



# CORIS INNOVATION

User manual

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Version 1.0


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# Safety precautions

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 **WARNING** • Before using, read these user's manuals of this projector to ensure correct usage through understanding. After reading, store them in a safe place for future reference. Incorrect handling of this product could possibly result in personal injury or physical damage. The manufacturer assumes no responsibility for any damage caused by mishandling that is beyond normal usage defined in these manuals of this projector.

## Warnings

-  Never disassemble and modify, modification and/or disassembly of the product could result in electrical shock, or any kind of injury.
-  Use special caution for children and pets, especially in households where they are present.
-  Be careful in charging the device, it can cause a fire or electrical shock. Do not apply too much heat, pressure or tension to the power cord and cables.
-  Do not attach anything other than specified things to the device, neglect could result in an injury or damage.

# Get Started

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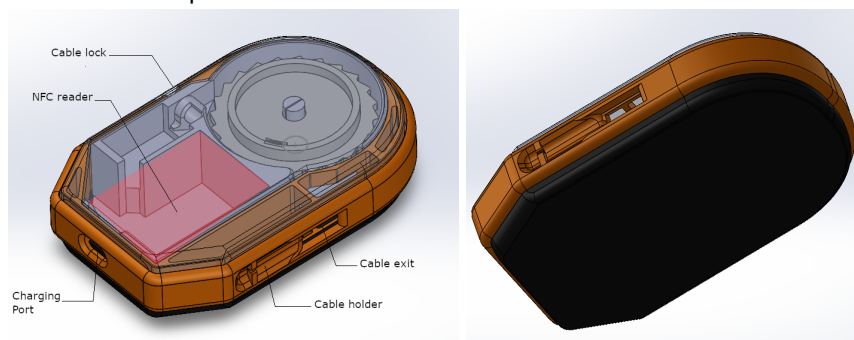
SportShield is an innovative anti-theft device designed for sports equipment, equipped with sensors and actuators to detect movement, activate an alarm, and notify the owner.

**SportShield is still in development. This prototype doesn't include yet all the features that we are planning to implement.**

## What's in the box

Your SportShield includes:

- An anti-theft SportShield device



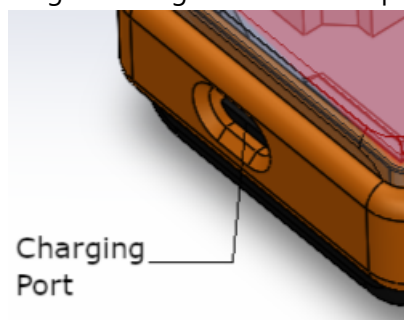
- A charger
- This user manual

## Charge your SportShield

If the SportShield device runs out of battery, it won't work anymore until it gets charged. A fully-charged SportShield can last over 6 days.

To charge SportShield:

1. Plug the charger into the USB port on the SportShield.



2. Plug the other end of the charger into an outlet.

The SportShield is now charging.

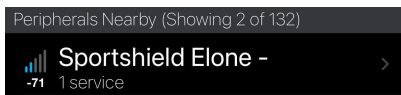
**CAUTION:** Try to not use SportShield during its charging.

## Set up SportShield

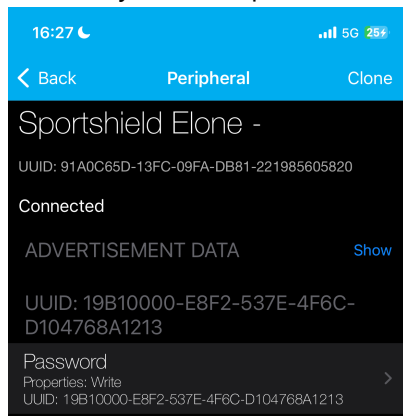
To fully use the SportShield device, you'd need to set up a few things with your smartphone. You can either set up by Bluetooth, with a NFC card or with the SportShield app.

By Bluetooth:

- Enable your Bluetooth connection on your phone.
- You should find a device named "SportShield".



- Connect your smartphone with the device.



With a NFC card:

- Make contact between the NFC device and the SportShield.

Regarding the SportShield app, see the [dedicated manual part](#).

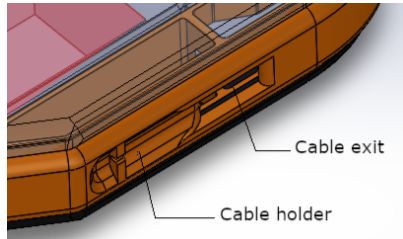
The SportShield is now set up, you can use it whenever and wherever you want.

# How to lock SportShield

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The SportShield prevents your sports belongings from thieves. Its installation deals with a few steps:

1. Wind the cable from the cable exit of the SportShield device.
2. Surround your belongings with the cable.
3. Attach the cable to the cable holder.



If SportShield is not connected to your smartphone or with a NFC card, it won't work as expected. Refer to the [set up part](#).

The SportShield is now locked and you won't be able to pull the cable anymore, if you don't unlock it.

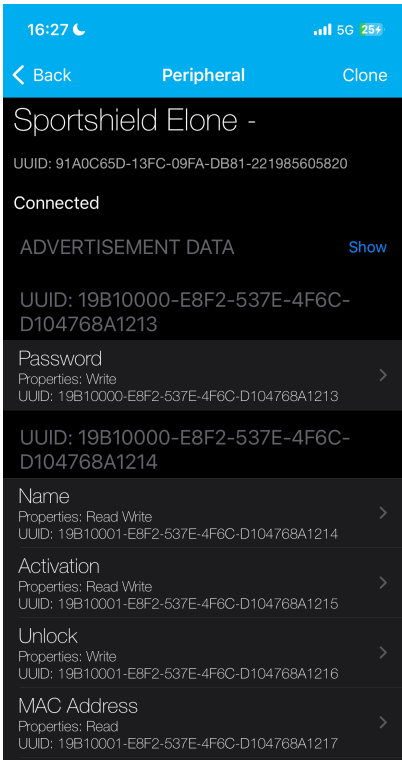
You'll receive a notification if the SportShield detects a shock.

For more information about notifications, refer to the [dedicated manual part](#).

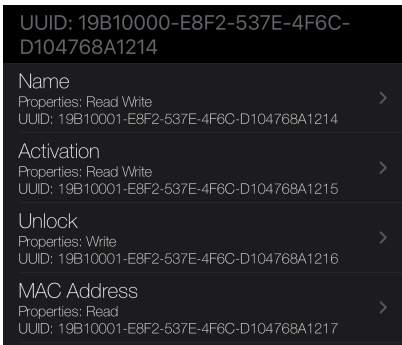
# How to unlock SportShield

SportShield's uninstallation is quite simple. You can unlock it either by Bluetooth or with the app.  
By Bluetooth:

- 1. Go to your Bluetooth settings.



- 2. Click on the "Unlock" button to unlock SportShield.



With a NFC card:

- Make contact between the NFC device and the SportShield.

Regarding the SportShield app, see the [dedicated manual part](#).

The SportShield is now unlocked. The alarm won't ring and you can take your device back.

# Alarm

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When the SportShield is locked, each detected shock will ring an alarm.

The alarm intensity depends on the shock intensity:

- 3 light sounds when a light shock is detected.
- 5 long high sounds when a strong shock is detected.

Moreover, you can stop the alarm whenever you want. To do so, you can use either the Bluetooth or the app.

By Bluetooth: these are the same steps as [to unlock SportShield](#).

With the NFC card, these are the same steps as [to unlock SportShield](#).

Regarding the SportShield app, see the [dedicated manual part](#).

When the alarm rings, a notification is sent to the linked smartphone.

For more information about notifications, refer to the [dedicated manual part](#).



# App

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The SportShield app would be available either on the Apple App Store and the Google Play Store. Even though, the app has not been synchronized with the SportShield device yet.

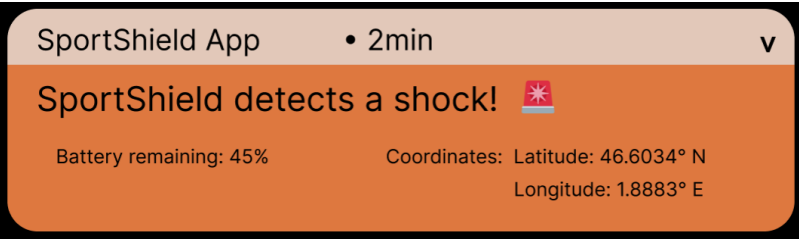
In this user manual, you won't be able to find any useful information about this application for the moment.

# Notifications

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Since no application has been synchronized with the SportShield device, the implemented simulation reproduces perfectly how it would work.

The notifications contain some information about the device, such as the GPS coordinates (longitude latitude) and the remaining battery percentage.



# General Info and Specifications

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## Components

Here's a list of the components a SportShield device contains:

- Xiao BLE Sense nrf52840
- GNSS PA1010D
- GSM/2G SIM800L Module
- Electromagnet
- Piezoelectric Buzzer
- Lithium-Polymer Battery
- NFC Antenna

## Robustness Assurance

Since the SportShield is an anti-theft device, it has to be resistant enough, meeting some resistance criteria.

**Waterproofness:** SportShield has to be waterproof, meeting IP ratings of IP65, 66 or 67

**Cold-resistance:** SportShield has to be cold-resistant, meeting TCR ratings from 0 to 50 ppm/°C

**Hot-resistance:** SportShield has to be hot-resistant, meeting TCR ratings from 100 to 500 ppm/°C

**Robustness:** SportShield has to be resistant enough against break-in attempts

### Anti-theft Cable

**The cable in itself has some adjustments to meet the resistance criteria.**

For physical security, a multi-layered cable and electromagnetic lock have been implemented. Moreover, the cable automatically retracts into the housing and prevents unwinding when locked.

## Environmental conditions

SportShield should have a 6 days autonomy in ambient environment.

Though, in cold environment, the device could consume 60% faster than usual (representing 3 days and 12 hours).

## Security

SportShield prioritizes the fundamental principles that are Confidentiality, Integrity, and Availability.

By meticulously categorizing data based on its potential impact if compromised, SportShield enforces stringent measures to thwart unauthorized access attempts, ensuring that confidential data remains secure and inaccessible to unauthorized entities.

By fortifying data against unauthorized alterations, such as when a thief would want to corrupt your SportShield device, SportShield guarantees the integrity of critical information.

## Glossary

A **Near Field Communication (NFC) card** is a type of smart card equipped with NFC technology. It contains an embedded NFC chip that allows it to communicate wirelessly with NFC-enabled devices, such as smartphones, identification and payment terminals, over short distances (typically within a few centimeters).

A **multi-layered cable** is a type of electrical cable composed of multiple layers of different materials, each serving a specific purpose. These cables are commonly used in various applications where specific performance characteristics are required.

An **electromagnetic lock**, also known as a maglock, is a type of locking device commonly used in access control systems to secure doors and gates. It consists of an electromagnet and an armature plate. When power is applied to the electromagnet, it generates a magnetic field that attracts and holds the armature plate, thus securely locking the device.

The **Ingress Protection (IP) rating** is a standard classification system used to define the degree of protection provided by an enclosure against intrusion of solid objects like dust and water. The higher the IP rating, the greater the protection against ingress of solids and liquids.

The **Temperature Coefficient of Resistance (TCR)** is a measure of how the electrical resistance of a material changes with temperature. TCR is typically expressed in parts per million per degree Celsius (ppm/°C) or per Kelvin (ppm/K). In the context of cold-resistance, materials with low TCR ratings are desirable. Conversely, in the context of hot-resistance, materials with higher TCR ratings may be more suitable.

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