Romware

ROMWARE ONE™

USER MANUAL

v1.6-EN

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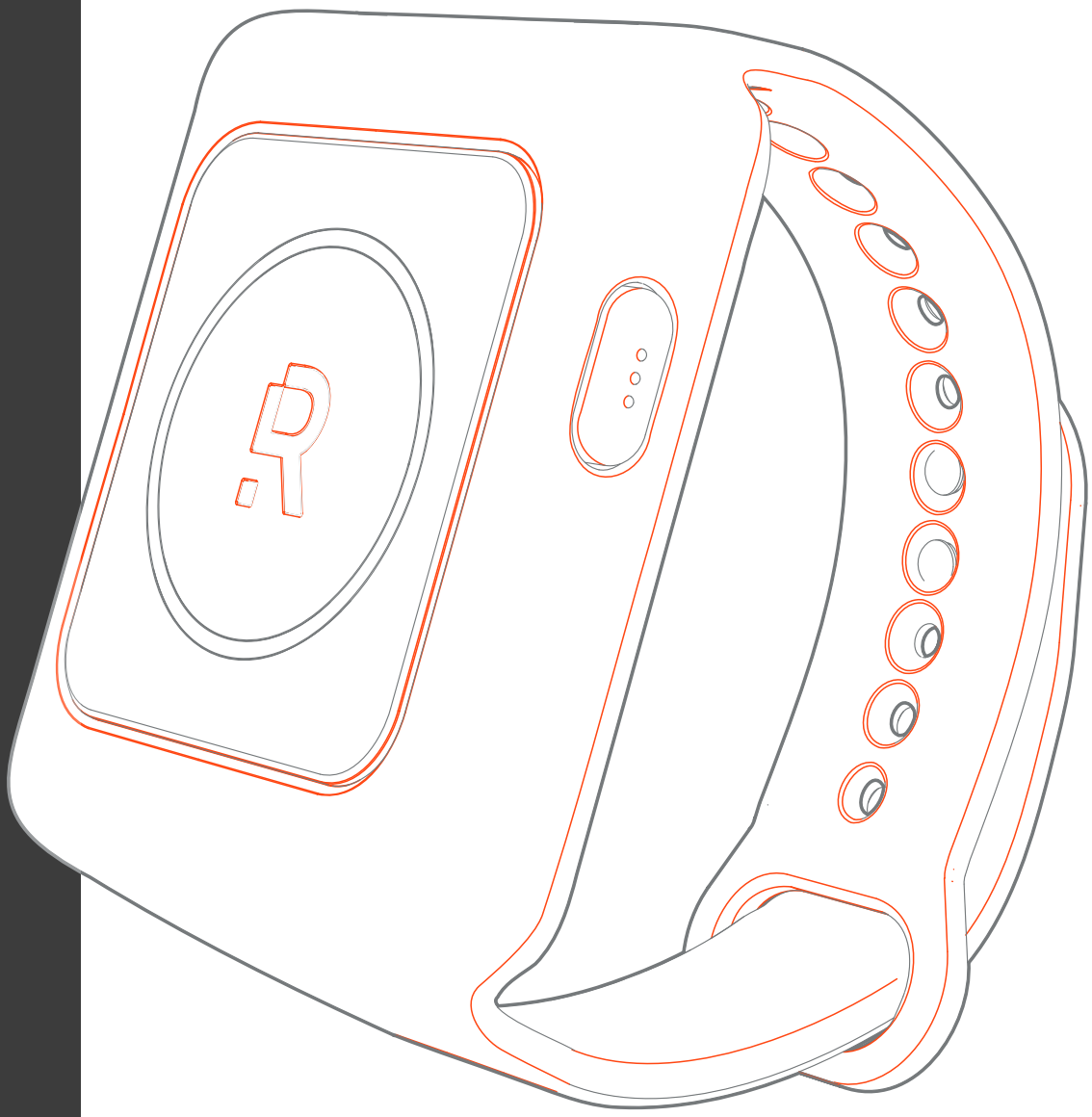


ROMWARE ONE™

USER MANUAL

v1.6-EN

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 Romware ONE™ 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	Indicates a hazard with a high risk level. If this hazardous situation is not avoided, it may result in death or serious injury.
CAUTION	Indicates 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	Indicates additional information on how to use the product.

INTENDED USE

Romware ONE™ is an all-in-one wearable device for worker safety and site security. It can be used as a component of a site-installed system to help warn users for unsafe situations, such as entering certain areas, keeping a safe distance from other people or man-machine collisions. The system can manage certificates to operate certain equipment, and automatically notify emergency response teams in the event of a man-down scenario.

Romware ONE™ is designed for use in industrial environments.

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 Romware ONE™ 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

- Only trained and competent personnel are permitted to inspect, repair and service Romware ONE™.
- Use only original Romware™ parts and accessories for using and maintaining this product. Otherwise, the correct functioning of the product could be impaired. Rombit recommends a Romware™ service contract for all maintenance activities and that all repairs are carried out by Rombit.

CAUTION

Modifications to any component of Romware ONE™ are not permitted, as they can endanger your safety or damage the device. Disassembling Romware ONE™ may cause damage, result in loss of water resistance, and may cause injury to the user.

BATTERY SAFETY AND DISPOSAL

WARNING

Romware ONE™ contains a non-user replaceable lithium-ion battery. It 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.

WARNING

SAFETY PRECAUTIONS

RF EXPOSURE AND INTERFERENCE

Romware ONE™ 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 Romware ONE™ 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

Romware ONE™ contains components that emit electromagnetic fields. The charging connector on Romware ONE™ and the Romware™ magnetic USB charging cable contain 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 Romware ONE™ and the magnetic USB charging cable.

If you suspect Romware ONE™ or the Romware™ magnetic USB charging cable are interfering with your medical device, stop using them immediately and consult your physician.

ROMWARE ONE™ IS NOT A MEDICAL DEVICE

Romware ONE™ 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.

NOT FOR USE IN A POTENTIALLY EXPLOSIVE ENVIRONMENT

Charging or using Romware ONE™ in any area with a potentially explosive atmosphere, such as areas where the air contains high levels of flammable chemicals, vapors, or particles (such as grain, dust, or metal powders), may be hazardous.

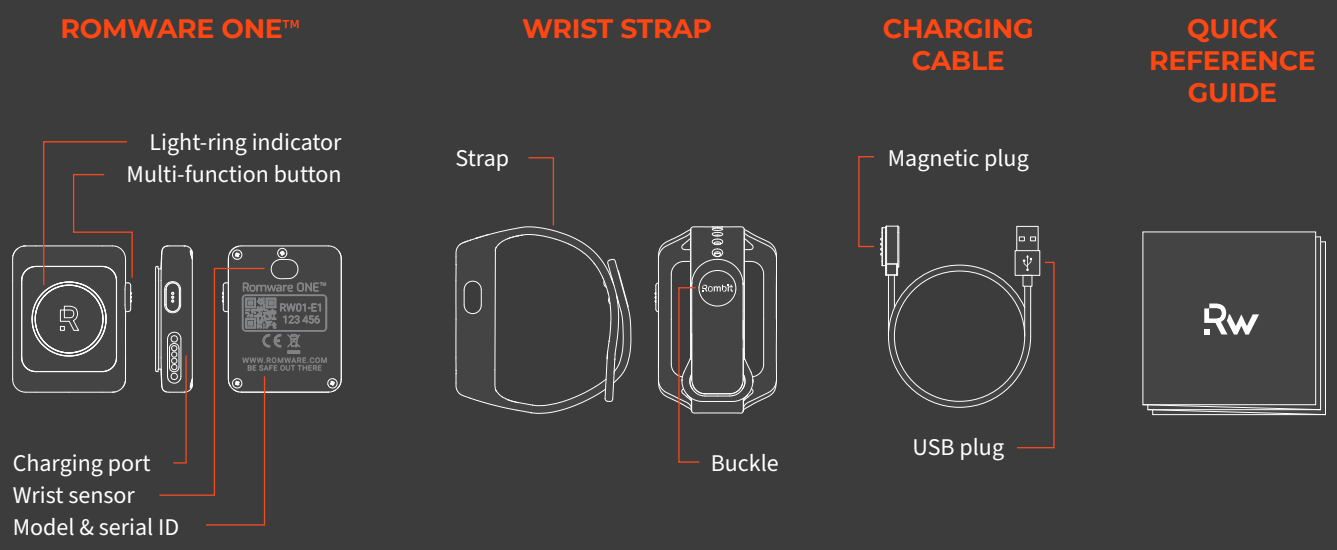
Exposing Romware ONE™ to environments having high concentrations of industrial chemicals may damage or impair Romware ONE™ functionality.

HIGH-CONSEQUENCE ACTIVITIES AND SAFETY INTERLOCK

Romware ONE™ is not intended for use where the failure of the device could directly lead to death, personal injury, or severe environmental damage. Romware ONE™ 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, Romware™ 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.

2. PRODUCT OVERVIEW



FUNCTIONAL DESCRIPTION

ROMWARE ONE™

- Before entering the industrial area of relevance, the user puts Romware ONE™ around the wrist and turns it on. Romware ONE™ connects via one of several possible communication methods to either a dedicated site network infrastructure, a mobile network and/or other Romware™ devices nearby to provide assistive safety functionality. Romware ONE™ is equipped to detect correct wearing of the device, helping to ensure that it will not get lost while in use or passed through to unauthorized people.

- Romware ONE™ monitors the user while inside the area of relevance, collecting select behavioural data inside a protected enclave within the device. When a critical situation occurs, Romware ONE™ 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.

WRIST STRAP

- The wrist strap is designed to allow wearing Romware ONE™ throughout the workday. It can be worn under or over clothing, and is designed to unclasp safely under a certain load, helping prevent accidental snagging of the strap behind for example machinery.

MAGNETIC USB CHARGING CABLE

- Romware ONE™ is to be charged fully before starting work. The charging cable is equipped with a magnetic connector that snaps to the charging port on Romware ONE™. It can be used with standard USB charging adapters, such as mobile phone chargers.

3. USING ROMWARE ONE™

INSTALLATION

- When the user receives Romware ONE™ it is prepared for use on the site of operation by the Site Romware Administrator. No further installation by the user is needed.
- The software of Romware ONE™ is kept up-to-date remotely by either the Site Romware Coordinator or the Romware Service Provider. No user action is needed to keep Romware ONE™ up-to-date.

ASSEMBLY

- Put Romware ONE™ into the wrist strap with the "R" logo facing outwards.

- If assembled correctly, the multi-function button should be visible through the small opening on the side of the wrist strap.

CAUTION

NEVER PUT ROMWARE ONE™ BACKWARDS OR UPSIDE DOWN IN THE WRIST-STRAP

Doing so impairs visibility of the Light-ring indicator and use of the Multi-function button, leading to a potentially unsafe situation.

WARNING

CHOKING OR SNAGGING HAZARD

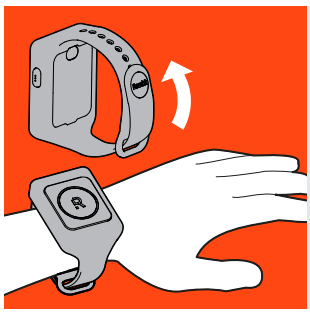
The wrist strap of Romware ONE™ is designed and tested to unlock under strain, helping prevent a dangerous situation when the strap snags on objects. Don't modify the strap in any way, as this could impede this important safety measure. Keep the strap away from small children, as it may present a choking hazard.

STARTING USE

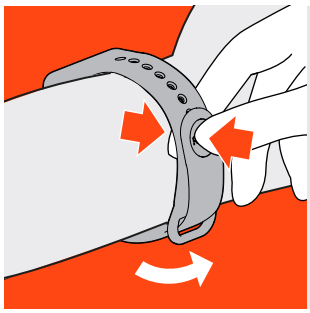
NOTICE

Before starting to use Romware ONE™, make sure it is fully charged.

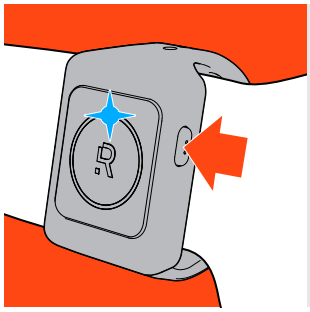
➡ ***See: charging***



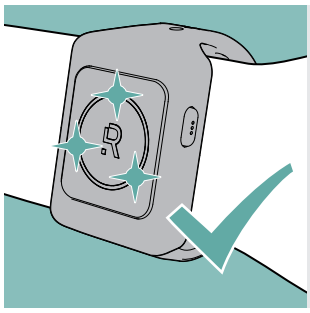
- Put the wrist strap around either your left or right wrist.
- Put one end through the loop on the other end.
- Hold one finger between the strap and your arm, behind the clasp. Romware ONE™ should fit snugly around your wrist, without being uncomfortably tight.



- Push the clasp firmly between your fingers, through the holes that are most comfortable to wear. Make sure the clasp is firmly pushed through two holes to prevent it from coming loose by accident.
- To ensure your safety, the clasp is designed to disconnect in case Romware ONE™ gets snagged behind for example moving machinery.



- Turn Romware ONE™ on by pushing the Multi-function button until the Light-ring indicator lights up blue. Let go of the button, the light ring indicator starts filling up blue while the device is starting.



- After a few seconds, the Light-ring indicator will briefly light up green.
- You can now enter the site.

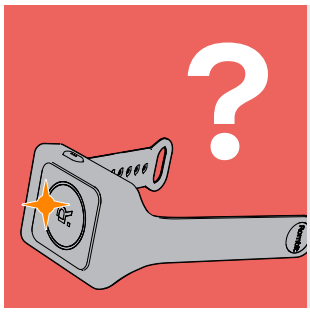
CAUTION

HANDLE WITH CARE

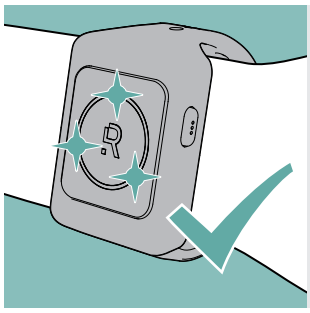
Handle Romware ONE™ with care. Although Romware ONE™ is designed to be used in an industrial environment, it contains sensitive electronic components and can be damaged if dropped, burned, punctured, or crushed. Avoid heavy exposure to dust or sand. Do not use a faulty or incomplete product, or when it shows damage such as a cracked case, liquid intrusion, or a damaged wrist strap.

WEAR DETECTION

To ensure the safety functionality at all times, and to help prevent fraud, Romware ONE™ constantly monitors if the device is still worn by the user.



- If the wrist cannot be detected by the wrist sensor, the top of the Light-ring indicator will flash orange and the device will vibrate every few seconds.



- As soon as the user is wearing the device again correctly, the Light-ring indicator will briefly light up green.
- Romware ONE™ can be used again.

CAUTION

KEEP DEVICE ON YOUR WRIST WHEN WORKING

When the device is not worn on your wrist, the Romware™ safety functions are disabled, and you are not protected.

NOTICE

ABOUT USER CREDENTIALS

When a user is wearing Romware ONE™, Romware administrators can assign certain credentials to the device, for example for access control. As a security precaution, when the device is removed from your wrist, these credentials are automatically revoked.

EMERGENCY SITUATIONS

CAUTION

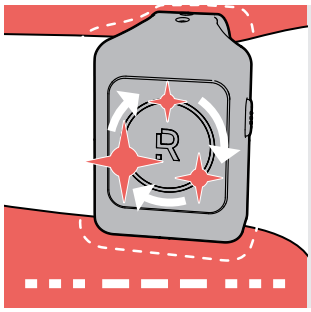
FUNCTIONS MAY BE DEACTIVATED BY SITE OWNER

This section describes all possible functions that Romware ONE™ can perform. Some functions may not be activated at every site or may function differently from the standard product for a particular site.

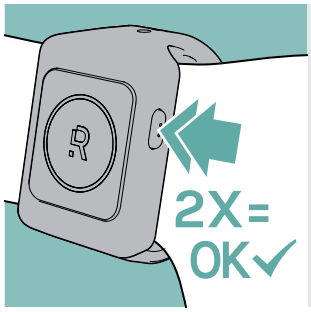
Always follow all site-specific instructions that were given to you by authorized site personnel when you received your Romware ONE™. Site-specific instructions overrule instructions in this manual. If in doubt, ask your supervisor, the Romware site administrator or site coordinator before using Romware ONE™.

WORKER-DOWN ALERT

Automatic fall, shock and no-motion detection alerts HSEQ and medical services in case of an incident.



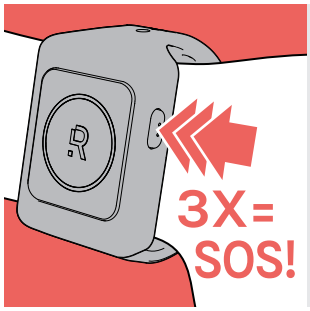
- When Romware ONE™ detects you falling down or being motionless due to unconsciousness, Romware ONE™ vibrates in an 'SOS' morse code pattern. The light-ring indicator shows a rotating red light.
- The emergency response team is notified of the incident.



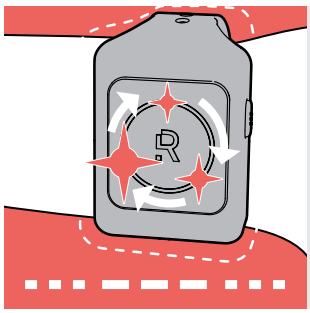
- To cancel the worker-down alert: press the button twice in rapid succession.
- The emergency response team is notified that the incident was canceled by you.

PERSONAL SOS ALERT

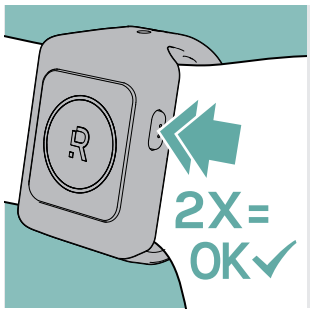
A personal SOS button enables the notification of an emergency initiated by the worker.



- To send an SOS alert: press the button three times in rapid succession.
- In case you activate the personal SOS alert by mistake, you can cancel the alert within 10 seconds without notifying the emergency response team (see step 3 below).



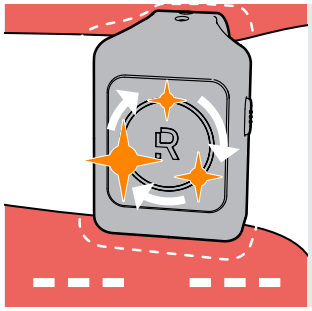
- Romware ONE™ vibrates in an 'SOS' morse code pattern. The light-ring indicator shows a rotating red light.
- The emergency response team is notified of the incident.



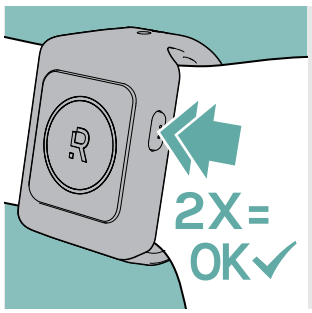
- To cancel the worker-down alert: press the button twice in rapid succession.
- The emergency response team is notified that the incident was canceled by the user.

WORKER PRESENT (ARE YOU OK?)

The user responds to a request made by e.g. the emergency response team to show they are OK.



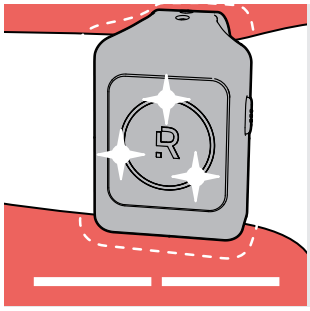
- When a worker response request is made, Romware ONE™ vibrates in an slow pattern of 3 buzzes. The light-ring indicator shows a slowly rotating orange light.



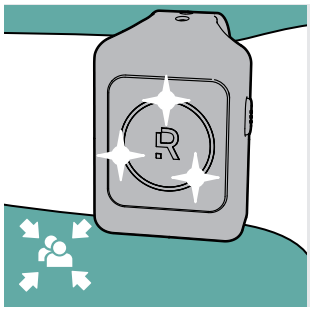
- To acknowledge that you are OK: press the button twice in rapid succession.
- The emergency response team is notified that the user is OK.

EVACUATION ALERT

In case of an emergency situation, an evacuation alert can be sent to people working on-site.



- When an evacuation alert is received, Romware ONE™ vibrates in very long constant pattern. The light-ring indicator flashes white.
- Go to a designated muster point for the area you are working in, following site precautions and evacuation routes.



- When arriving at a designated muster point, Romware ONE™ stops vibrating, indicating that you are accounted for on the emergency response team's manifest. The light-ring indicator keeps flashing white, for as long as the site evacuation alert is in effect.
- The emergency response team is notified that the user is OK.

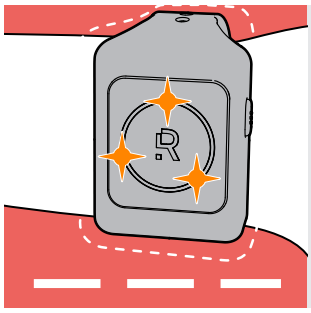
CAUTION

ALWAYS FOLLOW SITE-SPECIFIC INSTRUCTIONS

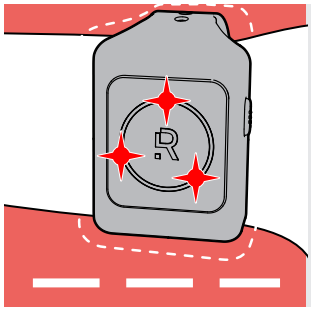
Specific instructions can apply for emergency evacuation, such as no-go areas, wind precautions or evacuation routes.

RESTRICTED AREA ALERT

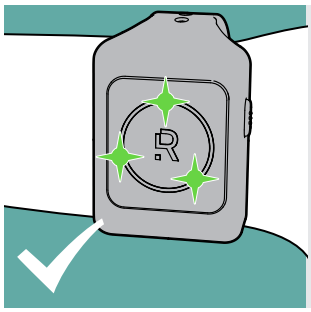
Dangerous or restricted areas on site can be marked as off-limits for non-authorized personnel. The user is alerted when approaching and entering these areas.



- **When approaching a restricted area:**
  The Light-ring indicator slowly flashes orange. Depending on your distance, Romware ONE™ starts vibrating in a long intermittent pattern.



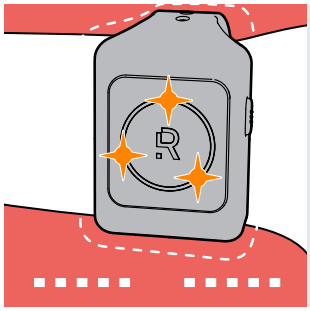
- **When entering a restricted area:**
  Romware ONE™ vibrates in an intermittent pattern. The light-ring indicator flashes red. Leave the restricted area immediately.



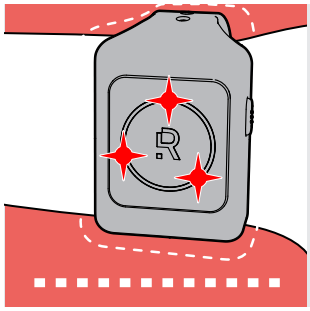
- **When back in a safe zone:**
  Romware ONE™ stops vibrating and the light-ring indicator flashes green for a brief period of time.

VEHICLE PROXIMITY WARNING

Romware ONE™ can warn users of approaching vehicles equipped with Romware™ technology, helping to avoid a collision.



- **When a Romware-equipped vehicle approaches:**
  The Light-ring indicator quickly flashes orange as a warning of its approach.
- **If the vehicle moves closer:**
  The light ring keeps flashing orange, Romware ONE™ vibrates in an intermittent, pulsating pattern.



- **If the vehicle moves dangerously close:**
  The light ring quickly flashes red, Romware ONE™ vibrates in an constant pulsating pattern, warning you of an imminent collision with the vehicle.

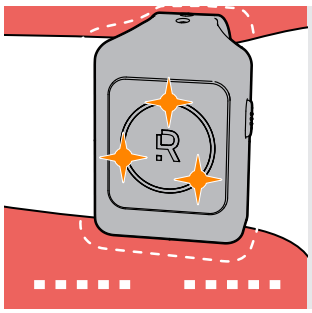
CAUTION

DISTANCE OF ALERTS CAN VARY

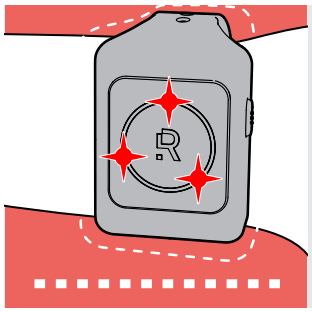
Keep in mind that distances corresponding with safe, warning and dangerous alerts are not the same for each vehicle. They are programmed for different kinds of vehicles, dependent on for example speed and typical driving patterns. Additionally, the warning distance can be different at for example potential blind spots of specialized vehicles.

COVID RADIUS™
SOCIAL DISTANCE WARNING

When Romware ONE™ is equipped with the COVID Radius™ option, social distancing between workers is ensured by alerting them if they come too close to each other.



- **Social distancing warning treshhold:**
  When another person with a COVID Radius™ equipped device approaches you at less than the predefined warning distance, Romware ONE™ flashes orange and vibrates in an intermittent, pulsating pattern.



- **Social distancing alarm treshhold:**
  When another person with a COVID Radius™ equipped device approaches you at less than the dangerous social distancing alarm distance, Romware ONE™ flashes red and vibrates in a constant pulsating pattern

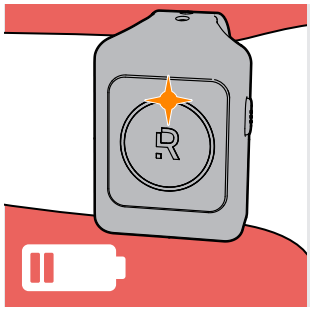
CAUTION

DISTANCE OF ALERTS VARY IN DIFFERENT LEGISLATIONS

The allowed distances for social distancing vary for different countries and regions. COVID Radius™ is preprogrammed for the site regulations and applicable laws the device is meant to be used in.

BATTERY LEVEL AND CHARGING

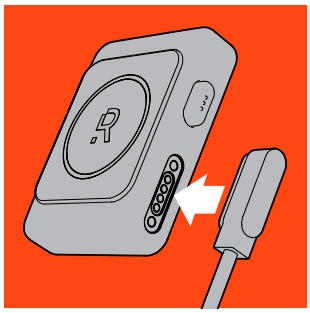
BATTERY LEVEL ALERTS



- **When the battery is getting low:**
  The top of the light ring blinks orange when the battery level is below 15%.
- **When the battery is almost empty:**
  When below 5%, Romware ONE™ vibrates with two short pulses, the top of the light ring blinks red. Charge the device as soon as possible.

CHARGING

To charge Romware ONE™ , use only the included Romware™ magnetic USB charging cable. This cable can connect to standard 5W or higher USB certified power adaptors.



- **Remove Romware ONE™ from the wristband, and make sure it is powered off.**
- **Connect the charging cable to the charging port on the side of Romware ONE™**
  The cable snaps to the casing magnetically
- **Connect the charging cable to a powered USB port.**

- **While charging:**
  The top of the light ring slowly blinks orange.
- **When fully charged:**
  The top of the light ring lights up solid green.
- Depending on battery level and charger speed, Romware ONE™ will be fully charged in about 1 to 2 hours.

CAUTION

Keep Romware ONE™ and the power adapter in a dry, well-ventilated area when charging. Don't use a charging cable or power adapter that is damaged or modified. Failure to do so may cause fire, electric shock, injury, or damage to Romware ONE™ or other property.

Although it is designed to comply to standard temperature limits. Romware ONE™ can become warm to the touch when plugged into a power source. Don't wear Romware ONE™ on your body or under clothing when charging the device.

4. CARE INFORMATION

CLEANING THE WRIST STRAP

- Clean the wrist strap regularly. The wrist strap is made of high-purity silicone, and can be cleaned with a mild soap solution and warm water.
- Do not use abrasive cleaners or silicone-oil based products on the wrist strap, as it can deteriorate the material.
- The strap can be disinfected by autoclave or boiling, if recommended. Remove the Romware ONE™ casing from the wrist strap before doing so. Alternatively, the strap can be sanitized by wiping it with isopropyl alcohol.
- After cleaning, dry the wrist strap with a clean, lint-free cloth and let it air dry before using it again.

CLEANING THE DEVICE CASING

- Clean the casing of Romware ONE™ with a damp cloth or a mild soap solution. Don't use abrasive cleaners.
- The casing of Romware ONE™ can be sanitized by wiping it with isopropyl alcohol. Do not boil or autoclave the casing of Romware ONE™, as this may cause permanent damage to the device.
- After cleaning, dry the casing of Romware ONE™ with a clean, lint-free cloth and let it air dry before using it again.

SPECIFIC GUIDELINES FOR COVID-19

COVID-19 related viruses are known to withstand more than 48 hours on surfaces under certain conditions. As a precautionary measure, Rombit recommends following this guidance for cleaning and disinfecting both the casing and strap, especially when passing on the product to another person.

- Wipe the device and strap thoroughly with a 70% v/v solution of isopropanol or ethanol, with a clean soft cloth. Using disposable individually wrapped isopropyl alcohol wipes is a good method for preventing cross-contamination.
- The efficacy of disinfectants is reduced on dirty surfaces. When the device or strap are visibly dirty, clean them first with a mild soap solution and rinse with water before disinfecting.

This guidance is based on the latest recommendations of the European Center of Disease Prevention and Control at the time of writing (Interim guidance for environmental cleaning in non-healthcare facilities exposed to SARS-CoV-2, technical report 2/2020). As the effectiveness of certain cleaning products and disinfectants against COVID-19 are not yet fully known by health authorities, Rombit recommends checking the latest guidelines, which can be found on www.ecdc.europa.eu.

NOTICE

ALLERGY INFORMATION

Romware ONE™ is designed to the highest safety standards and manufactured from high-purity materials. The wrist strap is designed to eliminate skin contact to known allergens such as nickel, acrylates and methacrylates and is latex and BPA-free.

- The materials used in Romware ONE™ and the Romware ONE™ wrist strap meet the standards set for jewelry, drinking water and food contact by applicable European, US, and other international regulations.

- As with all things worn close to the body, moisture and bacteria can cause irritation when wearing a wet or dirty wristband for extended periods of time. If you have known skin sensitivities, please take special care when wearing Romware ONE™. Clean the band and wrist regularly, especially after intense sweating or working in very dirty environments. Be aware that products such as lotions, perfume, soap or insect repellants are known to get trapped under items as jewelry and wristbands and cause irritation.

- Do not use aggressive products to clean the wristband. Keeping Romware ONE™ and the band clean and dry will reduce the possibility of skin irritation.

- Take off the safety wearable when not using it, to allow your skin to breathe. If you experience redness, swelling, itchiness, or other irritation on your skin around Romware ONE™, remove the device and consult your physician.

5. TECHNICAL DATA

Wireless technology	NFC tag
	GNSS/GPS
	UWB: Channel 5 (default), Channel 2 (for licensed customers only)
	For SKU RW01-E1: LTE-M or NB-2 / Bands 3, 20
	For SKU RW01-U1: LTE-M or NB-2 / Bands 2, 4, 12
Sensors	Acceleration, Gyro, Compass, Wrist detection
Indicators	Multicolor LED ring, vibration feedback
Battery	Lithium Polymer battery pack, 550 mAh
Power supply	5V, 1A max. through magnetic connector
Wrist strap material	High-purity food-safe silicone polymer, desinfectable
Wrist strap safety release	50 N
Dimensions and weight	
Romware ONE™	57 mm x 44 mm x 13.9 mm, 28g
Wrist Strap (closed)	65 mm x 46 mm x 85 mm, 25g
Water and dust resistance	IP67 rated
Ambient conditions	
Operation	-20°C to 55°C, 0 % to 98 % relative humidity
Storage	-20°C to 60°C, 0 % to 98 % relative humidity
Charging	0°C to 40°C (device is off during charging)
Altitude	0 to 2000m (operation and storage)

6. REGULATORY COMPLIANCE

FOR SKU RW01-E1 ONLY:

The manufacturer, Rombit N.V., Meir 30 2000 Antwerp, Belgium declare that the product Romware ONE™ RW01-E1 is conformal to the following directives and standards:

2014/53/EU (Radio Equipment Directive)
Article 3.1a
- IEC 62368-1: 2014; EN62368-1: 2014 + A11: 2017,
- EN 50566 : 2017
- EN 62479 : 2010
- EN 62209-2 : 2010

Article 3.1b
- EN 55032 : 2015 + AC: 2016-07
- EN 301 489-1 V2.2.3: 2019-11
- EN 301 489-3 V2.1.1: 2019-03
- EN 301 489-19 V2.1.1: 2019-04
- EN 301 489-52 V1.1.0 2016-11(Draft)
- EN 61000-4-2: 2009; EN 61000-4-3: 2006 + A1: 2008 + A2: 2010
- EN 61000-4-4: 2012; EN 61000-4-6: 2014
- Draft ETSI EN 301 489-1 V2.2.0: 2017-03
- ETSI EN 301 489-33 V2.2.1: 2019-04

Article 3.2
- EN 303 413 V1.1.1: 2017-06
- EN 301 908-1 V11.1.1: 2016-07
- EN 301 908-13 V13.1.1: 2019-11
- EN 302 065-2 V2.1.1: 2016-11

2011/65/EU (RoHS)
2013/56/EU (Battery)
- IEC 62133-2:2017

This declaration of conformity is issued under the exclusive responsibility of the manufacturer, importer or authorized representative.
Antwerp 2020-05-28,

Rombit N.V.
John Baekelmans, CEO

FOR SKU RW01-U1 ONLY:

FCC ID: 2AVTBRW01U1

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.

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: 2AVTBRW01U1

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