰或其他合法的无线电台（站）干扰；</p>
<p>(5) Should the product cause harmful interference on other legal radio transmitters (stations), product use must be discontinued immediately and suitable measures must be taken prior to using the product again in order to eliminate said interference;</p>	<p>(五) 如对其他合法的无线电台（站）产生有害干扰时· 应立即停止使用· 并采取措施消除干扰后方可继续使用；</p>
<p>(6) When using micropower devices inside of an aircraft or radiometric observatories, or when using such devices in meteorological radar stations, satellite ground stations (including measuring and control stations, distance measuring stations, receiving stations, or navigation stations), as well as in radio transmitters (stations) used by the military and electromagnetic environment protections zones at airports, all applicable provisions of the competent authorities as well as statutory provisions, national regulations, and national standards must be complied with;</p>	<p>(六) 在航空器内和依据法律法规、国家有关规定、标准划设的射电天文台、气象雷达站、卫星地球站（含测控、测距、接收、导航站）等军民用无线电台（站）、机场等的电磁环境保护区域内使用微功率设备· 应当遵守电磁环境保护及相关行业主管部门的规定；</p> <p>(七) 禁止在以机场跑道中心点为圆心、半径 5000 米的区域内使用各类模型遥控器；</p> <p>(八) 微功率设备使用时温度和电压的环境条件。 TWN4 Slim 的工作电压 4.3V-5.5V (微型 USB 供电) ·</p> <p>工作温度-20°C~60°C, 储存温度-30°C~70°C。</p> <p>用户需严格按照此温度和电压要求使用。</p>

<p>(7) Remote controls of any kind may not be used within 5000 meters of airport runways, measured from the middle of the runway;</p> <p>(8) Ambient conditions such as temperature and voltage when using micropower devices: operating voltage of TWN4 Slim: 4.3 V – 5.5 V (charging via micro USB), operating temperature: -20 °C – 60 °C, storage temperature: -30 °C – 70 °C.</p> <p>The user must strictly adhere to these temperature and voltage specifications when using the product.</p>	
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7.2.6 SINGAPORE

Complies with
IMDA Standard
[DA 103787]

7.2.7 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。

728 THAI AND / သိမ်ဆန်



7.2.9 UNITED KINGDOM

TWN4 Slim 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

7.3 TWN4 SLIM JP

7.3.1 JAPAN / 日本



209-J00255



7.4 TWN4 SLIM LEGIC

7.4.1 EU

Hereby, ELATEC GmbH declares that TWN4 Slim 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

7.4.2 FCC

FCC ID: WP5TWN4F16

Contains FCC ID: WP5EINTLEG1

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.

7.4.3 ISED / ISDE CANADA

IC: 7948A-TWN4F16

Contains IC: 7948A-EINTLEG1

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.

7.4.4 BRAZIL / BRASIL

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

7.4.5 CHINA (PRC) / 中华人民共和国

Micropower scope of use declaration: TWN4 Slim LEGIC supports transmission frequencies of 13.56 MHz and 125 kHz. The user needs to adhere to the following specifications when using the product: (1) The specific provisions listed in the "catalog and the technical specifications for micropower short-range radio transmission equipment" as well as the usage scenarios for the antenna type used, the functions, and the customary use of the control system, regulation, and switches must be complied with; Transmission power:	微功率使用规范声明： TWN4 Slim LEGIC 支持 13.56MHz 和 125kHz 发射频率，用户在使用过程中，需要遵守以下要求： (二) 符合“微功率短距离无线电发射设备目录和技术要求”的具体条款和使用场景，采用的天线类型和性能，控制、调整及开关等使用方法； 发射功率： 13.56MHz : ≤ 3.25dB μ A/m (10 米处场强，峰值) 125kHz : ≤ -24.02dB μ A/m
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<p>13.56 MHz: ≤ 3.25 dBμA/m (field strength at 10 meters, standard max value) 125 kHz: ≤ -24.02 dBμA/m (field strength at 10 meters, standard max value)</p>	<p>(10 米处场强 · 准峰值)</p>
<p>Antenna: built-in antenna (cannot be removed)</p>	<p>天线 : 内置天线 (不可拆卸)</p>
<p>Control system, regulation, and switches: The user cannot control, regulate, or switch over the radio transmission function of the antenna.</p>	<p>控制、调整及开关 : 用户不能控制、调制及开关此无线电发射功能</p>
<p>(2) The unauthorized modification of usage scenarios or the conditions of use, expansion of the transmission frequency range, or increase of the transmission power (including installing additional transmission power amplifiers), as well as the unauthorized modification of the transmission antenna are not allowed;</p>	<p>(二) 不得擅自改变使用场景或使用条件、扩大发射频率范围、加大发射功率 (包括额外加装射频功率放大器) · 不得擅自更改发射天线 ;</p>
<p>(3) The product may not interfere in any way with any legal radio transmitters (stations) and may not offer any shielding from harmful interference;</p>	<p>(三) 不得对其他合法的无线电台 (站) 产生有害干扰 · 也不得提出免受有害干扰保护 ;</p>
<p>(4) The product must be able to tolerate interference caused by industrial, scientific, and medical (ISM) devices which radiate high frequency energy or other legal interference from radio transmitters (stations);</p>	<p>(四) 应当承受辐射射频能量的工业、科学及医疗 (ISM) 应用设备的干扰或其他合法的无线电台 (站) 干扰 ;</p>
<p>(5) Should the product cause harmful interference on other legal radio transmitters (stations), product use must be discontinued immediately and suitable measures must be taken prior to using the product again in order to eliminate said interference;</p>	<p>(五) 如对其他合法的无线电台 (站) 产生有害干扰时 · 应立即停止使用 · 并采取措施消除干扰后方可继续使用 ;</p>
<p>(6) When using micropower devices inside of an aircraft or radiometric observatories, or when using such devices in meteorological radar stations, satellite ground stations (including measuring and control stations, distance measuring stations, receiving stations, or navigation stations), as well as in radio transmitters (stations) used by the military and electromagnetic environment protections zones at airports, all applicable provisions of the competent authorities as well as statutory provisions, national regulations, and national standards must be complied with;</p>	<p>(六) 在航空器内和依据法律法规、国家有关规定、标准划设的射电天文台、气象雷达站、卫星地球站 (含测控、测距、接收、导航站) 等军民用无线电台 (站) 、机场等的电磁环境保护区域内使用微功率设备 · 应当遵守电磁环境保护及相关行业主管部门的规定 ;</p>
	<p>(七) 禁止在以机场跑道中心点为圆心、半径 5000 米的区域内使用各类模型遥控器 ;</p>
	<p>(八) 微功率设备使用时温度和电压的环境条件 。 TWN4 Slim LEGIC 的工作电压 4.3V-5.5V (微型 USB 供电) · 工作温度 -20°C~60°C , 储存温度 -30°C~70°C 。 用户需严格按照此温度和电压要求使用。</p>

(7) Remote controls of any kind may not be used within 5000 meters of airport runways, measured from the middle of the runway;

(8) Ambient conditions such as temperature and voltage when using micropower devices:
operating voltage of TWN4 Slim LEGIC: 4.3 V – 5.5 V (charging via micro USB),
operating temperature: -20 °C – 60 °C,
storage temperature: -30 °C – 70 °C.

The user must strictly adhere to these temperature and voltage specifications when using the product.

7.4.6 SINGAPORE

Complies with
IMDA Standard
[DA 103787]

7.4.7 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。

7.4.8 THAILAND / ประเทศไทย



7.4.9 UNITED KINGDOM

TWN4 Slim 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

7.5 TWN4 SLIM MK2

7.5.1 EU

Hereby, ELATEC GmbH declares that TWN4 Slim MK2 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

7.5.2 FCC

Contains FCC ID: WP5TWN4F29

Contains FCC ID: QOQ-BGM220S2

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.

7.5.3 ISED / ISDE CANADA

Contains IC: 7948A-TWN4F29

Contains IC: Q0Q-BGM220S2

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.

7.5.4 UNITED KINGDOM

TWN4 Slim MK2 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

7.6 TWN4 SLIM MK2 LF HF

7.6.1 EU

Hereby, ELATEC GmbH declares that TWN4 Slim MK2 LF HF 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

7.6.2 FCC

FCC ID: WP5TWN4F29

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.

7.6.3 ISED / ISDE CANADA

IC: 7948A-TWN4F29

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.

7.6.4 UNITED KINGDOM

TWN4 Slim MK2 LF HF 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

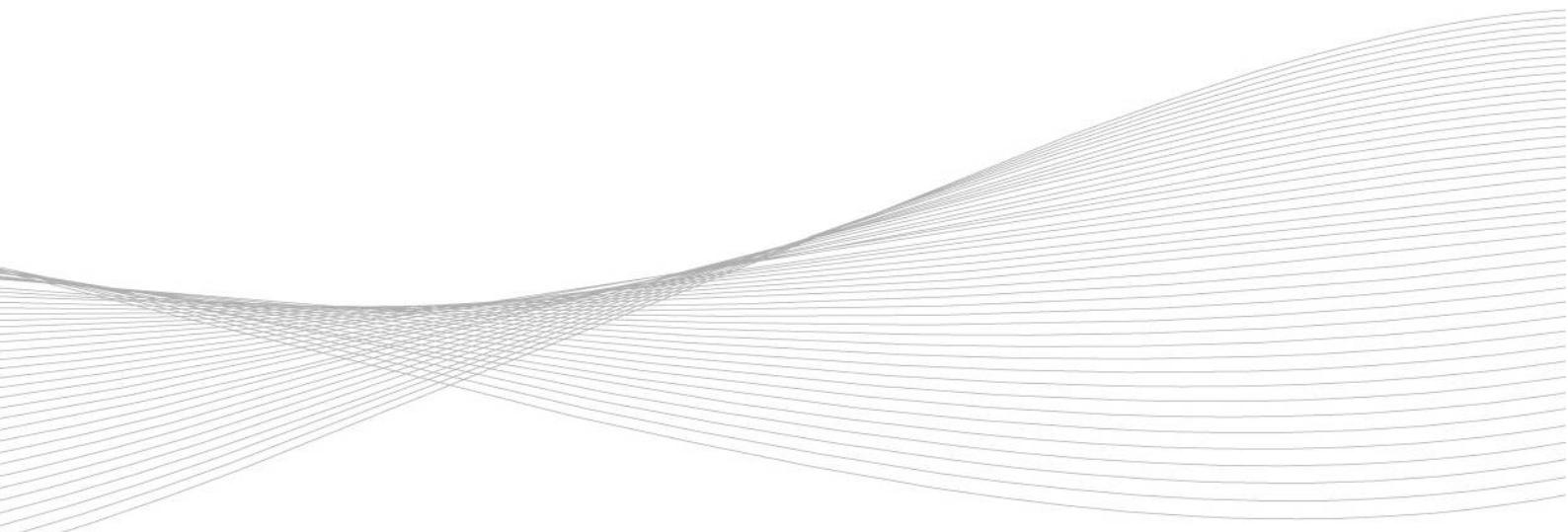
- ELATEC quick start guide
- TWN4 Slim data sheet
- TWN4 Slim JP data sheet
- TWN4 Slim LEGIC data sheet
- TWN4 Slim MK2 data sheet
- TWN4 Slim MK2 LF HF data sheet
- TWN4 Slim technical handbook

B – TERMS AND ABBREVIATIONS

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

C – REVISION HISTORY

VERSION	CHANGE DESCRIPTION	EDITION
02	New product models TWN4 Slim MK2 and TWN4 Slim MK2 LF HF added	06/2024
01	First edition	05/2024



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