

Seal
Electronic Satellite

high-security for mobile asset protection

MICRO MOTORES®
Desarrollo de Soluciones Integrales

THUNDERLOCK®

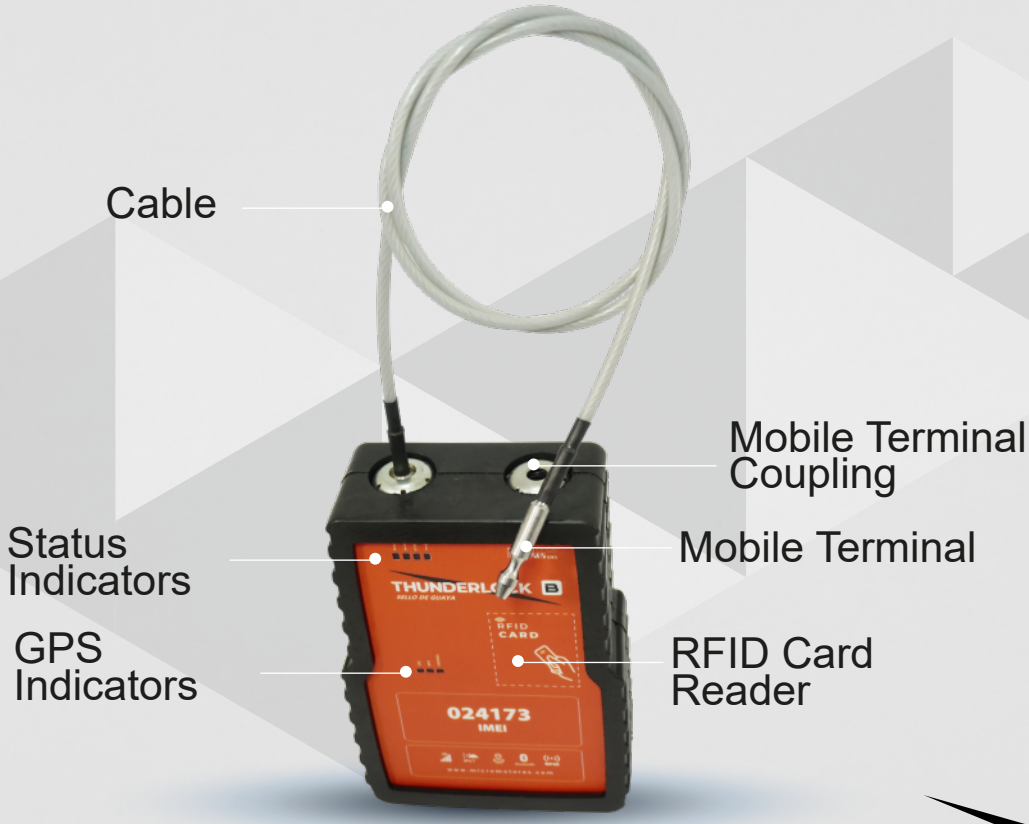


The THUNDERLOCK-B High-Security Electronic Satellite Seal for containers, cargo trucks, trailers, and all types of mobile assets is an integrated system featuring a steel cable electronic lock or seal. It is highly resistant to impacts, vandalism, and extreme environmental conditions, enabling the protection, tracking, and real-time monitoring of goods in transit.

Additionally, it can be used in a wide range of security applications, as it allows for securing and protecting high-value assets—both mobile and stationary—as well as controlling and monitoring access to doors and vulnerable or hard-to-reach areas.

MAIN FEATURES

- Remote unlocking from a control center through tracking and access control software. Allows unlocking with different authorization levels.
- Contingency unlocking using RFID cards (up to 50 cards).
- Unlocking via Bluetooth application.
- Cable cut detection.
- Sensors for detecting the seal's opening and closing.
- Tracking controls such as: start and end of loading, start and end of movement, periodic positioning reports, and overspeed alerts; control through remote OTA command transmission.
- IP67 protection rating.
- 2G / 3G / 4G cellular technology.
- 17,800 mAh battery.
- Configuration via USB Type-C serial port.
- Magnet removal alert.



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Charging Port

Buzzer

Protective Rubber

Magnetic Base



Electronic Stainless Steel Cable:

The Electronic Cable* is made of 3/16" gauge stainless steel with an external Nylon coating and an internal Kevlar lining. (1/4" gauge including the coating) It is the most important component of the seal because it prevents unauthorized access through cutting or tampering. It incorporates a clever "Anti-Bypass" security system, immune to any attempt to deceive the seal via electrical bypass.

Mobile Terminal Coupling:

Coupling made of stainless steel with a waterproof system that prevents water ingress into the device and allows mechanical adjustment of the fixed cable terminal.

Mobile Terminal:

Stainless steel terminal with a neodymium magnet at the tip for secure attachment to the coupling and digital locking of the system.

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Status Indicator:
LEDs that display the current status of the device, including lock, unlock, faults, and Bluetooth interaction.

RFID Reader:
A card detection system that allows device unlocking when the card is already paired.

GPS Indicators:
LEDs that show the connectivity and battery status of the GPS device.

Charging Port:
European-style 12V DC charging connection with polarity protection.

Buzzer:
An audible indicator that signals device unlocking, locking, or faults.

Protective Rubber:
A protective casing accessory that reduces impact force on the unit and prevents damage during heavy-duty use.

Magnetic Base:
A magnetic system consisting of two neodymium magnets capable of securing the device to containers or any metal surface to assist in installation.

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Electronic seal unlocking on the doors of a cargo container.

1





Seal unlocking via card, Bluetooth, or monitoring platform.

2





The green LED will indicate the seal's unlocking, allowing the cable to be pulled out for unwinding and removal from the door.

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Electronic seal locking on the doors of a cargo container.

1



Bring the seal close to attach it to the door, and pass the cable through the container bars.

2





Insert the cable terminal into the seal coupling, and the red LED will indicate that it is locked.

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Main Features

- Ultra-high capacity battery (17,800 mAh)
- High resistance to impacts and environmental conditions.
- Bluetooth connectivity.
- IP67 protection.
- OTA control.
- Configuration via USB Type-C serial port.
- Multiple transmission regime schemes.
- Internal Geofences.
- Power-On Report.
- Low Battery Alert.
- Magnet removal alert.

General Specifications (Interface):

- Internal battery: 17,800 mAh rechargeable lithium
- Operating voltage: 8 — 32 VDC
- SIM card size: 2FF
- Operating temperature: -15 to 60 °C
- Protection rating: IP67

Physical Specifications:

- Internal accelerometer
- Top status indicator LEDs: — Red: locked — Green: unlocked — Blue: RFID opening permission — Yellow: cable cut indicator
- Bottom status indicator LEDs: — Red: power — Green: data network — Blue: positioning

Logical Specifications:

- Periodic positioning reports
- Typical alerts: – Start/end of loading – Start/end of movement – Overspeed
- Storage buffer for up to 3,000 transmissions
- Control through remote OTA command transmission
- Power-saving modes



THUNDERLOCK®



dircomercial@micromotores.com

www.thunderlock.com.co

+57 601 231 1652

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