Rombit™

EN

Version 1.6 EN
Model R02XE, R02XU

ONEx™
USER MANUAL

WARNING

IMPORTANT SAFETY PRECAUTIONS

RF EXPOSURE AND INTERFERENCE

Rombit ONEx uses radio signals to connect to wireless networks and other devices. It is designed, tested, and manufactured to comply with regulations governing radio frequency emissions. Even so, radio-signal emitting devices can negatively affect the operation of other electronic equipment, causing them to malfunction.

Always turn off Rombit ONEx when use of radio equipment is prohibited, such as while traveling in aircraft, or when asked to do so by authorities.

POSSIBLE MEDICAL DEVICE INTERFERENCE

Rombit ONEx contains components that emit electromagnetic fields. The backside of Rombit ONEx contains magnets. This may interfere with medical devices, such as pacemakers and defibrillators. Consult your physician and medical device manufacturer for information specific to your medical device and whether you need to maintain a safe distance of separation between your medical device and Rombit ONEx.

If you suspect this product is interfering with your medical device, stop using it immediately and consult your physician.

ROMBIT ONEx IS NOT A MEDICAL DEVICE

Rombit ONEx is not a medical device and should not be used as a substitute for professional medical judgement. It is not designed or intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of any condition or disease.

HIGH-CONSEQUENCE ACTIVITIES AND SAFETY INTERLOCK

Rombit ONEx is not intended for use where the failure of the device could directly lead to death, personal injury, or severe environmental damage. Rombit ONEx is intended and marketed as Assistive Technology: a system intended to help warn users of potentially unsafe situations and to raise awareness of the risks involved. As such, it is NOT intended to be used as a safety component of a machine setup as meant in article 2(c) of the European Machine Directive 2006/42/EC.

In specific cases, Rombit products can directly control a vehicle on a hardware level. An example is the Credential-based vehicle access solution. These products are designed to prevent unauthorized starting of the vehicle and not to intervene in any way with the vehicle controls while driving, to prevent unsafe situations.

ONLY USE APPROVED ACCESSORIES

Some of the optional features described in this manual are to be purchased separately. For more information on approved accessories visit www.rombit.com.

PRODUCT IMPROVEMENTS

Rombit reserves the right to change or improve products and to make changes in any accompanying documentation without the obligation to notify any person or organization of such changes or improvements.

Rombit is not responsible for any loss of data, income or any consequential damage whatsoever caused.

1. FOR YOUR SAFETY

Before using this product, carefully read this user manual. Failure to follow these safety instructions could result in fire, electric shock, injury, or damage to Rombit ONEx or other property. Do not dispose of this manual. Ensure that this information is retained and appropriately used by the product user.

DEFINITION OF ALERT SYMBOLS

The following alert symbols are used in this document to indicate and highlight areas of the associated text that require a greater awareness by the user.

WARNING

A HAZARD WITH A HIGH RISK LEVEL.
If this hazardous situation is not avoided, it may result in death or serious injury.

CAUTION

A POTENTIALLY HAZARDOUS SITUATION.
If this is not avoided, injuries or damage to the product or the environment may occur. It may also be used to alert against unsafe practices.

NOTICE

ADDITIONAL INFORMATION.
Tips on how to use the product.

QUALIFICATION OF USERS

- Users must fully understand and strictly observe the instructions. Use the product only for the purposes specified in the Intended Use section of this document. Comply with all local and national rules and regulations associated with this product.
- Users of Rombit ONEx must be familiar with the relevant safety concepts of the industrial environment they are operating in, as well as applicable standards and other regulations. Always obey site-specific signs and instructions.

REPAIR AND MODIFICATIONS

- Any repair, modification or maintenance of Rombit ONEx is only to be performed by IEC 60079-19 compliant facilities approved by Rombit Europe.
- Use only Rombit-approved parts and accessories for using and maintaining this product. Otherwise, the correct functioning of the product could be impaired.

CAUTION

DO NOT MODIFY THE DEVICE.
Modifications to any component of Rombit ONEx are not permitted, as they can endanger your safety or damage the device. Disassembling Rombit ONEx may cause damage, result in loss of water resistance, and may cause injury to the user.

BATTERY SAFETY AND DISPOSAL

WARNING

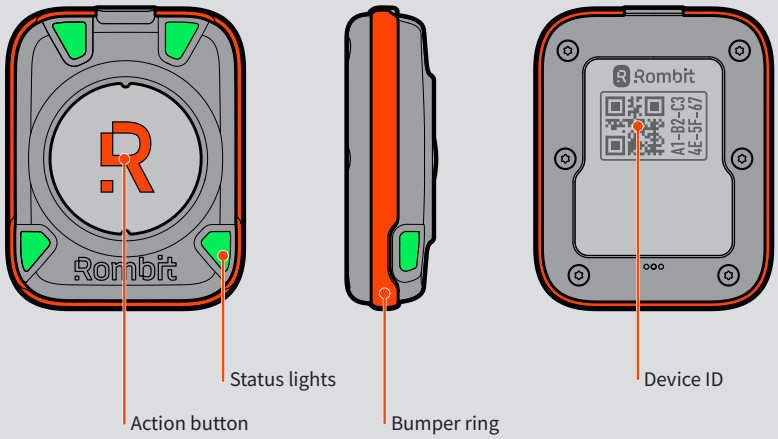
CONTAINS A NON-USER REPLACEABLE LITHIUM-ION BATTERY.
This battery should be serviced only by Rombit. Replacement of the battery with non-original parts can defeat safeguards, leading to overheating and injury.

Disposal of the battery into fire or a hot oven, mechanically crushing or cutting it, or leaving it in extremely high temperature or extremely low air pressure environments can result in overheating, explosion, the leakage of flammable liquid or gas and can lead to serious injury or death.

EUROPEAN UNION — DISPOSAL INFORMATION
The symbol above means that according to local laws and regulations your product and/or its battery shall be disposed of separately from household waste.

When this product reaches its end of life, take it to a collection point designated by local authorities. The separate collection and recycling of your product and/or its battery at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

2. PRODUCT OVERVIEW



Ex II 3G Ex ic IIC T5 Gc

Rombit ONEx is certified by TÜV SÜD with type examination Certificate TPS 24 ATEX 124545 0001X in compliance with standards EN 60079-0 (2018) and EN 60079-11 (2012).

INTENDED USE

Rombit ONEx is an intrinsically safe wearable device for worker safety and site security in areas with an increased risk of explosion in accordance with directives 1999/92/EC (ATEX 137) and 2014/34/EU as well as with UK statutory requirement SI 2016 No. 1107. The user of this device is fully responsible for ensuring that it is used in explosive atmospheres in accordance with the applicable regulations.

Rombit ONEx is designed for use in industrial environments with the following conditions:

Area Classification Gas	Zone 2	Explosive gas air mixture not likely to occur in normal operation or will only exist for a short time.
Gas Groupings	IIA, IIB, IIC	Up to hydrogen and acetylene (<60µJ ignition energy)
Temperature classification	T5	100 °C auto-ignition temperature of atmosphere

The device can be used as a component of a site-installed system to help warn users for unsafe situations, such as entering certain areas and person-machine collisions. The system can manage certificates to operate certain equipment, and automatically notify emergency response teams in the event of a person in a remote location falling, recieving a sudden shock or initiating a distress signal.

FUNCTIONAL DESCRIPTION

Before entering the industrial area of relevance, the user powers on Rombit ONEx and wears the device on their body. Rombit ONEx connects via one of several possible communication methods to either a dedicated site network infrastructure, a mobile network and/or other Rombit devices nearby to provide assistive safety functionality.

Rombit ONEx monitors the user while inside the area of relevance, collecting select behavioral data inside a protected enclave within the device. When a critical situation occurs, Rombit ONEx warns the user through light signals and haptic alerts.

When the situation warrants it, designated personnel such as first responders or a safety coordinator can access the protected enclave to collect data (such as last whereabouts or encounters with other users) to provide emergency care.

3. GETTING STARTED

INSTALLATION

- When the user receives Rombit ONEx it is prepared for use on the site of operation by the Rombit Site Administrator. No further installation by the user is needed.

- The software of Rombit ONEx is kept up-to-date remotely by either the Rombit Site Coordinator or the Rombit Service Provider. No user action is needed to keep Rombit ONEx up-to-date.

- **Charge Rombit ONEx before first use.**
  Rombit ONEx is partially charged at delivery. Before starting to use the device, make sure to fully charge it.

  ➡ **See: charging**

- **Push the action button to turn on Rombit ONEx.**
  Push the button until the top-right status light turns blue, then let go of the button while the device is starting.

- **After a few seconds, the top-right status light will briefly light up dark blue.**

- **You can now use the device.**

CAUTION

HANDLE WITH CARE

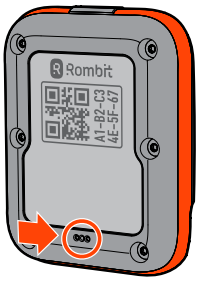
Although Rombit ONEx is designed to be used in an industrial environment, it contains sensitive electronic components and can be damaged if dropped, burned, punctured, or crushed.

Avoid heavy exposure to dust or sand. Do not use a faulty or incomplete product, or when it shows damage such as a cracked case or liquid intrusion.

CAUTION

DO NOT COVER OR PUNCTURE BREATHER HOLE

The backside of Rombit ONEx features three small holes beneath the type label. This breather or vent hole provides air pressure equilibration to ensure water-resistance under varying atmospheric conditions.



Do not cover this hole with adhesive materials.
This includes stickers, labels or tape. closing the holes can lead to permanent damage to the device, rendering it inoperable.

Never put sharp objects in these holes. This will damage the waterproof membrane inside, risking moisture damage to internal components

BATTERY LEVEL AND CHARGING

CHARGING

Rombit ONEx can be charged using a compatible Qi-certified wireless charger.

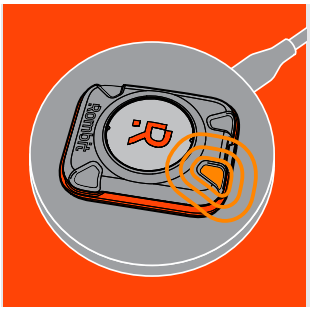
NOTICE

QI V1.2-CERTIFIED CHARGER PAD IS REQUIRED.
Use only charging pads that are compliant to the Wireless power consortium (WPC) Qi v1.2 communication protocol. Using an older or non Qi-compliant charger can lead to the device not charging properly. Make sure the charger is also compliant with applicable regulations and safety standards.

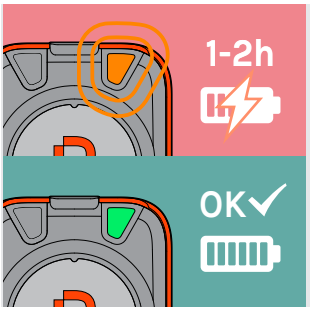
WARNING

DO NOT CHARGE INSIDE HAZARDOUS LOCATION
Only charge the device outside of explosion hazardous areas. Do not charge the device in the vicinity of flammable substances, this poses a risk of death or severe injuries!

- **In a dry and well-ventilated area, place your charging pad on a flat surface.**
- **Connect the charger to the power adapter supplied with this charger or recommended by the manufacturer.**
- **Plug the adapter into a suitable power outlet.**



- **Remove Rombit ONEx from any cases or bands.**
- **Place Rombit ONEx face up in the middle of the charging pad.**
- **When Rombit ONEx is aligned properly with the charger, The top-right status light will turn on, showing the charge status of your device.**



- **While charging:**
  The top-right status light slowly blinks orange.
- **When fully charged:**
  The top-right status light lights up solid green.
- Depending on battery level and charger speed, Rombit ONEx will be fully charged in about 1 to 2 hours.

CAUTION

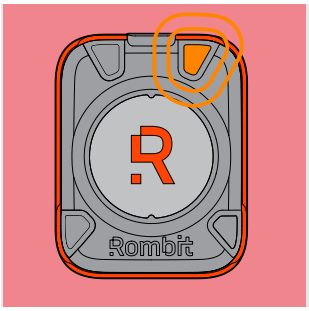
NEVER PLACE METALLIC OBJECTS ON THE CHARGER.
Stray items such as keys, coins, batteries, or jewelry left on the charger may interfere with charging or heat up.

DON'T CHARGE IF DEVICE OR CHARGER IS DAMAGED OR MODIFIED.
Failure to do so may cause fire, electric shock, injury, or damage to Rombit ONEx or other property.

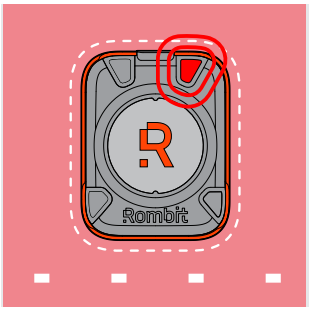
DEVICE CAN BE WARM WHILE AND AFTER CHARGING.
Rombit ONEx can become warm to the touch when charging. Don't wear Rombit ONEx on your body or under clothing when charging the device, or when it is still uncomfortably warm after taking it off the charger.

BATTERY LEVEL INDICATION

While the device is powered on, the top-right status light will indicate when the battery is getting low.



- **When the battery is getting low:**
  The top-right status light blinks orange when the battery level is below 15%.



- **When the battery is almost empty:**
  When below 5%, Rombit ONEx intermittently vibrates with two short pulses while the top-right status light blinks red.
- **Charge the device as soon as possible.**

4. MAINTENANCE AND CARE

CARE

- Do not use or keep the device in dusty or dirty surroundings, as dust or dirt may damage moving parts.
- Do not drop, knock or shake the device. Rough handling may break circuitry inside the device.
- Even though Rombit ONEx is waterproof, do not unnecessarily put liquids on the device or immerse it in water.
- Do not open or pierce the device. Only allow service personnel authorised by the reseller to repair the device.
- Protect the device from heat. Do not use near fire. High temperatures may shorten its lifespan, melt or warp plastics and damage batteries.

CLEANING

- Clean the casing of Rombit ONEx with a damp cloth or a mild soap solution. Don't use abrasive cleaners, harsh chemicals, solvents or other corrosive substances. After cleaning, dry the casing of Rombit ONEx with a clean, lint-free cloth and let it air dry before using it again.
- If necessary, the casing of Rombit ONEx can be periodically sanitized by wiping it with isopropyl alcohol. Do not boil or autoclave the casing of Rombit ONEx, as this will cause permanent damage to the device. Frequent use of alcohol can lead to faster degradation of the enclosure.

ALLERGY INFORMATION

- Rombit ONEx is designed to the highest safety standards and manufactured from high-purity materials. The enclosure material is medical-grade assessed to the ISO 10993 standard for bio-compatability and formulated with FDA compliant Food Contact Additives.
- Clean the device and any accessories regularly, especially after intense sweating or working in very dirty environments. As with all things worn close to the body, moisture and bacteria can cause irritation when an item is worn against the skin for extended periods of time.
- If you have known skin sensitivities, please take special care when wearing Rombit ONEx against your body. Be aware that products such as lotions, perfume, soap or insect repellants are known to get trapped under items such as jewelry and wristbands, possibly causing or aggravating irritation.
- Take off the device when not using it, to allow your skin to breathe. If you experience redness, swelling, itchiness, or other irritation on your skin around Rombit ONEx, remove the device and consult your physician.

5. TECHNICAL DATA

CELLULAR AND WIRELESS		
GNSS	Supports GPS, Galileo, GLONASS, BeiDou and QZSS global positioning	
UWB	Channel 5 (default) Channel 2 (for licensed customers only) UWB channel availability varies by regional regulation and site license availability. Be aware that additional restrictions may apply in other regions. It is the responsibility of the end-user to make sure local regulations are met when transporting the device to another region Channel 2: Frequency band 3774 – 4243,2 Mhz / Center freq. 3993,6 Mhz Channel 5: Frequency band 6240 – 6739,2 Mhz / Center freq. 6489.6 Mhz	
	Model R02XE	Power: -7,07 dBm (Ch 2), -5.77 dBm (Ch 5)
	Model R02XU	Power: -7,07 dBm (Ch 2), -8,72 dBm (Ch 5)
Cellular	Model R02XE	LTE-M / Bands 3, 20 / Power: 22 dBm
	Model R02XU	LTE-M / Bands 2, 4, 12, 13 / Power: 22 dBm
LoRaWAN®	Device class A, B, C	
	Model R02XE	868 MHz
	Model R02XU	915 Mhz
NFC	ISO/IEC 15693, NFC Forum type 5 compliant For device identification and commisioning only	
SENSORS	Accelerometer, 3-axis gyro, Compass, Barometer	
INDICATORS	4 multicolor LED indicators, haptic feedback	
POWER AND BATTERY	Built-in rechargeable lithium-ion battery Model R02XE, R02XU: 3,7V 900 mAh Wireless charging (WPC Qi v1.2 Qi compliant): 5VDC, 2.5 W max.	
SIZE AND WEIGHT	60,8 mm x 47,6 mm x 17,4 mm / 44,5 g	
WATER AND DUST RESISTANCE	IPX7 rating under IEC standard 60529	
AMBIENT CONDITIONS	Relative humidity	0% to 98%
	Operating ambient temperature	-20°C to 55°C
	Nonoperating ambient temperature	-20°C to 60°C
	Operating altitude	0 to 2000m
	Ambient temperature during charging	max. 25°C

6. REGULATORY INFORMATION

EUROPEAN UNION

The manufacturer, Rombit NV, Meir 30 2000 Antwerp, Belgium declare that this device is in conformity with the relevant Union harmonisation legislation, provided that it is used in accordance with our instructions.

Rombit ONEx is in compliance with the following standards: EN IEC 60079-0:2018, EN 60079-11:2012.

ATEX Type Examination Certificate: TPS 24 ATEX 124545 0001 X
Issued by TÜV SÜD Product Service GmbH

A copy of the EU Declaration of Conformity is available at www.rombit.com.

RF Exposure Information (SAR)
Specific Absorption Rate (SAR) refers to the rate at which the body absorbs RF energy.
During testing, the device's radios are set to transmit at the highest certified output power level in all frequency bands of the device and placed in positions that simulate use against the body, with no separation.

The maximum SAR value is 0,101 W/kg (head/body) averaged over 10 gram of tissue.

UNITED KINGDOM

The manufacturer, Rombit NV, Meir 30 2000 Antwerp, Belgium declare that this device is in conformity with the relevant legislation of United Kingdom, provided that it is used in accordance with our instructions.

Rombit ONEx is in compliance with the following standards: EN IEC 60079-0:2018, EN 60079-11:2012.

UKEx Type Examination Certificate: TUV SUD 24 UKEX 000042 X
Issued by TUV SUD BABT Unlimited

A copy of the UK Declaration of Conformity is available at www.rombit.com.

FCC - REGULATORY NOTICES

Applicable for model R02XU only

Model R02XU FCC ID: 2AVTBR02

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.

- Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.
- This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.
- For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible

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.

RF Exposure Information (SAR)

This device meets the government's requirements for exposure to radio waves. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government. The exposure standard for wireless devices employing a unit of measurement is known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6W/kg. The FCC has granted an Equipment Authorization for this device with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. SAR information on this device is on file with the FCC and can be found under the Display Grant section of www.fcc.gov/oet/ea/fccid after searching on FCC ID: 2AVTBR02.

ISED - REGULATORY NOTICES

Applicable for model R02U only

Model RW02U
IC: 27593-R02

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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, and
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, et
2. l'utilisateur de l'appareil doit accepter tout brouillage radioelectrique subi, meme si le brouillage est susceptible d'en compromettre le fonctionnement.

Caution: Exposure to Radio Frequency Radiation

1. To comply with the Canadian RF exposure compliance requirements, this device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.
2. For portable operation, this device has been tested and meets RF exposure guidelines when used with an accessory that contains no metal. Use of other accessories may not ensure compliance with RF exposure guidelines.

Attention: exposition au rayonnement radiofréquence

1. Pour se conformer aux exigences de conformité RF canadienne l'exposition, cet appareil et son antenne ne doivent pas être co-localisés ou fonctionnant en conjonction avec une autre antenne ou transmetteur.
2. Pour portable utilisation, cet appareil a été testé et respecte les directives sur l'exposition aux RF lorsqu'il est utilisé avec un accessoire sans métal. L'utilisation d'autres accessoires peut ne pas garantir la conformité aux directives d'exposition aux RF.

RF exposure safety

This device complies with ISED RF exposure limits and has been evaluated in compliance with mobile exposure conditions.

CAN ICES-003 (B)

This Class B digital apparatus complies with Canadian ICES-003.

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